

**STATE OF OREGON
WATER RESOURCES DEPARTMENT**

RECEIPT # **7501**

158 12TH ST. N.E.
SALEM, OR 97310-0210
378-8455 / 378-8130 (FAX)

INVOICE # _____

RECEIVED FROM: Klamath Drainage
BY: Dist

APPLICATION	
PERMIT	
TRANSFER	

CASH: ☐ CHECK: # 24-22 OTHER: (IDENTIFY) ☐

TOTAL REC'D \$ 600.00

0417 WRD MISC CASH ACCT

ADJUDICATIONS	\$
PUBLICATIONS / MAPS	\$
OTHER: (IDENTIFY)	\$
OTHER: (IDENTIFY)	\$

REDUCTION OF EXPENSE

CASH ACCT.	\$
------------	----

PCA AND OBJECT CLASS

VOUCHER #

0427 WRD OPERATING ACCT

0407 MISCELLANEOUS		
0410 COPY & TAPE FEES		
0410 RESEARCH FEES		
0408 MISC REVENUE: (IDENTIFY)		
TC165 DEPOSIT LIAB. (IDENTIFY)		

IS 70812
IS 70813
IS 70094

WATER RIGHTS:

0201 SURFACE WATER	\$	0202	\$
0203 GROUND WATER	\$	0204	\$
0205 TRANSFER	\$	0206	\$

WELL CONSTRUCTION

0218 WELL DRILL CONSTRUCTOR	\$	0219	\$
LANDOWNER'S PERMIT		0220	\$

0223 OTHER (IDENTIFY) Protest RA 77235 \$ 600.00

0437 WELL CONST. START FEE

0211 WELL CONST START FEE	\$	CARD #	
0210 MONITORING WELLS	\$	CARD #	
OTHER (IDENTIFY)			

0539 LOTTERY PROCEEDS

1302 LOTTERY PROCEEDS	\$
-----------------------	----

0467 HYDRO ACTIVITY

LIC NUMBER	
0233 POWER LICENSE FEE (FW/WRD)	\$
0231 HYDRO LICENSE FEE (FW/WRD)	\$
HYDRO APPLICATION	\$

RECEIPT # **7501**

DATED: 10-11-96 BY: C. Riel

Distribution-White Copy-Customer, Yellow Copy-Fiscal, Blue Copy-File, Buff Copy-Fiscal

**STATE OF OREGON
WATER RESOURCES DEPARTMENT**

158 12TH ST. N.E.

SALEM, OR 97310-0210

378-8455 / 378-8130 (FAX)

RECEIPT # **7504**

INVOICE # _____

RECEIVED FROM: DeGum & Sonach
BY: _____

APPLICATION	70094
PERMIT	
TRANSFER	

CASH: ☐ CHECK: # 11-49 OTHER: (IDENTIFY) ☐

TOTAL REC'D \$ 200.00

0417 WRD MISC CASH ACCT

ADJUDICATIONS

\$

PUBLICATIONS / MAPS

\$

OTHER: (IDENTIFY) _____

\$

OTHER: (IDENTIFY) _____

\$

REDUCTION OF EXPENSE

CASH ACCT.

\$

PCA AND OBJECT CLASS

VOUCHER #

0427 WRD OPERATING ACCT

MISCELLANEOUS

0407 COPY & TAPE FEES

\$

0410 RESEARCH FEES

\$

0408 MISC REVENUE: (IDENTIFY) _____

\$

TC165 DEPOSIT LIAB. (IDENTIFY) _____

\$

WATER RIGHTS:

0201 SURFACE WATER

EXAM FEE

\$

0202

RECORD FEE

\$

0203 GROUND WATER

\$

0204

\$

0205 TRANSFER

\$

0206

\$

WELL CONSTRUCTION

EXAM FEE

\$

0219

LICENSE FEE

\$

0218 WELL DRILL CONSTRUCTOR

0220

\$

LANDOWNER'S PERMIT

0223 OTHER (IDENTIFY) Protest PRA 77235 \$1200.00

0437 WELL CONST. START FEE

0211 WELL CONST START FEE

\$

CARD #

0210 MONITORING WELLS

\$

CARD #

OTHER (IDENTIFY) _____

0539 LOTTERY PROCEEDS

1302 LOTTERY PROCEEDS

\$

0467 HYDRO ACTIVITY

LIC NUMBER

0233 POWER LICENSE FEE (FW/WRD)

\$

0231 HYDRO LICENSE FEE (FW/WRD)

\$

HRDRO APPLICATION

\$

RECEIPT # **7504**

DATED: 10-11-96

BY: C. Ric

Distribution-White Copy-Customer, Yellow Copy-Fiscal, Blue Copy-File, Buff Copy-Fiscal

STATE OF OREGON
WATER RESOURCES DEPARTMENT

RECEIPT # **7487**

158 12TH ST. N.E.
SALEM, OR 97310-0210
378-8455 / 378-8130 (FAX)

INVOICE # _____

RECEIVED FROM: <u>KE Jeanie Moore</u>	APPLICATION <u>70094</u>
BY: _____	PERMIT _____
	TRANSFER _____

CASH: ☐ CHECK: # 7553 OTHER: (IDENTIFY) M/O TOTAL REC'D \$ 200.-

0417 WRD MISC CASH ACCT

ADJUDICATIONS	\$
PUBLICATIONS / MAPS	\$
OTHER: (IDENTIFY)	\$
OTHER: (IDENTIFY)	\$

REDUCTION OF EXPENSE

CASH ACCT.	\$
------------	----

PCA AND OBJECT CLASS	VOUCHER #
----------------------	-----------

0427 WRD OPERATING ACCT

PCA 77235

MISCELLANEOUS	
0407 COPY & TAPE FEES	\$
0410 RESEARCH FEES	\$
0408 MISC REVENUE: (IDENTIFY)	\$
TC165 DEPOSIT LIAB. (IDENTIFY)	\$

WATER RIGHTS:	EXAM FEE	RECORD FEE
0201 SURFACE WATER	\$	0202 \$
0203 GROUND WATER	\$	0204 \$
0205 TRANSFER	\$	0206 \$
WELL CONSTRUCTION	EXAM FEE	LICENSE FEE
0218 WELL DRILL CONSTRUCTOR	\$	0219 \$
LANDOWNER'S PERMIT		0220 \$

0223 OTHER (IDENTIFY) Protest \$200.-

0437 WELL CONST. START FEE

0211 WELL CONST START FEE	\$	CARD #
0210 MONITORING WELLS	\$	CARD #

OTHER (IDENTIFY) _____

0539 LOTTERY PROCEEDS

1302 LOTTERY PROCEEDS	\$
-----------------------	----

0467 HYDRO ACTIVITY

	LIC NUMBER	
0233 POWER LICENSE FEE (FW/WRD)		\$
0231 HYDRO LICENSE FEE (FW/WRD)		\$
HRDRO APPLICATION		\$

RECEIPT # **7487**

DATED: 10-11-96 BY: R. Bushnell

Distribution-White Copy-Customer, Yellow Copy-Fiscal, Blue Copy-File, Buff Copy-Fiscal

STATE OF OREGON
WATER RESOURCES DEPARTMENT

RECEIPT # **7487**

158 12TH ST. N.E.
SALEM, OR 97310-0210
378-8455 / 378-8130 (FAX)

INVOICE # _____

RECEIVED FROM: <u>KE Jeanie Moore</u>	APPLICATION <u>70094</u>
BY: _____	PERMIT _____
	TRANSFER _____

CASH: ☐ CHECK: # 7553 OTHER: (IDENTIFY) M/O TOTAL REC'D \$ 200.-

0417 WRD MISC CASH ACCT

ADJUDICATIONS	\$
PUBLICATIONS / MAPS	\$
OTHER: (IDENTIFY)	\$
OTHER: (IDENTIFY)	\$

REDUCTION OF EXPENSE

CASH ACCT.	\$
------------	----

PCA AND OBJECT CLASS	VOUCHER #
----------------------	-----------

0427 WRD OPERATING ACCT

PCA 77235

MISCELLANEOUS	
0407 COPY & TAPE FEES	\$
0410 RESEARCH FEES	\$
0408 MISC REVENUE: (IDENTIFY)	\$
TC165 DEPOSIT LIAB. (IDENTIFY)	\$

WATER RIGHTS:	EXAM FEE	RECORD FEE
0201 SURFACE WATER	\$	0202 \$
0203 GROUND WATER	\$	0204 \$
0205 TRANSFER	\$	0206 \$
WELL CONSTRUCTION	EXAM FEE	LICENSE FEE
0218 WELL DRILL CONSTRUCTOR	\$	0219 \$
LANDOWNER'S PERMIT		0220 \$

0223 OTHER (IDENTIFY) Protest \$200.-

0437 WELL CONST. START FEE

0211 WELL CONST START FEE	\$	CARD #
0210 MONITORING WELLS	\$	CARD #

OTHER (IDENTIFY) _____

0539 LOTTERY PROCEEDS

1302 LOTTERY PROCEEDS	\$
-----------------------	----

0467 HYDRO ACTIVITY

	LIC NUMBER	
0233 POWER LICENSE FEE (FW/WRD)		\$
0231 HYDRO LICENSE FEE (FW/WRD)		\$
HRDRO APPLICATION		\$

RECEIPT # **7487**

DATED: 10-11-96 BY: R. Bushnell

Distribution-White Copy-Customer, Yellow Copy-Fiscal, Blue Copy-File, Buff Copy-Fiscal

**STATE OF OREGON
WATER RESOURCES DEPARTMENT**

RECEIPT # **7525**

158 12TH ST. N.E.
SALEM, OR 97310-0210
378-8455 / 378-8130 (FAX)

INVOICE # _____

RECEIVED FROM: Stoll River
BY: _____

APPLICATION	70094
PERMIT	
TRANSFER	

CASH: ☐ CHECK: # 24-12 OTHER: (IDENTIFY) _____

TOTAL REC'D \$ 200.

0417 WRD MISC CASH ACCT

ADJUDICATIONS

PUBLICATIONS / MAPS

OTHER: (IDENTIFY) _____

OTHER: (IDENTIFY) _____

**RECEIVED
OVER THE COUNTER**

\$
\$
\$
\$

REDUCTION OF EXPENSE

CASH ACCT.

PCA AND OBJECT CLASS

VOUCHER #

\$

0427 WRD OPERATING ACCT

MISCELLANEOUS

0407 COPY & TAPE FEES

0410 RESEARCH FEES

0408 MISC REVENUE: (IDENTIFY) _____

TC165 DEPOSIT LIAB. (IDENTIFY) _____

WATER RIGHTS:

0201 SURFACE WATER

0203 GROUND WATER

0205 TRANSFER

WELL CONSTRUCTION

0218 WELL DRILL CONSTRUCTOR

LANDOWNER'S PERMIT

0223 OTHER (IDENTIFY) Protest \$200.

EXAM FEE

\$

\$

\$

EXAM FEE

\$

\$

RECORD FEE

\$

\$

\$

LICENSE FEE

\$

\$

0437 WELL CONST. START FEE

0211 WELL CONST START FEE

0210 MONITORING WELLS

OTHER (IDENTIFY) _____

\$
\$

CARD #
CARD #

0539 LOTTERY PROCEEDS

1302 LOTTERY PROCEEDS

\$

0467 HYDRO ACTIVITY

LIC NUMBER

0233 POWER LICENSE FEE (FW/WRD)

0231 HYDRO LICENSE FEE (FW/WRD)

HRDRO APPLICATION

\$
\$
\$

RECEIPT # **7525**

DATED: 10-11-96

BY: D. Buxnell

Distribution-White Copy-Customer, Yellow Copy-Fiscal, Blue Copy-File, Buff Copy-Fiscal

CC: Adam

STOEL RIVES LLP

A T T O R N E Y S

STANDARD INSURANCE CENTER
900 SW FIFTH AVENUE, SUITE 2300
PORTLAND, OREGON 97204-1268

Phone (503) 224-3380 Fax (503) 220-2480

TDD (503) 221-1045

Internet: www.stoel.com

May 16, 1997

RECEIVED

MAY 19 1997

WATER RESOURCES DEPT.
SALEM, OREGON

WILLIAM H. HOLMES

Direct Dial

(503) 294-9207

email whholmes@stoel.com

Mr. Dwight French
Water Rights and Adjudication Division
Oregon Water Resources Department
158 12th Street, N.E.
Salem, OR 97310-0210

Re: Instream Flow Application Nos. IS-73368, IS-73369, IS-73370,
IS-73371, IS-70094, IS-70812, IS-70813, IS-71172, IS-71173,
IS-71174, IS-71175, IS-73350, IS-70695, IS-73379

Dear Mr. French:

The Water Resources Department (the "Department") recently issued a series of superseding proposed final orders ("PFOs") for four instream water rights applications in the Rogue River Basin. The applications were originally submitted by the Oregon Department of Fish and Wildlife ("ODFW") and include Applications IS-73368, IS-73369, IS-73370, and IS-73371. PacifiCorp operates hydroelectric facilities on the Rogue River and, on behalf of PacifiCorp, we have filed protests to all four applications.

PacifiCorp is prepared, however, to enter into a global settlement with ODFW concerning the various instream rights that affect rivers where PacifiCorp conducts hydroelectric operations. The language that the Department added to the superseding Rogue River PFOs provides a good starting point.

If the Department, ODFW, and PacifiCorp can agree on the following points, PacifiCorp would be willing to withdraw its objections to the instream water rights that it has protested:

1. PacifiCorp's hydroelectric facilities on the Rogue River and elsewhere are federally licensed. Therefore, condition no. 6 in the Rogue River Draft Certificates, (including IS-73368, IS-73369, IS-73370, and IS-73371) should be amended as follows:

Mr. Dwight French
May 16, 1997
Page 2

“6. The instream water right will have no effect on hydroelectric uses authorized by the State of Oregon or any federal agency.” (Emphasis shows addition.)

2. Condition Nos. 6 (as amended above), 7, and 8,¹ which were added to the Rogue River Draft Certificates, should be added to the certificates accompanying the following applications: IS-70094, IS-70812, and IS-70813 (Klamath Basin); IS-71172, IS-71173, IS-71174, IS-71175, and IS-73350 (North Umpqua Basin); IS-70695 (Deschutes Basin); and IS-73379 (Rogue Basin).

3. PacifiCorp believes that ODFW's requested instream flows are too large and are not supported by substantial evidence in the record. This issue is partly resolved by Condition Nos. 6, 7, and 8, which make it clear that each instream flow is subordinate to PacifiCorp's hydroelectric rights. However, these conditions do not resolve PacifiCorp's remaining concern, which is that ODFW's claimed flow levels could be used against PacifiCorp in a future proceeding.

PacifiCorp believes that this issue can be resolved if ODFW submits for the record in each of the instream applications described above a letter stating that (1) ODFW recognizes that PacifiCorp disagrees with the instream flow levels proposed by ODFW; (2) the parties have agreed to disagree for purposes of the issuance of the instream water rights certificates; (3) ODFW will not attempt to use an instream water right in any future state or federal proceeding as evidence that PacifiCorp has agreed to or acquiesced in such instream flows; (4) PacifiCorp shall not be collaterally estopped or barred by administrative res judicata in any future state or federal proceeding to raise such arguments or introduce such evidence as it deems reasonable or appropriate regarding appropriate flow levels; (5) ODFW will negotiate in good faith should PacifiCorp ever request the use of additional stream flows that are in conflict with the instream rights, just as it has with respect to instream flows at the Powerdale facility in the Hood River; and (6) ODFW understands that these representations

¹ Conditions 7 and 8, as they appear in the Rogue River Draft Certificates, are as follows:

“7. The instream water right will not be enforceable against non-consumptive hydroelectric uses.

“8. The instream water right will have no call on water legally stored under a senior water right.”

STOEL RIVES LLP

Mr. Dwight French
May 16, 1997
Page 3

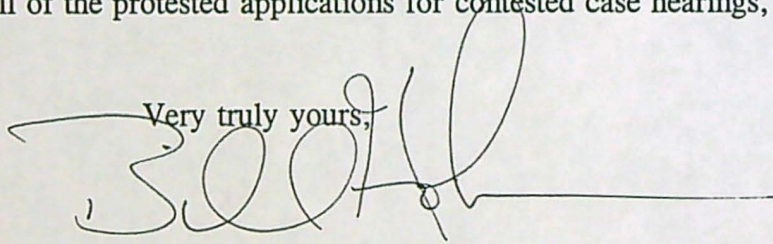
and understandings are a material inducement to PacifiCorp to withdraw its objections to the pending instream flow applications.

In exchange for these actions, PacifiCorp would be willing to withdraw its objections to all of the currently contested instream water rights applications and to dismiss its pending petition for review of IS-71175 (North Umpqua Basin). PacifiCorp v. Oregon Water Resources Department and Oregon Water Resources Commission, No. 96C14220.

After you have had an opportunity to review this settlement proposal, please contact me at 294-9207 or my associate, David Filippi, at 294-9529. We would, of course, be willing to meet with both Department and ODFW representatives to discuss a settlement of PacifiCorp's protests.

If ODFW is unwilling to further discuss settlement at this time, we request that the Department promptly schedule all of the protested applications for contested case hearings, as required by ORS 537.175.

Very truly yours,

A handwritten signature in black ink, appearing to read 'W. H. Holmes', with a long horizontal line extending to the right.

William H. Holmes

cc: William R. Cook, Esq.
Karen L. Moynahan, Esq.

INTEROFFICE MEMORANDUM

Water Rights Section

~~TO: Dick Bailey~~

FROM: Dwight French, x268 *DF*

DATE: March 26, 1997

RE: Water Availability for ISWR applications/files

You asked about the file copies of Estimated Average Natural Flow (EANF) for ISWR applications.

There is not a printout in each file similar to what you would generally see in an out of stream application file. The EANF information is in either the Technical Review (TR) or Initial Review (IR) as well as the Proposed Final Order (PFO).

During the processing of the ISWR applications, Rick Cooper and/or Ken Stahr would provide us with a electronic copy of the water availability information for a particular group of ISWR applications. We would then cut and paste that information directly into the TR or IR. When preparing the PFO, we would cut and paste from the TR or IR directly into the PFO.

In summary, our EANF numbers are in the TR or IR and the PFO for each particular ISWR application file.

cc: Mike Mattick

All Protested ISWR Files

Stream Applications with Protests
4/2/97

Basin	App Num
-------	---------

2

OK 71556 A
Total for Basin 2 : 1

OREGON DEPARTMENT OF FISH & WILDLIFE

4

OK 71793 W
OK 71798 W
72076 W
72077 W
72078 W
72079 W
72080 W
72081 W
Total for Basin 4 : 8

OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE

5

OK 70353 A
70354 A
OK 70357 A
70358 S
70358 S
70358 A
OK 70605 A
70606 S
70606 A
70612 A
70695 A
70695 A
73199 A
Total for Basin 5 : 13

OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE
OREGON DEPARTMENT OF FISH & WILDLIFE

6

Checked out to night
69949 A
69949 S
69951 S
69951 A
69958 S
69958 A
69958 S
69959 S

OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS

8
9
18
74
2
1
3
9
19
2
12
12

Stream Applications with Protests
4/2/97

Basin App Num

6

	69959	S	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69959	A	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69961	A	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69961	S	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69961	S	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69963	A	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69963	S	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
	69963	A	OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS
OK	70251	A	OREGON DEPARTMENT OF FISH & WILDLIFE
OK	70589	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70640	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70640	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70641	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70641	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70642	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70642	S	OREGON DEPARTMENT OF FISH & WILDLIFE
OK	70645	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70645	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70646	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70646	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70651	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70651	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70652	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70652	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70653	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70653	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70654	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70654	A	OREGON DEPARTMENT OF FISH & WILDLIFE
	70655	S	OREGON DEPARTMENT OF FISH & WILDLIFE
	70655	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 6 : 38

9

70863	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70864	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70870	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72163	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72168	S	OREGON DEPARTMENT OF FISH & WILDLIFE

Instream Applications with Protests

4/2/97

Basin	App Num
-------	---------

9

72168	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72169	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72169	S	OREGON DEPARTMENT OF FISH & WILDLIFE
72170	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72173	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72181	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72186	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72187	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72188	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72191	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72194	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 9 : 16

10

71450	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71455	S	OREGON DEPARTMENT OF FISH & WILDLIFE
71455	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 10 : 3

11

Dwight Done Right!

70020 A

OREGON DEPARTMENT OF FISH & WILDLIFE & PARKS

Total for Basin 11 : 1

12

71467	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71468	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71472	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 12 : 3

13

70486	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70487	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70656	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70657	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70658	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70659	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70662	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70663	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70664	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 13 : 9

4/2/97

DWF

Instream Applications with Protests

4/2/97

Basin

App Num

14

70824	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70826	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70829	S	OREGON DEPARTMENT OF FISH & WILDLIFE
70829	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70829	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70829	S	OREGON DEPARTMENT OF FISH & WILDLIFE
70830	S	OREGON DEPARTMENT OF FISH & WILDLIFE
70830	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70830	S	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 14 : 46

15

70982	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70993	A	OREGON DEPARTMENT OF FISH & WILDLIFE
70998	W	OREGON DEPARTMENT OF FISH & WILDLIFE
71008	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71201	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71614	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71622	A	OREGON DEPARTMENT OF FISH & WILDLIFE
72843	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 15 : 8

16

71172	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71173	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71174	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71181	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71182	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71183	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71184	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71185	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71190	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71192	A	OREGON DEPARTMENT OF FISH & WILDLIFE
71193	A	OREGON DEPARTMENT OF FISH & WILDLIFE
73350	A	OREGON DEPARTMENT OF FISH & WILDLIFE

Total for Basin 16 : 12

17

70228	A	OREGON DEPARTMENT OF FISH & WILDLIFE
-------	---	--------------------------------------

Instream Applications with Protests

4/2/97

Basin	App Num	
17		
	70229	A
	70230	A
	70348	S
	70348	A
	70448	S
	70448	A
	70574	A
	70877	A
	70891	A
	70895	A
	70895	A
	70915	A
	71697	A
	80446	A
Total for Basin 17 :	15	
173		

OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE
 OREGON DEPARTMENT OF FISH & WILDLIFE

March 17, 1997

John F. Cook
Acting Area Manager
Bureau of Reclamation
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

James K. Bryant
Chief, Water and Lands Division
Bureau of Reclamation
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

WATER

RESOURCES

DEPARTMENT

RE: Protest on Proposed Final Order - Instream Water Right
Applications IS-70813, IS-70812, IS-70094

Dear Mr. Cook and Mr. Bryant:

On October 11, 1996, the Department received your protests to the Proposed Final Orders for Instream Water Right Applications IS-70813, IS-70812, and IS-70094. The protests you submitted were within the protest deadline, however, they do not meet the requirements of a complete protest under Oregon Administrative Rules. The protests cannot be accepted.

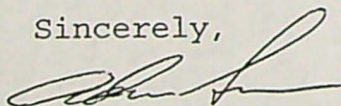
Specifically, under Oregon Administrative Rule 690-02-030 and 690-02-050, a complete protest must contain proof of service upon the applicant, Oregon Department of Fish and Wildlife. This requirement is described under "Protest Rights" on page (4) of the Proposed Final Orders. Your protest was not served on the applicant by mail or in person and therefore cannot be accepted.

I want to assure you that your comments remain an important part of the water right file. In developing the final order and certificate your comments will be considered along with any other protests and comments in the file.

By copy of this letter I am requesting the Department's fiscal section refund the fees you submitted in the amount of \$200.00 per application referenced above.

If you have any question please feel free to contact me at 1-800-624-3199 ex. 262.

Sincerely,



Adam Sussman
Program Analyst, Water Rights Section

cc: Dwight French, OWRD
Dick Bailey, OWRD
Rick Kruger, ODFW
Fiscal Section

Jerry Gainey, OWRD
File
Watermaster District 17
Bob Main, OWRD



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

WATER AVAILABILITY TABLE

Basin: KLAMATH

Exceedance Level: 50

Water Availability Subbasin: 0100000000000000 (and Nested Subbasins)

Time: 12:57

Date: 12/18/1996

Item #	W.A. Subbasin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sto
1	0100000000000000	YES	YES	YES	YES	YES	YES	NO	NO	NO	YES	NO	YES	YES

STREAM NAMES

Basin: KLAMATH

Water Availability Subbasin: 0100000000000000 (and Nested Subbasins)

Time: 12:57

Date: 12/18/1996

WAB #	Stream Name	Tributary to
0100000000000000	KLAMATH R ab HAYDEN CR	PACIFIC OCEAN

LIMITING WATER AVAILABILITY SUBBASINS

Water Availability Subbasin: 0100000000000000

Basin: KLAMATH

Exceedance Level: 50

Time: 12:57

Date: 12/18/1996

Month	Limiting Subbasin	Stream Name	Water Available?	Net Water Available
1	0100000000000000	KLAMATH R ab HAYDEN CR	YES	640.0
2	0100000000000000	KLAMATH R ab HAYDEN CR	YES	449.0
3	0100000000000000	KLAMATH R ab HAYDEN CR	YES	429.0
4	0100000000000000	KLAMATH R ab HAYDEN CR	YES	319.0
5	0100000000000000	KLAMATH R ab HAYDEN CR	YES	421.0
6	0100000000000000	KLAMATH R ab HAYDEN CR	YES	35.9
7	0100000000000000	KLAMATH R ab HAYDEN CR	NO	-479.0
8	0100000000000000	KLAMATH R ab HAYDEN CR	NO	-657.0
9	0100000000000000	KLAMATH R ab HAYDEN CR	NO	-530.0
10	0100000000000000	KLAMATH R ab HAYDEN CR	YES	151.0
11	0100000000000000	KLAMATH R ab HAYDEN CR	NO	-20.0
12	0100000000000000	KLAMATH R ab HAYDEN CR	YES	290.0
Stor	0100000000000000	KLAMATH R ab HAYDEN CR	YES	164000.0

DETAILED REPORT ON WATER AVAILABILITY

Basin: KLAMATH

Stream: KLAMATH R ab HAYDEN CR

Water Availability Subbasin: 0100000000000000

ID Number: 70094

Exceedance Level: 50

Time: 12:57

Date: 12/18/1996

Month	Natural Stream Flow	CU + Stor Prior to 1/1/93	Net Min. Flow 1/1/93	CU + Stor After 1/1/93	Net Min. Flow Now	Instream Water Rights	Net Water Available
1	2170.00	28.60	2140.00	0.41	2140.00	1500.00	640.00
2	2290.00	344.00	1950.00	0.61	1949.00	1500.00	449.00
3	2840.00	912.00	1930.00	0.61	1929.00	1500.00	429.00
4	3390.00	1570.00	1820.00	0.56	1819.00	1500.00	319.00
5	3230.00	2020.00	1210.00	0.68	1209.00	788.00	421.00
6	2780.00	1960.00	824.00	0.14	823.90	788.00	35.90
7	1900.00	1590.00	309.00	0.00	309.00	788.00	-479.00
8	1330.00	1200.00	131.00	0.00	131.00	788.00	-657.00
9	1160.00	902.00	258.00	0.00	258.00	788.00	-530.00
10	1260.00	321.00	939.00	0.28	939.00	788.00	151.00
11	1500.00	18.80	1480.00	0.01	1480.00	1500.00	-20.00
12	1810.00	23.40	1790.00	0.41	1790.00	1500.00	290.00
Stor	1540000	652000	885000	222	885000	822000	164000

DETAILED REPORT OF ISWRs

Basin: KLAMATH

Stream: KLAMATH R ab HAYDEN CR

Water Availability Subbasin: 0100000000000000

Time: 12:57

Date: 12/18/1996

-----ISWRs-----							
APP # :	-91401A	0	0	0	0	0	RESULTANT
STATUS: Scenic WW							
1	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X
2	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X
3	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X
4	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X
5	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
6	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
7	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
8	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
9	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
10	788.0	0.0	0.0	0.0	0.0	0.0	788.0 X
11	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X
12	1500.0	0.0	0.0	0.0	0.0	0.0	1500.0 X

March 17, 1997

John F. Cook
Acting Area Manager
Bureau of Reclamation
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

James K. Bryant
Chief, Water and Lands Division
Bureau of Reclamation
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

WATER

RESOURCES

DEPARTMENT

RE: Protest on Proposed Final Order - Instream Water Right
Applications IS-70813, IS-70812, IS-70094

Dear Mr. Cook and Mr. Bryant:

On October 11, 1996, the Department received your protests to the Proposed Final Orders for Instream Water Right Applications IS-70813, IS-70812, and IS-70094. The protests you submitted were within the protest deadline, however, they do not meet the requirements of a complete protest under Oregon Administrative Rules. The protests cannot be accepted.

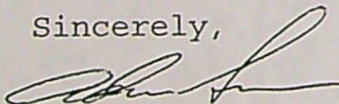
Specifically, under Oregon Administrative Rule 690-02-030 and 690-02-050, a complete protest must contain proof of service upon the applicant, Oregon Department of Fish and Wildlife. This requirement is described under "Protest Rights" on page (4) of the Proposed Final Orders. Your protest was not served on the applicant by mail or in person and therefore cannot be accepted.

I want to assure you that your comments remain an important part of the water right file. In developing the final order and certificate your comments will be considered along with any other protests and comments in the file.

By copy of this letter I am requesting the Department's fiscal section refund the fees you submitted in the amount of \$200.00 per application referenced above.

If you have any question please feel free to contact me at 1-800-624-3199 ex. 262.

Sincerely,



Adam Sussman
Program Analyst, Water Rights Section

cc: Dwight French, OWRD
Dick Bailey, OWRD
Rick Kruger, ODFW
Fiscal Section

Jerry Gainey, OWRD
File
Watermaster District 17
Bob Main, OWRD

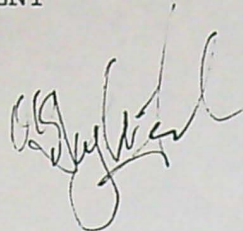


Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

STATE OF OREGON
WATER RESOURCES DEPARTMENT

INTEROFFICE MEMORANDUM

TO: MARIE LICARI, FISCAL
CC: FILE
FROM: Russ Klassen



SUBJECT: REQUEST FOR REFUND CHECK

PLEASE REFUND \$ 200⁰⁰ TO BUREAU OF RECLAMATION
FILE # 70094, RECEIPT # 7487. THESE FUNDS ARE
REFUNDED DUE TO :

_____ APPLICATION REJECTED
_____ APPLICATION WITHDRAWN
_____ EXCESS FEES COLLECTED FOR APPLICATION
_____ FILE CLOSED
X _____ PROTEST FILING FEE
_____ OTHER: _____

PLEASE INCLUDE THE FOLLOWING MAILING ADDRESS ON THE CHECK:

SEE 70812, 70813

.MAR 20 1997

STOEL RIVES LLP

ATTORNEYS

STANDARD INSURANCE CENTER
900 SW FIFTH AVENUE, SUITE 2300
PORTLAND, OREGON 97204-1268

Phone (503) 224-3380 Fax (503) 220-2480
TDD (503) 221-1045
Internet: www.stoel.com

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

October 11, 1996

PETER L. SERRURIER

Direct Dial Number
(503) 294-9190
internet:plserrurier@stoel.com

VIA HAND DELIVERY

Mr. Dwight French, Acting Administrator
Water Rights and Adjudications Division
Oregon Water Resources Department
158 12th Street NE
Salem, OR 97310

Re: Protest of PacifiCorp to the Proposed Final Order for Instream Water Rights Application No. 70094

Dear Mr. French:

PacifiCorp operates the Link River Dam and owns and operates the Eastside Power Plant, Westside Power Plant, the Keno Dam, the J.C. Boyle Dam and Powerhouse, COPCO I and II (dams and powerhouses), and the Iron Gate Dam and Powerhouse (collectively, the "Klamath River Projects") on the Klamath River in Klamath County, Oregon, and Siskiyou County, California. The Oregon Department of Fish and Wildlife ("ODFW") has submitted an application (application no. 70094) for an instream water right on the Klamath River. Because the instream right may affect PacifiCorp's operation of the Klamath River Projects, PacifiCorp has a strong interest in the Water Resources Department's (the "WRD" or "Department") review of this matter. PacifiCorp submits this protest to the Department's Proposed Final Order ("PFO") recommending the approval of application no. 70094.

The name of the protestant is PacifiCorp. Its address is 920 SW Sixth Avenue, 610 PSB, Portland, Oregon 97204. Mr. Stanley A. deSousa is the contact person at PacifiCorp (503/464-5343). All formal correspondence regarding the protest should be sent to me at the letterhead address with a copy to Mr. deSousa. Any questions or comments on technical or policy matters should be addressed to Mr. deSousa.

PDX1A-51057.1 58815-0017

SEATTLE

PORTLAND

VANCOUVER, WA

BOISE

SALT LAKE CITY

WASHINGTON, D.C.

618

RECEIVED

OCT 11 1996

Mr. Dwight French
October 11, 1996
Page 2

PacifiCorp's interest in the proposed final order ("PFO") is as a holder of a hydroelectric license and senior water rights for the Klamath River Projects. A detailed description of how the PFO would impair PacifiCorp's interest and how it is otherwise deficient is provided below, along with citations to legal authority supporting PacifiCorp's position. Although this protest attempts to raise all reasonably ascertainable issues, because PacifiCorp received actual notice of the PFO just three days before the close of the protest period, PacifiCorp reserves the right to raise additional issues after it has had an adequate opportunity to review the complete WRD file on this application.

A. BACKGROUND.

1. Klamath River Projects Description.

The Klamath River Projects are part of an interrelated system of hydropower projects that PacifiCorp operates in the Klamath River system. The Link River Dam and associated Eastside and Westside projects are the most upstream projects located within the city limits of Klamath Falls. Keno Dam is operated as a regulation facility and has no hydrogeneration facilities. J.C. Boyle, COPCO 1 and 2 and Iron Gate are hydrogeneration facilities. The Iron Gate facilities are farthest downstream (RM 190). A map of the Klamath River Projects is attached as Exhibit A. The Klamath River Projects are described more thoroughly in the attached "Biological Assessment of PacifiCorp and the New Earth Company Operations Associated with the Klamath Project" prepared by the U.S. Bureau of Reclamation in June 1996 (Exhibit B).

Link River Dam is operated pursuant to a contract between PacifiCorp and the U.S. Bureau of Reclamation. It stores 523,700 acre feet of water in Upper Klamath Lake. Keno Dam is downstream from Link River Dam and controls Lake Ewauna levels. It stores 18,500 acre feet. There is already an agreement between PacifiCorp and ODFW to release minimum flows of 200 cfs at Keno Dam. To assure that this flow is met, Keno Dam is typically operated using a release of 250 cfs or greater.

The J.C. Boyle facilities divert flow from the Klamath River between the dam and the powerhouse. There is 100 cfs released into the bypass reach and an additional 250 to 300 cfs of accretion flow occurs in the reach. J.C. Boyle dam stores 3,377 acre feet. River fluctuation is limited to a 9-inch per hour ramp rate as established in the FERC license (FPC 1961). COPCO 1 stores an additional 45,390 acre feet. COPCO 2 depends on COPCO 1 for water to generate and for storage.

Mr. Dwight French
October 11, 1996
Page 3

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Iron Gate is located at RM 190 and serves as the furthest downstream regulating point of the Klamath River Projects. The Federal Energy Regulatory Commission ("FERC") has established a minimum instream flow schedule to protect downstream aquatic resources. Minimum flows are: 1,300 cfs from September through April; 1,000 cfs in May and August; and 710 cfs in June and July. There are no fish passage facilities at the dam. Iron Gate stores 58,794 acre feet.

2. FERC License Status.

PacifiCorp operates the Klamath River Projects pursuant to a hydropower project license (License 2082) issued by the FERC. The Federal Power Commission, FERC's predecessor agency, issued the initial license for the Klamath River Projects on March 1, 1956, pursuant to section 4(d) of the Federal Power Act ("FPA"), 16 USC § 797(d).

3. State Hydroelectric License.

On November 30, 1956, the Hydroelectric Commission of Oregon issued PacifiCorp a license (HE180) pursuant to the Oregon Hydroelectric Act, ORS Chapter 543. The license authorizes PacifiCorp to construct and operate the J.C. Boyle Project. The original license required a minimum flow of 200 cfs at all times.

4. PacifiCorp's Pre-1909 Water Rights.

PacifiCorp's predecessor company posted water rights claims notices and took other actions to appropriate water and construct the Klamath River Projects prior to the adoption of the 1909 Water Code which instituted the permit and certificate process that exists today. See 1909 Or Laws ch. 216, § 45. In January 1991, PacifiCorp submitted to the Department 11 Proofs of Claim for pre-1909 water rights in the Klamath River Basin adjudication. Based upon the historical pattern of development and water use, PacifiCorp claims a right to divert natural flows from the Klamath River during the entire year with a priority dates ranging from 1883 to 1905. The Department has not yet adjudicated these filings.

5. Endangered and Sensitive Species.

There are no anadromous fish species in the reach of the Klamath River for which ODFW seeks an instream water right. The application states that the instream water right is sought to maintain suitable habitat for juvenile and adult rainbow

Mr. Dwight French
October 11, 1996
Page 4

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

trout. The addendum to the application states that the instream flow requirements for spawning, incubation and migration of shortnose and Lost River suckers, two endemic endangered and threatened species, were not established and suggested that ODFW might apply for a supplemental instream water right for these species later "after the flow needs of these species have been established."

Since the instream water right application was filed, the U.S. Bureau of Reclamation has consulted with the U.S. Fish and Wildlife Service ("FWS") regarding the impacts of Klamath Basin Projects on the shortnose and Lost River suckers. A biological opinion was issued on July 22, 1992 and was later modified on August 11, 1994. Further consultation on PacifiCorp's operations occurred in 1996 as reflected in the attached Biological Assessment and Biological Opinion dated July 15, 1996 (Exhibit C).

As noted in the attached exhibits, ODFW and PacifiCorp conducted fish passage investigations at Link River, Keno, and J.C. Boyle dams from 1988 to 1991 to determine upstream and downstream fish migration patterns. These studies documented that the threatened and endangered species migrate through the Link River and Keno ladders, although none were found at the J.C. Boyle ladder. The Oregon Department of Environmental Quality ("DEQ") collected listed species from J.C. Boyle in 1986 while collecting fish samples for environmental contaminants. The Bureau of Reclamation has also collected listed species in J.C. Boyle Reservoir and COPCO Reservoir. These studies all show that the threatened and endangered species are present in the area affected by the instream water right request. This area is also within proposed critical habitat for shortnose and Lost River suckers by FWS. 59 Fed Reg 61744 (Dec 1, 1994).

6. Water Quality.

DEQ recently listed the Klamath River to the California border as water quality limited for many parameters, including Chlorophyll a, dissolved oxygen, pH, temperature, toxics (ammonia) and water contact recreation (fecal coliform). See "DEQ's 1994/1996 303(d) List of Water Quality Limited Waterbodies," July 1996.

7. State and Federal Scenic Designation.

This section of the Klamath River is a designated state scenic waterway. The Oregon State Parks and Recreation Department and WRD completed a recreation analysis for this reach in March 1990. The report indicates that the official designation of this reach is from the J.C. Boyle Dam Powerhouse at River Mile 220 to the California border. It is unclear in the application and in the PFO why the reach for the

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Mr. Dwight French
October 11, 1996
Page 5

instream water right differs from the designated scenic waterway reach. This reach is also a designated federal Wild and Scenic River.

8. Instream Water Rights Application.

On October 13, 1989, ODFW and the Oregon State Parks and Recreation Division ("OSPRD") filed instream water right Application No. 70094 seeking an instream water right for between Klamath River from the confluence of J.C. Boyle Powerhouse tailrace and the natural channel at River Mile 220.4 (NWNW, Section 13, Township 40 South, Range 6 East, Willamette Meridian) to the Oregon/California border River Mile 209.3 (NWNE, Section 13, Township 41 South, Range 5 East, Willamette Meridian). The application differentiates between the flow requested for recreation, boating and scenic enjoyment and the flows required for fish life and fish habitat. An addendum to the application explains that the ODFW flow requests for fish life and fish habitat are for juvenile and adult rainbow trout.

On August 27, 1996, the Department published a PFO concluding that the proposed use would not injure existing water rights and that it is consistent with the public interest. The PFO recommends approval of the application. For the reasons stated below, PacifiCorp respectfully disagrees with the Department's conclusions and protests that the PFO is technically flawed and fails to establish the statutory presumption that the proposed use will not impair the public interest.

B. SPECIFIC OBJECTIONS.

1. The Application and Proposed Final Order are Incomplete and Deficient.

The PFO does not state the purpose of the proposed instream water right beyond stating that it is for the purpose of "Migration, spawning, egg incubation, fry emergence and juvenile rearing." No mention is made of recreation, boating and scenic enjoyment. The purpose stated in the PFO does not comport with the stated purpose of the application and is therefore inaccurate. In fact, it does not even refer to the fish species supposedly being protected. Since instream flow requirements of various species differ, there is no basis in the PFO for determining that the requested flows are necessary or appropriate.

The PFO lists two different sets of monthly flow requirements. One set of monthly instream flow requirements is listed for "fish life and fish habitat." The

Mr. Dwight French
October 11, 1996
Page 6

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

reason for the other set of monthly instream flow requirements (1,500 cfs year round) is unstated. The PFO is inadequate because it does not explain what the 1,500 cfs flow is for, nor what its relationship is to the flow requested for fish life and habitat. An instream water right cannot be granted when there is no stated public purpose for it.

ODFW's application fails to include essential information required by the Division 77 rules including: (1) the appropriate section of a Department basin map with the applicable stream reach identified, OAR 690-77-020(4)(e) (the map submitted features only a large circle that includes portions of the Klamath River); (2) identification of affected local governments and copies of letters notifying these governments of the intent to file the application, OAR 690-77-020(4)(j); and (3) documentary evidence that an agreement has been reached with the reservoir owners to supply the instream flow from stored water, OAR 690-77-020(6) (see discussion below).

Also, on November 23, 1990, the Bureau of Reclamation provided specific comment to application no. 70094. The comments raise specific concerns about the application, including, but not limited to, senior water rights, availability of natural flows and the Klamath River Compact. Neither the PFO nor the record for this application address the Bureau of Reclamation's concerns. Without express response to these concerns, the application, record and PFO are incomplete and the application must be denied.

Under OAR 690-77-020(6) applicants requesting instream water rights to be supplied from stored water must refer to the reservoir as the source of supply and show by documentary evidence "that an agreement has been entered into with the owners of the reservoir for a sufficient interest in the reservoir to impound enough water for the purposes set forth in the request." Although this rule was not adopted until after this application was filed, the rule is now in effect and the application should have been required to be supplemented to add this required information. In fact, even though the requested instream water right is dependent on stored water, ODFW has not entered into such an agreement with either PacifiCorp or the U.S. Bureau of Reclamation. Without the information required by WRD rules for instream flow applications, the application should be rejected as incomplete.

The PFO is also incorrect when it lists the supporting data submitted with the application. The listed reports are not contained in the WRD file on this application and other reports are included which are not listed in the PFO. Specifically, the PFO fails to mention the "Klamath River Scenic Waterway Recreation Analysis" prepared in March 1990 by the WRD and the OSPRD.

Mr. Dwight French
October 11, 1996
Page 7

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Without the above referenced information, the application is incomplete. Under the applicable rules when the application was filed, the Department had no choice but to remand the application to ODFW. OAR 690-77-022(1) (repealed). This was not done. As a result, the PFO now proposes to approve an incomplete application. Under the current rules, the Department must return an incomplete application within 15 days of receiving it. OAR 690-77-027(1). The only cure for this defect is to return the application to ODFW for completion.

2. The Proposed Final Order Contains Incorrect Findings of Fact.

The estimated average annual natural flows for the lower end of the reach is not based on accurate, up-to-date information about the flows in this reach of the Klamath River and fails to correctly differentiate between natural flows, storage releases and natural inflows.

3. The Public Interest Presumption Is Not Established.

a. Klamath Basin Compact.

The PFO states that the proposed use is allowed in the basin plan. There is no basin plan for the Klamath Basin. OAR 690-500-010(5). Instead the rules of the WRD state that the basin is subject to rules of statewide applicability "and to the provisions of the Klamath River Basin Compact (ORS 542.620)." The PFO does not address the provisions of the Compact.

b. The Proposed Final Order Fails To Recognize Injury to and Impairment of PacifiCorp's State Water Rights.

The Department may not grant instream water rights if such action would impair the exercise of preexisting water rights. ORS 537.334(2); OAR 690-77-015(1). PacifiCorp holds both certificated and unadjudicated pre-1909 water rights within or above the reach affected by this application. The PFO concludes, incorrectly, that the instream water right will not injure other water rights.

(1) Unadjudicated Pre-1909 Water Rights.

At various dates prior to 1909, PacifiCorp's predecessors initiated the process for obtaining water rights for the Klamath River Projects by following the statutory process then in effect. In January 1991, PacifiCorp filed 11

Mr. Dwight French
October 11, 1996
Page 8

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Proofs of Claim in the Klamath Basin adjudication to have its pre-1909 rights adjudicated. The Department has not yet completed the adjudication. Nonetheless, pending the completion of the adjudication, neither the Department nor any other agency or person may take any action to impair or affect PacifiCorp's right to use water consistent with its filings. ORS 539.010(4). These pre-1909 rights do not terminate except as provided under the statutory abandonment procedures. Thus, the diversions and appropriations of water described in PacifiCorp's Statement and Proof of Claims filed in the Klamath Basin adjudication must be considered as an existing water right with a priority date that will always be senior to that sought by ODFW.

(2) Certificated Rights.

In addition to its pre-1909 rights to divert water from the Klamath River, PacifiCorp's state hydroelectric license grants it an additional right to store the amount of flows from Klamath River necessary to store water in the J.C. Boyle Reservoir. This license article is a fully effective and enforceable water right. ORS 543.110; see also Op Atty Gen No. 8208 (May 26, 1989) (rights to store water are not subordinate to direct use rights with junior priority dates). Thus, the PFO also is flawed for failing to consider the rights granted by the November 30, 1956, hydroelectric license.

The grant of the requested instream right could injure PacifiCorp's existing water rights. The PFO and draft certificate do not condition the instream right upon senior water rights being satisfied. As proposed, the certificate might be interpreted to require PacifiCorp to meet instream flow levels by releases from storage, or by-passes of the reservoirs, through the Klamath River Projects, including, but not limited to, the Link River Dam. This would reduce hydro-electric generation, at considerable cost to PacifiCorp. Unless the Department makes additional specific findings and adds conditions assuring that the proposed use would not injure PacifiCorp's water rights, the Department has no choice but to deny the application. OAR 690-77-037(2).

To respond to PacifiCorp's concerns, the following conditions should be included in any instream water right certificate issued on the Klamath River:

1. "The use of water allowed herein may be made only at times when sufficient water is available to satisfy all prior rights."
(This is a standard condition in most water right permits).
2. "This water right shall not take away or impair any vested, permitted, certificated or decreed right to any waters or to the use of any waters

Mr. Dwight French
October 11, 1996
Page 9

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

vested prior to the date of the issuance of this certificate." This is consistent with ORS 537.334(2))

3. "The instream right shall not require any releases from J.C. Boyle Reservoir."

- c. The Proposed Use Does Not Comply with State Law and Rules of the Water Resources Commission.

The Commission has adopted rules to protect threatened, endangered and sensitive species. OAR 690, Division 33. Although these rules are technically not applicable to this application, since it was filed before June 3, 1994, ODFW, OSPRD and the WRD are still required to comply with the state endangered species act. The way that they have chosen to do so, in the context of water rights applications, is through the new Division 33 rules. There is no question that listed species are present in this reach. The proposed instream flows will affect the habitat of endangered suckers. There is no discussion or evaluation in the PFO or the WRD file of what these impacts will be. There is good reason to believe, based on the needs of rainbow trout and recreational users for swift flows, and the lacustrine requirements of the suckers, that the requested instream flows will adversely impact the suckers.

Studies done in conjunction with the salt caves hydroelectric project indicate that maintaining the flow at 350 to 450 cfs would improve the fishery, which is now adversely impacted by daily flow fluctuations used by rafters. The 1,500 cfs flow may harm fish resources while 550 cfs is insufficient for rafting.

Many parties, including the Bureau of Reclamation, the Klamath Tribe, PacifiCorp, local irrigation districts and the FWS have been working very hard in recent years to recover sucker populations. Granting instream water rights without consideration of the impact on these fish is irresponsible and illegal.

The PFO also fails to consider the impact, if any, of ORS 537.360 on this application. ORS 537.360 prohibits action on applications for instream water rights until the Water Resources Commission issues a final order approving or denying any pending hydroelectric applications.

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Mr. Dwight French
October 11, 1996
Page 10

- d. There is No Evidence that the Proposed Use Complies with the State Agency Agreement for Land Use.

There is no evidence of any kind in the WRD file for this application indicating that Klamath County was ever notified of this application. There is no land use compatibility statement in the file. The Klamath County Comprehensive Plan and Land Development Ordinance recognize the high value of this reach of the Klamath River for hydroelectric power purposes. The requirements of OAR 690, Division 5 have not been met. The water right cannot be granted unless they are met.

- e. Water is Not Available for the Proposed Use.

The PFO correctly concludes that water is not available for the proposed use in the amounts requested. Although the proposed instream flows may not fully appropriate the source, no water is available for additional storage given the water rights already held by PacifiCorp. The PFO is incorrect in concluding that water is available for storage, and in any case, the proposed use does not involve storage.

For the reasons stated above, the public interest presumption of ORS 537.153(2) and OAR 690-77-033(1) is not met. Not only is water not available, as asserted by the PFO, the proposed use is not consistent with the Klamath Basin Compact, will injure existing water rights, and fails to comply with other rules of the WRD and state law relating to endangered species and land use.

4. The Proposed Use Cannot Be Found to be in the Public Interest Based on the Existing Record.

Under OAR 690-77-037(2), if the public interest presumption is not established, the WRD must determine whether the proposed use will impair or be detrimental to the public interest considering the factors listed in ORS 537.170(8). Rather than doing this, the PFO simply concludes that the proposed use is consistent with the public interest "up to the limits of the estimated average natural flows." This conclusion is based only on the general provisions of OAR 690-77-015(2), (3) and (4) without any consideration of the specific factors listed in ORS 537.170(8). The PFO conclusions regarding even the general provisions relied upon are incorrect.

First, under OAR 690-77-015(2), if instream rights are requested at levels that exceed available water, it is recognized that the instream right protects the remaining supplies from future appropriation and "establishes a management objective for

Mr. Dwight French
October 11, 1996
Page 11

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

achieving the amounts of instream flows necessary to support the identified public uses." Here, the management objectives necessary to support the identified public uses are not at all clear. The PFO, at a minimum, must address how the proposed flows actually achieve the management objectives contained in the applications.

Second, under OAR 690-77-015(3) the amount of water appropriated for "out-of-stream purposes" are not to be considered in determining the amount of an instream water right. This rule is simply inconsistent with state law, which recognizes that existing water rights must be protected in granting instream water rights. Beyond this, it is inapplicable here since the water rights held by PacifiCorp are largely not for out-of stream purposes. They are for hydroelectric generation instream.

Finally, as noted above, it is unclear whether the "estimated average natural flow" in this reach is accurately stated in the PFO. For these reasons, the PFO does not support the conclusion that the proposed use will not impair or be detrimental to the public interest.

If the WRD had actually considered the factors it is required to consider in order to issue an instream water right when the public interest presumption has not been established, it could not find that this application is in the public interest. An examination of the statutory standards reveals several public interests that the proposed use would impair. These interests include: (1) power development, ORS 537.170(8)(a) (any required release of water from storage would result in a reduction in power generating capacity); (2) public recreation, ORS 537.170(8)(a) (any drawdown of the reservoirs to meet the requested flows would adversely affect recreational opportunities on reservoir); (3) "the maximum economic development of the waters involved," ORS 537.170(8)(b) (the economic loss caused by the reduction of power generating capacity greatly exceeds the negligible economic impact of greater instream flow on this reach); (4) "the prevention of wasteful, uneconomic, impracticable or unreasonable use of the waters involved," ORS 537.170(8)(e) (maintenance of the requested instream flow would require costly and complex modifications to Klamath River Projects, without any corollary economic benefit); (5) the "vested or inchoate rights to the waters of this state or to the use of the waters of this state," ORS 537.170(8)(f) (the use would injure PacifiCorp's water rights unless further conditioned); and (6) interests under both federal and state threatened and endangered species rules.

As discussed above, the PFO fails to address the impacts of the proposed instream flows on threatened and endangered fish present in this river reach. There is every reason to believe that the requested instream flows are not consistent with

Mr. Dwight French
October 11, 1996
Page 12

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

the recovery planning efforts underway for the Lost River and shortnose suckers which are now underway with the FWS, the Bureau of Reclamation, the FERC and the Klamath Tribe. WRD should not issue this water right until impacts on endangered species are thoroughly evaluated and mitigated.

In addition, the PFO does not address the impacts of the proposed instream flow on the parameters limiting the water quality of this reach of the river. The reach is water quality limited. The effect of flows on temperature, recreation use levels (which contribute to fecal coliform loading), flushing of toxic materials, and other parameters is analyzed nowhere in the PFO. It is unclear what the effect of the requested instream flows will be on water quality, but the effect must be evaluated before a finding can be made that the requested flows will not adversely affect or impair the public interest.

Finally, the PFO does not address the interrelationship between the requested fish habitat flows and the requested recreation flows. The assumption is made that they are consistent. This is not necessarily true. High recreation flows could flush out fish habitat at key times.

Because the proposed use impairs the public interest according to the standards described in ORS 537.170(8), the Department is obligated to deny the application, unless it makes specific findings that, "considering all of the public interest factors listed in ORS 537.170(8) the issuance of an instream water right certificate will not impair or be detrimental to the public interest." OAR 690-77-037(5). Given the range of public interest factors that an instream water right would adversely affect, as described above, such findings would be impossible to make based on the existing record.

5. The Proposed Instream Water Right Is Restricted or Prohibited by the Federal Power Act.

The Department is required to assess potential statutory provisions in its technical review. OAR 690-77-029(1)(a). The PFO fails to address the effect of the Federal Power Act ("FPA") on ODFW's application, and is, therefore, deficient. If the PFO had considered the FPA, it would have been clear that the FPA precludes enforcement of the proposed instream right as against PacifiCorp's rights to generate electrical energy pursuant to its current or any future federal power license.

Several federal cases establish clearly that when Congress enacted the FPA, it asserted federal regulatory power over hydroelectric projects to the maximum extent of the federal government's constitutional authority, reserving to the states only their

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Mr. Dwight French
October 11, 1996
Page 13

traditional authority to regulate out-of-stream, consumptive uses such as those associated with irrigation and municipal water systems. See First Iowa Hydro-Elec. Cooperative v. Federal Power Com'n, 328 US 152, 66 S Ct 906, 90 L Ed 1143 (1946); California v. FERC, 495 US 490, 110 S Ct 2024, 109 L Ed 2d 474 (1990); Sayles Hydro Associates v. Maughan, 985 F2d 451 (9th Cir 1993). In each case the court concluded that allowing states to enforce state instream flow requirements against federal licensees impermissibly conflicts with FERC's statutory duty to balance power and non-power values in licensing proceedings. Accordingly, the state instream flow requirements at issue in all three cases were held to be preempted by the FPA.¹

Under the rule established by these cases, the proposed instream water right, whatever their legal effect with respect to other water users in the Klamath River Basin, are not enforceable against PacifiCorp.

6. The Proposed Instream Water Rights Flow Levels are Not Supported by the Record.

Oregon law limits the amount of water that may be included in a request for a new instream right to "the amount necessary to support those public uses as recommended by the State Department of Fish and Wildlife." ORS 537.336(1) (emphasis added). However, the proposed instream water rights exceeds the level of flow necessary to protect the intended public use.

a. ODFW's Use of the Oregon Method Is Impermissible.

According to the PFO, ODFW followed the so-called "Oregon Method" as the basis for its recommendations about the flows necessary to promote the stated public use. ODFW's own regulations indicate this method is less precise than the Instream Flow Incremental Methodology ("IFIM"). Indeed, these regulations require ODFW to use IFIM instead of the Oregon Method "if Department resources are available."

¹ In PUD No. 1 v. Washington Dept. of Ecology, 511 US 700, 114 S Ct 1900, 128 L Ed 2d 716 (1994), the U.S. Supreme Court recognized state imposition of minimum stream flows in the certification of a hydroelectric power plant. However, the holding in PUD No. 1 is inapplicable because that case involved permitting requirements under the Clean Water Act, which is not an issue in ODFW's application. In addition, the proposed power plant in PUD No. 1 had not yet received a license from FERC, so the minimum flow requirement did not interfere with the existing rights of a federal licensee.

Mr. Dwight French
October 11, 1996
Page 14

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

OAR 635-400-015(14)(c)(A). An IFIM study has been completed for this reach. IFIM data were readily available to ODFW, and ODFW's use of the Oregon Method violates its own regulations. Consequently, the PFO is flawed in its conclusion that the method of determining instream flow needs has been approved by administrative rule of the agency submitting the application.

- b. No Support Exists for ODFW's Contention that the Requested Flows Are "Necessary."

Neither ODFW's application nor the Department's PFO provide any information about how ODFW applied the Oregon Method to arrive at its proposed flows for the Klamath River. The PFO states that ODFW relies on the following reports:

- (a) Fish and Wildlife Resources of the Klamath Basin, Oregon, and Their Water Requirements, April 1970;
- (b) Determining Minimum Flow Requirements for Fish, ODFW Report, January 20, 1984;
- (c) Developing and Application of Spawning Velocity and Depth Criteria for Oregon Salmonids, Alan K. Smith, Transactions of the American Fisheries Society, April 1973;
- (d) Determining Stream Flows for Fish Life, Oregon State Game Commission Report, March 1972; and
- (e) A letter dated April 5, 1996, stating that the flows requested in this application are the minimum amount necessary to restore, protect and enhance populations and habitats of native wildlife species at self-sustaining levels.

None of the reports cited in the application provide specifics to support the proposed flows and none of them are in the WRD file for this application. ODFW's letter of April 5, 1996, contains only the bare assertion that the flows requested are the minimum amount necessary to maintain native wildlife. It provides no support for this claim. Without support for its numbers, ODFW fails to make even a minimal showing that the amount of water in its application is either "necessary" or reasonable. Without this

Mr. Dwight French
October 11, 1996
Page 15

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

information, the application is defective for seeking water not demonstrated to be in the public interest, and the PFO is deficient for failing to identify this flaw.

6. The Average Flow Data Fail To Take Into Account the Distinction Between Stored Water and Natural Flows.

The PFO states the estimated amount of "natural flows available from the proposed source" ranges from 1,330 cfs to 3,390 cfs. The report fails, however, to cite the source for this information. The report also fails to state whether the Department evaluated its "available water" analysis pursuant to the 80 percent availability requirement of the state water resources policy. OAR 690-400-010(11)(a).

Given the design and operation of the Klamath River System, it seems unlikely that average streamflows at these levels exist. Under Oregon law and the terms of PacifiCorp's hydroelectric license, releases of stored water are not "available" for new appropriation; they are being released for hydroelectric generation at PacifiCorp's downstream facilities.

C. CONCLUSION

As discussed in the preceding paragraphs, application 70094 and the Department's Proposed Final Order are defective on public interest and technical grounds. For that reason, PacifiCorp urges the Department to deny the application in its current form. PacifiCorp also requests that the Department recognize that significant water rights already exist on the Klamath River in both existing certificated rights and pre-1909 unadjudicated rights that call into question whether any new rights, instream or otherwise, can be issued.

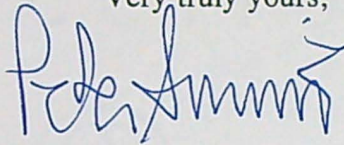
PacifiCorp recognizes the important public policy considerations reflected in the instream water right statutes. Nonetheless, Congress and the Oregon legislature also have codified public policies in the statutes regulating the operation of hydropower operations. More important, the Oregon legislature and Water Resources Commission have established specific laws and regulations for approving applications for instream water rights. The application for (IS 70094) and its respective PFO are incorrect, incomplete and not consistent with Oregon laws and regulations. Accordingly, the WRD should issue an Order denying the application.

Mr. Dwight French
October 11, 1996
Page 16

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Please call if you have any questions or would like to meet with PacifiCorp to address its concerns.

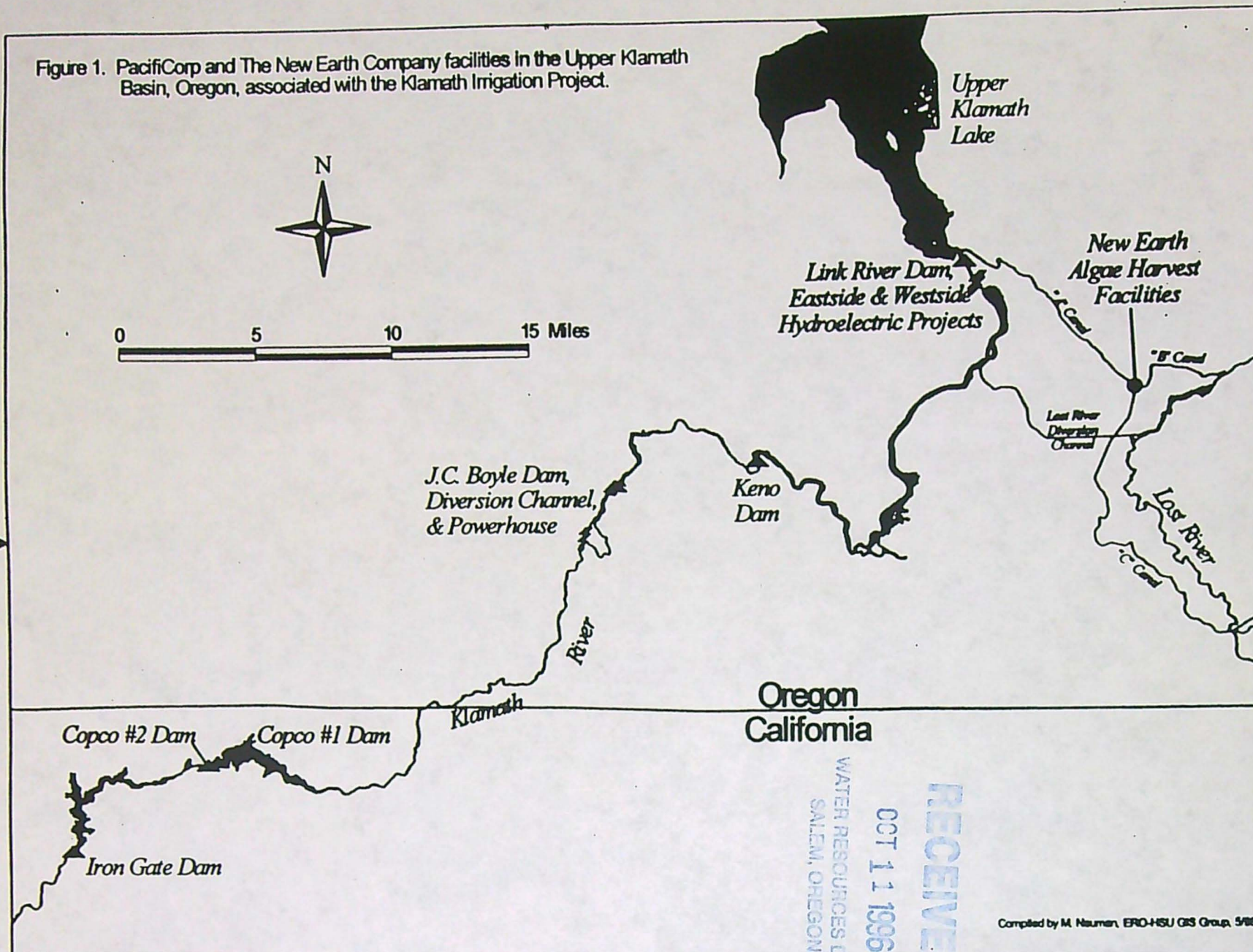
Very truly yours,

A handwritten signature in blue ink, appearing to read "Peter L. Serrurier", with a stylized flourish at the end.

Peter L. Serrurier

P-S:d-r
Enclosures

Figure 1. PacifiCorp and The New Earth Company facilities in the Upper Klamath Basin, Oregon, associated with the Klamath Irrigation Project.



EXHIBIT

A

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Compiled by M. Naumen, ERO-HSU CBS Group, 5/88

S. DESOUSA



IN REPLY REFER TO:

United States Department of the Interior

BUREAU OF RECLAMATION

Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603

RECEIVED

JUN 10 1996

HYDRO RESOURCES

KO-750
ENV-7.00

JUN 07 1996

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

Mr. Steve Lewis
U.S. Fish and Wildlife Service
Klamath Falls Field Office
6600 Washburn Way
Klamath Falls, Oregon 97603

Subject: Formal Consultation on PacifiCorp and New Earth Operations Associated With
the Klamath Project

Dear Mr. Lewis:

The Bureau of Reclamation is requesting formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended on PacifiCorp and The New Earth Company operations associated with the Klamath Project. Reclamation has prepared the enclosed biological assessment to guide in this formal ESA consultation.

If you have questions regarding the proposed action or analysis, please contact Mark Buettner at (541) 883-6935.

Sincerely,

Michael J. Ryan
Area Manager

Enclosure

cc: PacifiCorp
Stan A. deSousa
920 SW Sixth Ave
Portland OR 97204

New Earth Company
Darryl Kollman
1300 Main Street
Klamath Falls OR 97601

EXHIBIT

B

**BIOLOGICAL ASSESSMENT OF PACIFICORP AND THE NEW EARTH COMPANY
OPERATIONS ASSOCIATED WITH THE KLAMATH PROJECT**

June 1996

1.0 INTRODUCTION	2
2.0 PROJECT DESCRIPTION AND PROPOSED ACTION	3
2.1 PacifiCorp's Klamath Hydrofacilities	3
2.2 New Earth Company Algae Harvest Facilities	7
2.3 PROPOSED ACTION	9
3.0 CHAPTER 2 - GENERAL BIOLOGY OF THE ENDANGERED SUCKER SPECIES POTENTIALLY AFFECTED BY THE PACIFICORP AND NEW EARTH PROJECTS	13
3.1 Introduction	13
3.2 Endangered Suckers	13
4.0 CHAPTER 3 -EFFECTS OF PROJECT OPERATIONS	29
4.1 Effects of PacifiCorp Operations on Endangered Suckers	29
4.2 Effects of the New Earth Company Algae Harvest Operations on Endangered Suckers	36
4.3 Lower Williamson River Restoration	37
4.4 CUMULATIVE EFFECTS	38
5.0 CHAPTER 4 - DETERMINATION OF EFFECTS	38
6.0 Literature Cited	38
7.0 Personal communications	41

BIOLOGICAL ASSESSMENT OF PACIFICORP AND THE NEW EARTH COMPANY
OPERATIONS ASSOCIATED WITH THE KLAMATH PROJECT

June 1996

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

1.0 INTRODUCTION

Reclamation has been developing a long-term operations plan (KPOP) for the Klamath Irrigation Project. The goals of this plan are to provide a template for continued water distribution to protect the endangered Lost River sucker (*Deltistes luxatus*) and shortnose sucker (*Chasmistes brevirostris*), provide agricultural water supplies, maintain the Tule Lake and Lower Klamath Lake National Wildlife Refuges, protect anadromous fisheries below Iron Gate Dam and support Indian Trust Assets. This plan will be finalized after completing the requirements of the National Environmental Policy Act (NEPA) of 1969, as amended. Reclamation expects to complete the NEPA process in the spring of 1997.

Reclamation has committed to formal consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, on the effects of the Klamath Project Operations Plan. A biological assessment (BA) on KPOP will be finalized after the NEPA process is completed. It is anticipated that the BA and biological opinion (BO) will be completed before spring 1997. Until the consultation process is completed, Reclamation will operate under the existing BO, dated July 22, 1992 pertaining to the long-term operation of the Klamath Project. This opinion was partially modified by a BO dated August 11, 1994 that relates to operations at Clear Lake. The 1992 BO determined that Reclamation's proposed operation would likely jeopardize the continued existence of the Lost River sucker and shortnose sucker but would not likely jeopardize the continued existence of the bald eagle. The BO included reasonable and prudent alternatives and incidental take statements.

PacifiCorp and The New Earth Company (New Earth), two private corporations, have operations that are closely linked to Reclamations in the Upper Klamath Basin and who have new actions since 1992 that were not considered in previous consultations. New Earth harvests algae from Klamath Project canals and is required to obtain a permit from Reclamation for this activity. They have recently proposed major expansion of their facilities to harvest all water entering the A Canal and are seeking a permit amendment.

PacifiCorp operates Link River Dam pursuant to a contract with Reclamation. The contract gives them considerable latitude in regulating Upper Klamath Lake levels and Klamath River flows so long as irrigation supplies are not threatened. If that should happen Reclamation reserved the right to operate the lake. PacifiCorp also operates six hydroelectric projects on the Klamath River mainstem from Link River Dam to Iron Gate Dam.

PacifiCorp and New Earth have also been brought into this consultation process to request incidental take statements and also leverage greater benefits for the protection and recovery of the listed species. This BA describes PacifiCorp/New Earth actions, analyzes effects, and proposes biologically sound mitigation actions for those effects. The mitigative actions are designed to help restore the form and function of the Lower Williamson River to assist in larval and juvenile sucker survival and recruitment. Species to be addressed in this consultation are the Lost River and shortnose sucker. The area of consultation is Upper Klamath Lake, Link River Dam and associated facilities, B and C canal algae harvest facilities, and all Klamath River downstream reservoirs that potentially affect listed suckers.

2.0 PROJECT DESCRIPTION AND PROPOSED ACTION

2.1 PacifiCorp's Klamath Hydrofacilities

Within the Klamath River basin, defined here as River Mile (RM) 190 to headwaters, PacifiCorp owns and operates six hydroelectric projects on the Klamath River mainstem (Figure 1). The Link River Dam and associated Eastside and Westside projects are the most upstream projects (RM 253.7) located within the city limits of Klamath Falls, Oregon. Keno Dam is operated as a regulation facility and has no hydrogeneration facilities. J.C. Boyle (RM 225), Copco 1 (RM 199) and Copco 2 (RM 198) developments are hydrogeneration facilities. The Iron Gate development is furthest downstream (RM 190).

2.1.1 Link River Dam and Upper Klamath Lake

General Description:

Link River Dam provides regulation of Upper Klamath Lake, diverts water to the Eastside and Westside powerhouses, maintains a minimum flow in the Link River reach between the dam and the Eastside Powerhouse, and is operated pursuant to a contract between PacifiCorp (formerly Copco) and Reclamation. Should operations threaten irrigation supplies, Reclamation reserves the right to direct facility operation. Reclamation owns the dam while PacifiCorp owns the canals that carry water to the powerhouses.

There are no fish screens at the headworks of the power canals or the outflow from the dam to the Link River. A pool and weir type fish ladder was constructed in 1926 and modified with a vertical slot entrance pool in 1988. The ladder consists of 11 pools, is approximately 105 feet long, and provides for approximately 13 feet in elevation gain. Flow through the ladder is dependent upon Upper Klamath Lake water surface elevation. Flow to the ladder is adjusted manually by PacifiCorp operators.

Statistical Information

Location: Section 30, Township 38 South, Range 9 East, WM
 River Mile: 254
 Type of Dam: Concrete - reinforced concrete slab
 Constructed: 1921
 Dam Height: 15 feet
 Spillway Crest: 4,143.3 feet
 Intake Elevation: 4,121.3 feet, Eastside powerhouse
 4,125.5 feet, Westside powerhouse
 Storage: 523,700 acre - feet
 Inactive Storage: 211,300 acre - feet
 Dead Storage: 126,000 acre - feet
 Surface Area: 85,000 acres
 Shoreline: 98 Miles
 Watershed: 3,800 Square Miles
 Annual Inflow: 1,300,000 acre - feet, on average
 Operator: PacifiCorp

Operations:

PacifiCorp operates the reservoir by following an envelope dictated by spring run-off conditions (Figure 2). The operating envelope provides a margin of safety that is required for flood protection. Specific lake levels were identified in the 1992 BO to protect endangered shortnose and Lost River sucker populations. In dry years the

reservoir undergoes a deeper drawdown in the fall months than in wet years. During the drawdown period, operations must balance downstream needs, irrigation requirements, power demands, and maintain a sufficient carryover storage. Typical diversions to the two powerhouses are 1,200 cubic feet per second (cfs) at Eastside and 250 cfs at Westside. The Westside Plant is only used when the Eastside Plant is at maximum capacity and additional water is needed to control either Upper Klamath Lake or Lake Ewauna water levels. Generating capacities for the two plants are 3.2 MW at Eastside and 0.6 MW at Westside. Six spill gates and numerous removable stop logs can be used to adjust Upper Klamath Lake elevations or provide water downstream.

2.1.2 Keno

General Description:

Keno Dam is located approximately 24 RM downstream of Link River Dam. The Keno development operates Lake Ewauna levels, J. C. Boyle inflows, and minimum flow requirements below the Iron Gate development. There are no power generating facilities at this project. A 24 pool weir and orifice type fish ladder is available for fish passage at the Keno facility. This fish ladder provides 19 feet of vertical passage in approximately 350 feet. The fish ladder was constructed in 1967.

Statistical Information

Location: Section 36, Township 39 S, Range 7 E, WM
 River Mile: 230
 Type of Dam: Concrete
 Constructed: 1967
 Dam Height: 25 feet
 Spillway Crest: 4,085.0 feet
 Storage: 18,500 acre - feet
 Inactive Storage: N / A
 Surface Area: N / A
 Shoreline: N / A
 Watershed: 3,955 Square Miles
 Operator: PacifiCorp

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
 SALEM, OREGON

Operations:

Operations of the Keno project reflect Lake Ewauna water level control, J.C. Boyle Reservoir (the downstream hydroelectric project also operated by PacifiCorp) inflow, and Iron Gate Dam (the furthest downstream hydroelectric project on the system) minimum flow requirements. PacifiCorp has an agreement with Oregon Department of Fish and Wildlife (ODFW) to release a minimum stream flow of 200 cfs at the dam. To assure this flow is almost always met, the project is operated using a minimum release of 250 cfs.

2.1.3 J. C. Boyle

General Description:

The project consists of a dam, diversion canal, and two generators (located 4.3 RM downstream of dam). Flow released from the dam into the bypass reach, the reach of the Klamath River between the dam and the powerhouse, is approximately 100 cfs. Springs within the bypass reach supply an additional 250 to 300 cfs of accretion flow to the river. Spencer Creek is the only perennial tributary to Klamath River between Keno and J. C. Boyle Dam.

The intake from the dam to the power canal is screened with four vertical traveling screens with high pressure spray cleaners. New fiberglass screens with 1/8 inch mesh replaced metal screens about 1992. A weir and orifice fish ladder with 57 pools is available for passage. The ladder is approximately 569 feet long and the change in elevation between pool 1 and pool 57 is approximately 67 feet. The fish ladder was constructed in 1958.

Statistical Information

Location: Section 6, Township 40 South, Range 7 East, WM
 River Mile: 225
 Type of Dam: Earth fill
 Constructed: 1958
 Dam Height: 68 feet
 Spillway Crest: 3,781.5 feet
 Intake Elevation: 3,775.0 feet
 Storage: 3,377 acre - feet
 Inactive Storage: 1,980 acre - feet
 Surface Area: 420 acres
 Shoreline: 7.5 Miles
 Watershed: 4,080 Square Miles
 Operator: PacifiCorp

Operations:

Normal operation at the J. C. Boyle project is to generate electricity at efficient loadings. Generation occurs when there is sufficient water available for efficient use of one or both turbines. As a result, flows below the powerhouse may fluctuate on a daily basis, based on the amount of water available to the plant. River fluctuation is limited to a 9 inch per hour ramp rate as established in the FERC license (FPC 1961). Combined hydraulic capacity of both generators is approximately 2500 cfs. Generation capacity is 88 MW through two units (one of 43 MW and the other 45 MW). High river flows may allow continuous operation of the powerhouse. During cold weather conditions, the plant generates power continuously, not necessarily at peak efficiencies. This practice prevents ice damage to the canal or equipment.

2.1.4 Copco No. 1

General Description:

The Copco development operates for power generation, flood control, and Copco and Iron Gate reservoir water surface elevation control. The Copco No. 1 powerhouse is located at Copco Dam. Water diverted through the Copco No. 1 plant is directed to the Copco No. 2 plant (see below) approximately 1/2 mile downstream.

There are no fish passage facilities associated with this project.

Statistical Information

Location: Section 29, Township 48 North, Range 4 West, MDM
 River Mile: 199
 Type of Dam: Concrete gravity arch
 Constructed: 1918
 Dam Height: 126 feet
 Spillway Crest: 2,593.5 feet

Intake Elevation: 2,577.5 feet, penstock 1
2,579.5 feet, penstock 2
Storage: 45,390 acre - feet
Inactive Storage: N / A
Surface Area: 1,000 acres
Shoreline: 13.2 Miles
Watershed: 4,300 Square Miles
Operator: PacifiCorp

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Operations:

The Copco No. 1 development is operated on a peak-load basis, and has a flow capacity of 3,000 cfs. The powerhouse can produce up to 20 MW through two units. Typically this facility is operated to generate during the day, when energy demands are highest, and store water during the non-peak times (week nights and weekends). During periods of high river flow the powerhouse generates continuously. Water is spilled through as many as 13 spill gates when the powerhouse is generating at capacity and storage capacity is maximized.

2.1.5 Copco No. 2

General Description:

The Copco No. 2 development consists of a diversion dam, flowline, and powerhouse (located 1.4 RM downstream of Copco No. 2 Dam). The reservoir created by the dam has minimal storage capacity. As a result, Copco No. 2 is entirely dependant upon Copco No. 1 for water to generate with and functions as a slave to the Copco No. 1 plant.

There are no fish passage facilities associated with the Copco No. 2 project.

Statistical Information

Location: Section 29, Township 48 North, Range 4 West, MDM
River Mile: 198
Type of Dam: Concrete gravity with an earth fill wing
Constructed: 1925
Dam Height: 33 feet
Spillway Crest: 2,473.0 feet
Intake Elevation: 2,439.0 feet
Storage: 73.5 acre-feet
Inactive Storage: N / A
Surface Area: 40 acres
Shoreline: 0.7 Mile
Watershed: 4,305 Square Miles
Operator: PacifiCorp

Operations:

Copco No. 2 operation follows that of Copco No. 1 (see preceding section on Copco No.1 for details). Flow capacity of Copco No. 2 is 3,000 cfs and generating capacity is 27 MW through 2 units. Water is spilled over the spillway crest when flows from Copco No. 1 exceed the hydraulic capacity of and exhaust the limited storage capacity of this project.

2.1.6 Iron Gate Dam

General Description:

Iron Gate Dam is located at RM 190 of the Klamath River and serves as the downstream-most regulating point on the system. The FERC has established a minimum instream flow schedule to protect downstream aquatic resources as a condition of PacifiCorp's project license. Minimum flows are 1,300 cfs from September through April; 1,000 cfs in May and August; and 710 cfs in June and July. There are no fish passage facilities at the dam.

Iron Gate Fish Hatchery is located downstream of the dam. PacifiCorp owns the hatchery and California Department of Fish and Game (CDFG) operates the facility which produces fall chinook salmon, coho salmon, and steelhead. The hatchery receives 20 to 55 cfs from Iron Gate Reservoir as needed.

Statistical Information

Location: Section 9, Township 48 North, Range 5 W, MDM
 River Mile: 190
 Type of Dam: Rock fill
 Constructed: 1962
 Dam Height: 173 feet
 Spillway Crest: 2,328.0 feet
 Intake Elevation: 2,299.0 feet
 Storage: 58,794.0 acre - feet
 Inactive Storage: N / A
 Surface Area: 944.0 acres
 Shoreline: 13.5 Miles
 Watershed: 4,563 Square Miles
 Operator: PacifiCorp

Operations:

The Iron Gate project is operated for base load generation (up to 18 MW) and to provide the required minimum flows downstream of the project. The Iron Gate project has a hydraulic capacity of 1,735 cfs. During periods of high flow when storage is not possible, water in excess of generating capacity is passed through the project via an uncontrolled spill crest and canal.

2.2 The New Earth Company Algae Harvest Facilities

2.2.1 C Canal Algae Harvest Facility

General Description and operations:

New Earth operates and maintains an algae harvesting and processing facility at the head end of the C Canal under permit by Reclamation (Figure 1). All of the water that flows down the C Canal (average flow 535 cfs) will pass through 630 ft. sq. of debris reduction devices (DRDs) to remove coarse debris (3/8 inch mesh). Operation of the DRDs will be ensured by manual removal and cleaning several times a day. Water is then routed through a series of distributary pipes to the screening infrastructure. At that structure, water is passed by gravity flow over a series of fine mesh algae harvest screens that are elevated above the C Canal. The algae and any entrained

larval fish are removed and the water returned to the C Canal downstream of the harvest facility. Algae concentrated on the screens is washed into collection channels adjacent to the screens and pumped in a slurry to the processing building adjacent to the canal.

In all described harvest scenarios, the described harvest period will vary slightly depending on algae growing conditions in the lake. In general, algae harvest takes place during the summer when the algae is most concentrated, approximately June 1 to October 15. During harvest the fine mesh screens from which the algae is harvested are operated 24 hours a day. During 1995, approximately 20% of the flow from the C Canal during the harvest season was passed through the facility screens. In 1996, additional screens are being added to allow for processing of 100% of the C Canal flow.

2.2.2 B Canal Algae Harvest Facility

General description and operations:

New Earth has received approval from Reclamation to expand their facilities at the C Canal to harvest algae from the adjacent B Canal. A total of six pumps will deliver water from behind 450 ft. sq. of DRDs located within the walls near the head of the B Canal to a series of fine mesh algae harvest screens suspended above the B Canal. There, algae and any entrained larval stage fish will be removed. In combination with the C Canal harvest operation, this process allows New Earth to harvest virtually all algae from water that flows through the A canal without blocking fish from passing down the B Canal and possibly into the Lost River. DRDs (3/8 inch mesh) will be operated 24 hours a day, during all algae harvest activities. Operation of the DRDs will be ensured by manual removal and cleaning several times a day.

2.2.3 Eastside Diversion Canal at the Link River Dam (future operations)

General description and operations:

PacifiCorp maintains two hydroelectric facilities at the Link River Dam, Eastside and Westside. New Earth has entered into an agreement with PacifiCorp to harvest algae from these diversions. As water leaves the Link River and flows into the Eastside diversion canal it will pass through 900 ft. sq. (based on high water mark) of entrainment reduction devices (ERDs) which will reduce entrainment of fish and remove coarse debris (3/8 inch mesh). These devices will be "Service-approved". It is anticipated that these devices will be effective in keeping most juvenile (age 1 and older or > 75 mm) and adult suckers out of the power canals. After the water has entered the canal, up to twenty 50 cfs pumps (1000 cfs maximum) will lift it onto a series of fine mesh algae harvest screens which will be suspended above the canal. There, the algae and any entrained larval and age 0 juvenile suckers will be removed. After harvest of algae, the water will fall through the screens and back into the canal on its way to the powerhouse. The concentrated algae slurry will be pumped to the A Canal about one-quarter mile away, where it will float downstream to the C and B canal algae harvest facilities.

During the summer harvest period, flows in the Eastside Diversion will depend on water supplies in Upper Klamath Lake and demands for power by PacifiCorp. The fine mesh algae harvest screens will be operated 24 hours a day as long as the algae composition and densities are acceptable to New Earth. ERDs will be operated 24 hours a day, during all algae harvest activities or between June 1 and October 15, whichever is greater beginning in 1997. They will be manually removed and cleaned several times a day.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

2.2.4 Westside Diversion Canal at the Link River Dam (future operations)

General description and operations:

During the summer harvest period, up to 200 cfs. could be demanded by PacifiCorp for power generation in the Westside Diversion Canal. As the water leaves the Link River it will pass through 200 ft. sq. (based on high water mark) of ERDs which will reduce entrainment of juvenile (age 1 and older) and adult suckers and remove coarse debris (3/8 inch mesh). These devices will be "Service-approved". It is anticipated that these devices will be effective in keeping most juvenile (age 1 and older) and adult suckers out of the power canals. After the water has entered the canal, up to eight 25 cfs. pumps will lift it onto a series of fine algae harvest screens which will be suspended above the canal. There, the algae and any entrained larval and age 0 juvenile suckers will be removed. After harvest of algae, the water will fall through the screens and back into the canal on its way to the turbine. The fine meshed algae harvest screens will be operated 24 hours per day as long as algae composition and densities are acceptable to New Earth. As with the Eastside operations, the concentrated algae will be pumped as a slurry to the A Canal where it will float downstream to the B and C canal algae harvest facilities. ERDs will be operated 24 hours a day, during all algae harvest activities or between June 1 and October 15, whichever is greater beginning in 1997. Operation of the ERDs will be ensured by manual removal and cleaning several times a day.

2.3 PROPOSED ACTION

Reclamation herein proposes to initiate consultation regarding PacifiCorp and New Earth activities and impacts within the Upper Klamath Basin, Oregon and California. Reclamation's operations are covered by the July 22, 1992 and August 11, 1994 Biological Opinions and Incidental Take Statements. Reclamation's additional Project-related impacts will be addressed through the KPOP consultation which will be completed by winter 1997.

As described below, New Earth proposes to operate algae harvest facilities within the Klamath Project at a site near the junction of Reclamation's B and C canals and at the Eastside and Westside canals at the Link River Dam. They have requested Reclamation issuance of a license to operate. Operation of these facilities are contingent on the completion of this consultation and subsequent implementation of the necessary measures required in the BO. Additional mitigative actions are described below.

As described below, PacifiCorp proposes to operate Link River Dam and associated facilities in compliance with the 1992 BO and the contract with Reclamation. Continued operation of five hydrofacilities on the Klamath River are also proposed. Operation of these facilities are contingent on the completion of this consultation and subsequent implementation of the necessary measures required in the BO. Additional mitigative actions are described below.

2.3.1 PacifiCorp Hydrofacilities Operations

PacifiCorp proposes to operate its facilities at the Westside and Eastside hydrofacilities at Link River Dam, Keno Dam, J. C. Boyle Dam, Copco No. 1 and Copco No. 2, and Iron Gate Dam as described above in PacifiCorp Klamath Hydrofacilities (2.1). They are operating in compliance with a license with the Federal Energy and Regulatory Commission. Operations will comply with maintenance of flows below Iron Gate Dam identified in the previous section.

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

10

2.3.2 The New Earth Company Algae Harvest Operations

In 1996, New Earth proposes to operate its facilities on the C and B canals in compliance with a license issued by Reclamation, as amended (*see* 2.2 - The New Earth Company Algae Harvest Facilities). In 1997-1998 they plan to expand operations to include harvest facilities at PacifiCorp's Eastside and Westside power diversions at Link River Dam.

Discussions between the Service, Reclamation, PacifiCorp and New Earth have identified PacifiCorp and New Earth Company's operational impacts to the Lost River and shortnose suckers from Upper Klamath Lake downstream to Iron Gate Reservoir. The impacts are discussed in Section 4.0 - Effects of Project Operations. As a result of these discussions, PacifiCorp and New Earth in consultation with Reclamation and the Service agreed upon a combination of long-term and short-term measures intended to avoid jeopardizing the listed Lost River and shortnose suckers. The purchase of Tulana Farms as offsite habitat is the primary mitigation measure and agency, tribal and PacifiCorp and New Earth biologists expect that the restoration of offsite habitat at Tulana Farms in the Williamson River Delta will significantly benefit the Lost River and shortnose suckers over time. *See* Lower Williamson River Restoration Project - Tulana Farms Initial Biological Justification (April 1996). The ways and means by which restoration may be accomplished are still unknown, however the scientists collectively project the restoration effort will significantly increase the number of surviving sucker larvae which should in turn benefit the species as a whole.

The purchase of Tulana Farms is the major mitigation measure in this consultation, however, because the restoration of Tulana Farms is a long-term project, the following short-term mitigation measures were included in the consultation: entrainment reduction study (PacifiCorp), entrainment reduction devices at Link River power canal headgates during algae harvest season (New Earth Company), flood control study (PacifiCorp), genetics management study (PacifiCorp), and reservoir sucker population status studies (PacifiCorp). In addition, New Earth Company have agreed to a number of conservation measures including: endangered sucker and water quality monitoring, entrainment reduction study and the Fremont Bridge wetland restoration.

The Service may determine that it is necessary to reinstate consultation on the Lost River and shortnose suckers at some future date if there is significant new information and after a thorough consideration of the status of the species overall.

2.3.3 PacifiCorp Action Items - PacifiCorp agrees to include the following action items that demonstrate their commitment to the survival and recovery of the endangered suckers.

1) **Entrainment Reduction Study** - Data on sucker entrainment rates into the unscreened hydropower diversions at Link River Dam are lacking. The primary goal of this study is to determine the timing, size, magnitude, and duration of juvenile (age 1 and older or > 75mm) and adult sucker entrainment into the Eastside and Westside diversion canals. Entrainment will be evaluated during the period when entrainment reduction devices are not in operation, October 15 through May 31 (season). This study will be conducted in coordination with New Earth, Reclamation, ODFW and the Service. A study design will be "Service-approved" prior to implementation. It is anticipated that these studies will be conducted over two seasons and will be completed by May 31, 1999, with the intent of beginning field activity during 1996.

2) **Genetics Management Plan** - Management of endangered Lost River sucker and shortnose sucker populations has been complicated by the lack of genetic information and conflicting taxonomic status. These species also display highly variable morphological characteristics that have led to concern over potential hybridization/introgression among sucker species. This study is designed to determine the genetic relationships among four Klamath Basin sucker species, differences within the endangered species, and whether or not these species are presently hybridizing or may have hybridized in the past. This information will be used to improve management of the different stocks of endangered suckers and is essential for any future hatchery operations.

Although the Service listed the Lost River and shortnose suckers as taxonomic species and not distinct population segments, the Service believes there are important spawning subpopulations of suckers found in Upper Klamath Lake. As a result, PacifiCorp has agreed to cost share with Reclamation and other agencies to perform additional taxonomic and genetic studies. Reclamation made a collection of suckers throughout the Upper Klamath Basin in 1993 that can be used for these additional taxonomic and genetic studies. Findings from this research will be used to develop a genetics management plan that will guide management of sucker populations and potential future hatchery supplementation. This work is tentatively scheduled to begin in October 1996 and continue for 3-4 years. PacifiCorp will fund these studies in a pro rata share amount not to exceed \$80,000 total.

3) **Sucker Population Status** - Very little information is known about the endangered sucker populations in the Klamath mainstem reservoirs (J.C.Boyle, Copco, and Iron Gate). PacifiCorp will coordinate with Reclamation, ODFW, California Department of Fish and Game and the Service to develop a scope of work for sucker studies on the mainstem reservoirs. Study objectives are likely to include: determination of distribution and abundance, age class structure, recruitment success and habitat use by different life stages. A study design will be "Service-approved" prior to implementation. It is anticipated that the study period would be from 1997 to 1999. PacifiCorp will fund these studies and analyses in their entirety.

4) **Sucker Nursery Habitat Restoration** - Recent research on factors limiting sucker populations in Upper Klamath Lake indicates that a bottleneck exists at the larval life stage. Poor larval survival in sucker nursery habitat areas appears to be related to degraded water quality, predation, and lack of emergent vegetation habitat. The 1992 Klamath Project biological opinion analyzed a mitigation measure for marsh restoration construction and assessment. Based on this commitment, Reclamation, the Service, The Nature Conservancy (TNC), Natural Resources Conservation Service (NRCS), PacifiCorp, and New Earth have cooperatively proposed funding, restoring and maintaining a property on the Lower Williamson River. This restored habitat would be designed and managed to benefit riverine and lake water quality, reduce larval predation, and substantially increase larval sucker habitat in historic locations.

PacifiCorp and New Earth propose to invest 1.8 million dollars combined in the purchase of Tulana Farms with TNC and NRCS and propose to commit \$75,000 each per year for ten years or the equivalent present net worth in lump sum to the operation and maintenance of the property. If unforeseen circumstances occur, and the purchase of Tulana Farms with TNC and NRCS does not materialize, PacifiCorp and New Earth agree to pursue the option to purchase Tulana Farms or other offsite habitat mitigation, such as Goose Bay Farms. PacifiCorp and New Earth agree to acquire property identified for offsite mitigation by January 1, 1997. If an acquisition is not facilitated, the Incidental Take Statements will become invalid and reinitiation of consultation will be required.

As proposed, approximately 1,000 acres of Tulana Farms would be excluded from the NRCS conservation easement. The NRCS and TNC with the assistance of the Lower Williamson River Restoration Team (LWRRT) will determine the precise location of these agricultural lands to be excluded from the easement. PacifiCorp is evaluating purchasing the agricultural lands in order to assist TNC with the purchase of Tulana Farms. If PacifiCorp purchases the agricultural lands, they will work with the Service to ensure that the management of these lands are consistent with the protection of the suckers under the ESA. The Service maintains the ability to reinitiate consultation with PacifiCorp via Reclamation if agricultural practices are still occurring on the land after 10 years.

PacifiCorp and New Earth will assist in formation of and participate in the LWRRT for the Lower Williamson River restoration program including representatives from Reclamation, Service, ODFW, TNC, NRCS, and the Klamath Tribes. This technical team will, among other activities, develop a recommended long-range restoration plan and associated monitoring schedule for the property and provide annual work plans to the Management Committee. The Management Committee will be made up of representatives from Reclamation, Service, ODFW, TNC, NRCS, New Earth, PacifiCorp and the Klamath Tribes.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT

SALEM, OREGON

A Management Committee will oversee the LWRRT's activities and also address non-technical issues. TNC would operate Tulana Farms and will act in good faith to implement the recommendations of the LWRRT. If the LWRRT is unable to reach consensus on the Restoration Plan, TNC may nonetheless continue to take reasonable steps to restore Tulana Farms, consistent with the incidental take statements applicable to PacifiCorp and New Earth. Restoration project success will be monitored via specific habitat and larval production criteria, as developed by the LWRRT. The Service would review the long-term restoration plan and the annual work plans to ensure consistency with the incidental take statements.

5) **Re-evaluate Flood Operations Plan for Upper Klamath Lake** - A review of scientific data pertaining to endangered suckers in Upper Klamath Lake suggests that elevations higher than those listed as Reasonable and Prudent Alternatives in the 1992 BO are necessary to provide habitat for sucker spawning, larval and juvenile rearing, and water quality protection. Some of these elevations, particularly those during late winter and early spring, are outside of PacifiCorp's operating envelope for Upper Klamath Lake.

PacifiCorp will develop a scope of work that includes consideration of the flood control rule curves, operational constraints, hydropower and shoreline habitat benefits to the suckers. The scope of work will be reviewed by Reclamation and the Service. PacifiCorp will complete the re-analysis of the Flood Operations Plan by October 1996.

2.3.4 THE NEW EARTH COMPANY ACTION ITEMS - New Earth agrees to include the following action items that demonstrate their commitment to the survival and recovery of the endangered suckers. These items are also incorporated as conditions of the amended licence issued by Reclamation.

1) **Sucker Nursery Habitat Restoration** - Same as #4 PacifiCorp action item above.

2) **Entrainment Reduction Devices** - New Earth will install and maintain 3/8 inch mesh entrainment reduction devices (ERDs) at the Eastside and Westside diversion canals at the Link River Dam during all algae harvest activities or between June 1st through October 15, whichever is greater, for ten years or the remaining life of the FERC permit, beginning June 1, 1997 regardless of whether algae harvest activities have commenced. This size mesh is believed to be adequate to exclude suckers greater than 75 mm, or age 1 and older. The ERDs will be operated 24 hours a day. They will be manually removed and cleaned several times a day.

2.3.5 New Earth Conservation Measures - The following are additional research and conservation measures proposed by New Earth. None of the four actions described below will require reinitiation of this consultation upon completion of the individual activity. Reclamation and the Service believe these activities are important in developing additional information on the endangered suckers and therefore support their progressive implementation by New Earth.

1) **Endangered Sucker Monitoring** - Endangered sucker research will be conducted in relation to algae harvest activities at the B and C canal harvest facilities. Lifestages targeted include larval, juvenile, and adult forms. In coordination with the Service and Reclamation, New Earth proposes a study to determine the extent to which fish respond to algae harvest operations, debris reduction devices and associated water quality changes. Research will focus on identifying species composition, timing, and magnitude during entrainment. It is anticipated that this study will be initiated in 1996 and conducted over two years.

2) **Water Quality Monitoring** - New Earth will be harvesting large quantities of algae from the C and B canals and has plans to expand its harvest operations to PacifiCorp's Eastside and Westside power diversions. These activities are expected to improve water quality conditions in the Lost and Klamath rivers below their operations.

New Earth will begin monitoring water quality conditions above and below harvest operations at the B and C canals in 1996. Link River monitoring will be initiated during the 1997 harvest season.

3) **Entrainment Reduction Study** - New Earth will participate in a study to determine the timing, size, magnitude, and duration of juvenile (age 1 and older or > 75mm) and adult sucker entrainment into the Eastside and Westside diversion canals. Entrainment will be evaluated during the period when entrainment reduction devices are not in operation, October 15 through May 31 (season). This study will be conducted in coordination with PacifiCorp, Reclamation, ODFW, and the Service. A study design will be "Service-approved" prior to implementation. It is anticipated that these studies will be conducted over two seasons and will be completed by May 31, 1999, with the intent of beginning field activity during 1996.

4) **Fremont Bridge Wetland Restoration** - New Earth has acquired 3.5 acres at the Fremont Bridge on the Link River. They plan to restore approximately 1.5 acres to a functioning wetland which will potentially provide sucker nursery habitat, and enhance local water quality conditions. The site will have public access and will serve as an interpretive site for wetlands education. It is anticipated that restoration activities will be conducted over the next several years beginning in summer 1996.

3.0 CHAPTER 2 - GENERAL BIOLOGY OF THE ENDANGERED SUCKER SPECIES POTENTIALLY AFFECTED BY THE PACIFICORP AND NEW EARTH PROJECTS

3.1 Introduction

Reclamation formally consulted on the effects of long-term operation of the Klamath Project on the bald eagle, Lost River sucker, shortnose sucker and American Peregrine Falcon in 1992. A biological assessment was completed on February 28, 1992 and the Service completed a biological opinion on July 22, 1992. The Service also wrote a recovery plan for the Lost River and shortnose sucker (April 1993). Descriptions of the general biology and life history of these species can be found in these documents. This assessment provides new scientific data developed subsequent to these earlier activities. Substantial research activity has been completed over the last few years particularly for Upper Klamath Lake suckers.

3.2 Endangered Suckers

3.2.1 Klamath River

Sucker population status information through 1992 has been previously summarized (USFWS 1993, 1994). In November 1992, Reclamation sampled six sites in Lake Ewauna over 4 days using trapnets (Buettner unpublished data). Three juvenile shortnose suckers were captured. They were 177, 179, and 202 mm FL. A fish survey from Lake Ewauna to Keno Dam was conducted during the summer of 1993 (Hummel 1993). Hummel captured six juvenile shortnose suckers ranging in size from 205 to 324 mm FL. Based on scale analysis these fish appeared to be 2-4 years old. Infrequent sampling of the Klamath River near Miller Island was conducted by the ODFW in conjunction with Mazama High School since 1991; juvenile suckers and a few adult Lost River and shortnose suckers were captured during these trapnetting activities (Smith pers. comm.). Water quality in Lake Ewauna seasonally drops to extreme lows in terms of dissolved oxygen (DO), making this habitat virtually inhospitable to suckers. Reclamation has been collecting water quality data routinely since 1992 using Hydrolab multiparameter instruments. The data was recently summarized by CH2M HILL and used to model water quality in the Klamath River as part of the Oregon Department of Environmental Quality TMDL process (CH2M HILL 1995).

The ODFW and PacifiCorp conducted a fish passage investigation on the Klamath River at Link River, Keno, and J.C. Boyle dams from 1988-1991 to determine upstream and downstream fish migration patterns. Ladders were

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

14

checked daily on weekdays. The study documented small numbers of suckers migrating through the Link River and Keno ladders. No suckers were found using the J.C. Boyle ladder. Most suckers migrating through the Keno ladder were Klamath smallscale suckers with very few Lost River and shortnose suckers. Two Lost River and 4 shortnose suckers passed through the Link River ladder in 1988.

The Oregon Department of Environmental Quality collected four adult Lost River suckers and one Klamath largescale sucker from J.C. Boyle in 1986 while collecting fish samples for environmental contaminants (Ziller pers. comm.). Population survey information was collected in August 1988 by ODFW and the Service (Buettner unpublished data). Adult Lost River and shortnose suckers were captured by boat electrofishing at night above the Highway 66 bridge up to Spencer Creek. Twelve juvenile and adult Lost River suckers and six shortnose suckers were collected. Several dozen Klamath smallscale suckers and a few Klamath largescale suckers were also captured. In 1993, Reclamation sampled J.C. Boyle eight times collecting 20 shortnose suckers, one Lost River sucker, 30 Klamath smallscale suckers, and 6 Klamath largescale suckers. ODFW conducted an electrofishing survey at J.C. Boyle on June 14, 1995. They captured 32 juvenile suckers but did not identify the species.

Lost River and shortnose suckers were captured from Copco Reservoir in the 1950's and early 1960's (Coots 1965). An overview of population monitoring in Copco Reservoir is presented in the Shortnose and Lost River Recovery Plan (USFWS 1993). Shortnose sucker spawning runs were sporadically sampled in 1988, 1990, and 1991 by personnel from CDFG and the Service (Buettner unpublished data). Sampling in the Klamath River approximately 2-3 km upstream, during April and May commonly encountered adult shortnose suckers. Shortnose suckers have not been documented spawning in Shovel Creek, a major spawning tributary for rainbow trout. Twenty-one adult shortnose suckers were captured from Copco during June 1990. In 1993, Reclamation sampled Copco and captured 10 adult shortnose suckers ranging from 427-500 mm FL.

Shortnose and Lost River suckers were not documented in Iron Gate Reservoir during 1990 when trapnetting was conducted on June 14 and 15 over most of the reservoir (Buettner and Scopettone 1991). One Klamath largescale sucker was collected. In 1973 one shortnose sucker was sampled by CDFG biologists (Maria pers. comm.).

3.2.2 Upper Klamath Lake

3.2.2.1 Age and Growth

New information since 1992 indicates that Lost River sucker maturation can occur at an earlier age than was previously determined. Age at maturity was projected from spacing of annuli on opercles at 6-14 years, with most maturing at age 9 (Buettner and Scopettone 1990). In 1993, several fish (5 females, 3 males) from the spawning run on the Williamson River were aged at 5 years (Scopettone pers. comm.). From fish collected during a September 1995 sucker dieoff, gonads were developing in the majority of the age 4+ males and females indicating that they were likely to mature by the following spring. A few 3+ males had developing testes.

Age at maturity appears to be related to growth rate with fast growing fish maturing earlier than slower growing fish. This phenomenon has been well documented with the cui-ui, *Chasmistes cujus* (Scopettone pers. comm.). Growth rate and sexual maturity appears to be density dependent in cui-ui with fast growth and early sexual maturation related to lower population size. As the cui-ui population increased substantially in recent years growth rates decreased markedly and correspondingly age of maturity shifted to older ages. Faster growth rates have been documented from recent Lost River sucker year classes compared to those from the 1960's and 1970's (Buettner and Scopettone 1990). To illustrate this point, fish approximately 500 mm FL in the 1995 fish kill were 5+ and 6+ while growth curve data from 1986-1988 indicated that males reached this size at approximately age 10 and females age 9. Population size data is not available to evaluate whether the faster growth rates and

early sexual maturation are density dependent but creel census and spawning run monitoring suggested that populations were declining in the 1960's and 1970's and recruitment was poor in Upper Klamath Lake (Scoppettone and Vinyard 1991). We also lost Barkley and Harriman Springs spawning populations during this time.

Previously, sexual maturity in shortnose suckers was interpreted to occur between the ages of 5 and 8 with most fish maturing at the age of 6 or 7 (Buettner and Scoppettone 1990). However, in 1993, males as small as 265 mm FL and females 361 mm FL were captured in spawning condition at Ouxy Springs and were presumed to be 3 and 4 years old respectively. Actual ages of spawners were determined using opercles on numerous fish collected for genetic studies on the Williamson River in 1993. From a sample of 16 small males aged, 1 was age 4, 14 age 5 and 1 age 6. Females from the same sample included 3 - 5 year olds and 2 - 6 year olds (Scoppettone pers. comm.). Age 4+ males and females with developing gonads were commonly observed from the September 1995 fish kill sample (Buettner pers. observ.). A few 3+ males were also noted.

Faster growth in recent year classes may also explain the earlier age at sexual maturity in shortnose suckers. The back-calculated fork length at age 5 from the growth curve developed from fish captured in 1986-1988 was 330 mm FL (Buettner and Scoppettone 1990). Recent data from the 1993 genetics study sample indicates age 5 fish ranged from 317 to 400 mm (mean 360 mm, $n=18$). Shortnose suckers from the 1995 fish kill (age 4+) ranged from 330-392 mm (mean 365 mm, $n=26$).

3.2.2.2 Hybridization and Genetics

Three small Upper Klamath Basin sucker genetics studies have been conducted in recent years including: Harris 1991, Moyle and Berg 1991, and Buth and Haglund 1994. The first two have been previously discussed (USFWS 1992, USFWS 1993). Results from the latest study which focused on shortnose suckers, provides no evidence for hybridization in shortnose sucker samples analysed. The data support the hypothesis that the wide range of morphological variation observed, reflect differences in phenotypic expression as a response to differing physical environments, or the age of the individual (Moyle and Berg 1991). However, Buth and Haglund (1994) suggested that there was enough genetic variation separating Upper Klamath Lake shortnose suckers from those in Clear Lake, Gerber Reservoir, and Copco Reservoir, which were similar. Furthermore, they suggested that the Upper Klamath Lake population should be managed as a separate genetic unit (Buth pers. comm.). The three genetics investigations described above made no attempt to adequately address hybridization/introgression questions or assess genetic structuring of sub-populations throughout the basin.

3.2.2.3 Reproduction

In 1995, Klamath Tribal biologists captured mature Lost River suckers during late March at Kirk Springs, 128 km upstream from the lake (Dunsmoor pers. comm.). They also captured Lost River suckers at Kirk Springs in 1996. Over 300 shortnose suckers and Lost River suckers were sampled from the ladders at Sprague River Dam in 1996. Previously, Buettner and Scoppettone 1990, documented only Klamath largescale suckers migrating through the ladder and spawning at Kirk Springs during 1987 and 1988.

Intensified monitoring of lake spawning since 1993 by Reclamation and The Klamath Tribes have identified Lost River sucker spawning at six spring and two non-spring sites along the east shoreline of Upper Klamath Lake. Shortnose sucker spawning has been identified at three sites: Sucker Springs, Silver Building Spring, and Ouxy Springs.

Many historic spawning areas including Barkley Springs, Odessa Springs, and Harriman Springs are apparently not presently being used for spawning even though suitable habitat exists. Routine visual monitoring at Barkley Springs since 1993 has failed to document utilization by spawning suckers even after enhancement of spawning substrate (Buettner pers. obser.). Oregon State University (OSU) identified at least four springs along the east side

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

16

of Upper Klamath Lake that were probably historic spawning locations (Simon et al. 1995). Evidence such as fishing line, treble hooks, lead weights, and spark plugs, proximity to flowing springs, and suitable spawning substrate suggest historical sucker spawning. Spark plugs, used as weights for snagging adult suckers, were used to date time period of spawning activities. Spawning has not been documented at three of the springs, however they have not been intensively monitored (Dunsmoor pers. comm.).

Since 1993, small numbers of shortnose and Lost River suckers have been observed spawning in gravelly shoreline sites with no detectable spring influence (Dunsmoor pers. comm., Buettner pers. obser.). The Klamath Tribes documented successful larval emergence in 1995 at one of these sites (Cinder Flat). Spawning in gravel or cobble shoreline areas was documented at Lake of the Woods for an extirpated shortnose sucker population (Bond 1948). Successful shoreline spawning has been documented for Warner suckers (*Catostomus warnerensis*) (Rollie White pers. comm.) and razorback suckers (*Xyrauchen texanus*) in Lake Mojave (Paul Marsh pers. comm.).

In 1993, small shortnose sucker spawners (age 4 and 5) were observed at Sucker Springs, Ouxy Springs and Silver Building Springs. Also, substantial numbers of age 4-6 shortnose suckers were captured from the spawning run on the Williamson River (Scoppettone pers. comm.). It is not known whether the observations of young spawners at springs reflect more intensified monitoring or recent colonization. It is speculated that first time spawners may follow older spawners to imprinted sites while others might be discovering spawning areas by random search. Imprinting of larval suckers to natal spawning areas is unknown. Recent imprinting studies on cyprinids from the Colorado River system has shown increased ATPase levels at hatch and swim-up and suggests the potential for imprinting to occur at that time (Gutermuth pers. comm.).

OSU recorded more than 30 springs along the east side of Upper Klamath Lake from Modoc Point to Sucker Springs (Markle and Simon 1994). Other than those that are known spawning areas (6) and have relatively large discharges, most are small seeps and springs discharging less than 50 gpm. Not all of these springs have been monitored for sucker spawning. OSU also recorded more than 90 spring areas ranging from small seeps to rapidly flowing springs on Bare Island. Several were warm 30-33° C, temperatures lethal to sucker eggs, but many were cooler and are potential spawning areas. No monitoring for sucker spawning has occurred at Bare Island, however in 1993 sucker larvae were collected there during June (Markle and Simon 1994).

3.2.2.4 Population Status

A distinct spawning population of Lost River suckers spawns at Sucker Springs on the eastern shore of Upper Klamath Lake. This population has been monitored fairly extensively since 1987 (Buettner and Scoppettone 1990, Dunsmoor pers. comm.). Population estimates determined by mark and recapture techniques were 1038 (1987), 817 (1988), 960 (1989), and 900 in (1993). The Sucker Springs population appears to be comprised of large, older adults which suggests a lack of recruitment over the last 20 years. In 1993, 60 out of 130 fish captured had been tagged in previous years with floy anchor tags. Visual observations at night using night vision goggles were conducted several times a week from late February through early May in 1993-1995. Based on these observations, large fish continued to dominate spawning aggregates (Buettner pers. obser.). However in 1993, dozens of smaller Lost River suckers were seen in late April and early May suggesting recent recruitment. Similar observations were made in 1994 and 1995 (Buettner pers. obser.).

An extensive visual survey of 10 other springs along the east side of lake during spring 1993 identified Lost River sucker spawning at four other springs (Silver Building, Ouxy Springs, and two small unnamed springs). Dunsmoor (pers. obser.) documented at least one additional lake spring and non-spring shoreline (Cinder Flat) spawning sites in 1995. Numbers of spawners observed at these sites were small compared to Sucker Springs. However, Cinder Flat may have a good-sized population of Lost River suckers. Small-sized Lost River suckers were also observed at Ouxy and Silver Building Springs in 1993-1995. Thirty-two smaller-sized fish ranging from 324 mm to 535 mm (mean 480 mm) were trammel netted from Sucker, Ouxy, and Silver Building springs in 1993.

Shortnose sucker spawning at springs in Upper Klamath Lake was first documented in 1992 at Ouxy Springs (Dunsmoor pers. comm.). Shortnose sucker spawning has been observed there every year since then (Buettner pers. observ.). In 1993, dozens of small shortnose suckers were observed in late April and May at Sucker Springs, Silver Building Springs and Ouxy Springs. Seventy-eight shortnose suckers were captured from Sucker, Ouxy, and Silver Building springs during sporadic trammel netting operations during April and May 1993. They ranged from 194 mm to 502 mm (mean 352 mm).

Population monitoring conducted in the 1980's (Buettner and Scopettone 1990, Bienz and Ziller 1987) indicated that recruitment of Lost River and shortnose suckers to adult size classes was inconsistent, as evidenced by gaps in known year classes of spawning adults. The last known strong year classes were from 1977 and 1978 (Buettner and Scopettone 1990). The Klamath Tribes has been qualitatively monitoring spawning runs in the Williamson and Sprague rivers since 1988 (Dunsmoor pers. comm.). Beginning in 1992, they have observed a substantial increase in the frequency of smaller Lost River and shortnose sucker spawners. During 1993, small-sized shortnose and Lost River suckers dominated the catch in May on the Williamson and Sprague Rivers. In that year limited population sampling was conducted by boat electrofishing to collect fish for taxonomic and genetic investigations. Collections targeted the more abundant small fish. Ages were determined on 18 shortnose suckers, one was age 4 and 17 were age 5 (Scopettone pers. comm.). Of 13 Lost River suckers collected from the spawning run, two were age 4, six were age 5, one was age 6 and 4 older aged fish. Small-sized Lost River sucker adults were also captured at springs in Upper Klamath Lake for genetic evaluation studies. Of six fish collected, two were age 5, three age 6, and one age 20.

Population surveys were also conducted during the fall of 1993 and 1994 by Reclamation using trapnets and trammel nets. In 1993, 136 Lost River suckers and 31 shortnose suckers were captured over two days in November. Length frequency distributions indicated a predominance of small-sized shortnose and Lost River suckers. Shortnose suckers ranged from 267 to 377 mm FL. Lost River suckers ranged from 215 mm to 431 mm FL. In 1994, 42 Lost River suckers and 91 shortnose suckers were captured from 11 sample days during the fall. Shortnose suckers ranged from 292 mm to 495 mm. Lost River suckers from 290 mm to 690 mm FL.

3.2.2.5 Condition

Fulton condition factors were computed on suckers to assess interannual differences during wet and critically dry years. Fish captured during spring 1993 were used to represent 1992 lake conditions since little growth typically occurs in the winter. Because condition factor varies with age, we only analyzed younger year classes since data was lacking on large adults in 1994. Mean condition factor for shortnose suckers in spring 1993 and 1994 were 1.30 and 1.43 respectively. Lost River sucker mean condition factors were 1.20 in spring 1993 and 1.14 in spring 1994. It does not appear that the two years were very different. Mean fall condition factor for shortnose suckers was 1.41 in 1993 and 1.40 in 1994. Mean fall condition factor for Lost River sucker was 1.19 for both 1993 and 1994. Therefore, for younger year classes of both Lost River and shortnose suckers, condition factors during the fall of 1993 (wet year with high lake levels) and 1994 (critically dry year with record low lake levels) were not very different.

3.2.2.6 Sucker Die-offs

In 1986, 190 Lost River suckers, collected from a lake die-off ranged from 8 to 43 years old with 26 year classes represented (Buettner and Scopettone 1990). Most were 19-28 years. In 1988, 33 Lost River suckers were aged from spawning runs up the Sprague and Williamson Rivers. These fish ranged from 9-30 years with most 10 and 11 years old (7 year classes). A comparison of the age class structure for 1986 and 1988 indicated that there was little recruitment from 1970 to 1976. After this hiatus, recruits from 1977 and 1978 reached sexual maturity and entered the spawning population. Age and length-frequency analyses collected in the 1988 spawning run suggests that either the 1986 die-off was selective for older adult fish and/or there was a greater propensity for younger fish to migrate in that year.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT. 18
SALEM, OREGON

Only 8 shortnose suckers were collected during the 1986 fish die-off. Two were age 7, one age 12 and five age 19+ (Scoppettone 1986).

In 1995, another sucker die-off occurred, from which 378 Lost River suckers and 124 shortnose suckers were collected. The die-off included mostly young fish. Ninety-five percent of the Lost River suckers and shortnose suckers were age 7 years and younger (Figures 3 and 4). Only 14 and 9 year classes were documented for Lost River and shortnose suckers respectively. Age 4 and 5 fish, representing the 1991 and 1990 year classes respectively dominated the collection for both species. The absence of older fish indicates that the die-off was selective for younger fish and/or the numbers of older fish in the population are low. Population surveys conducted on Upper Klamath Lake using trapnets and trammel nets from 1993-1995 has documented very few large adults. It was suspected that the small catch of large adults was related to their lower rate of catchability. Older individuals are believed to be less active than younger fish and therefore are less vulnerable to passive netting gear. However, collection of all age classes of cui-ui at Pyramid Lake has been successful during monitoring of prespawning aggregates (Scoppettone pers. comm.). Trammel and trap netting surveys in the prespawning aggregate on the lower Williamson River in 1995 and 1996 by NBS captured mostly smaller adults suggesting that large adults were not very abundant. If the age distribution documented by Buettner and Scoppettone (1990) was representative of that present in 1986, and recruitment was poor since then, most Lost River suckers would be 27-37 years old in 1995. It appears likely that mortality within these age classes has been high. Shortnose sucker populations during the 1986-1988 period appeared small and runs were dominated by larger fish, similar to that documented by Bienz and Ziller (1987) in the early 1980's. This suggests that most of the older year classes present in the late 1980's may have died off.

Reclamation has captured, tagged and released several hundred juvenile and adult shortnose and Lost River suckers in Upper Klamath Lake since 1993. These fish were captured from several locations in Upper Klamath Lake and the lower Williamson River. Specifically, 305 shortnose have been PIT and/or Floy anchor-tagged and 15 radio-tagged. Twelve Lost River suckers were radio-tagged and 355 PIT and/or Floy tagged. During the spring of 1995, NBS PIT tagged 60 Lost River sucker adults and 405 shortnose sucker adults at the mouth of the Williamson River. Recapture rate has been extremely low. Reclamation recaptured one PIT tagged Lost River sucker in 1994 and one in 1995. One PIT tagged shortnose sucker was recaptured at Ouxy Springs in 1995.

Most suckers collected from the 1995 fish die-off were checked for tags. From approximately 300 Lost River suckers and 100 shortnose suckers checked for tags, none were detected. Tag shed rates for both implants into the dorsal musculature and ventral body cavity appear to be low based on recapture of double-tagged suckers at Clear Lake (Perkins pers. comm.) Because the fish die-off may have been selective to specific age classes, the length distribution of fish tagged in 1995 was compared to that of the die-off. The two length distributions for Lost River and shortnose suckers appear similar indicating there was a good representation of similar-sized fish in the die-off (Figures 5 and 6). It should be noted that approximately 35% of the die-off fish were highly decomposed when collected and there is a greater probability that tag loss could have occurred. Although no tagged fish were recovered, three of the 14 radio tagged adults died during the fish kill. The data from smaller-sized shortnose and Lost River suckers suggests that their population numbers are at least in the thousands of fish. Until more extensive monitoring is conducted, the relative abundance of older year classes can not be assessed.

3.2.2.7 Entrainment

Entrainment of larval suckers into the A Canal was documented in 1990 and 1991 (Markle and Simon 1993) and has been summarized in the Lost River and Shortnose Sucker Recovery Plan (USFWS 1993). In 1995, New Earth monitored larval suckers at the C Canal Drop for a period of about 8 weeks (July and August). Sampling occurred daily at about 1300 and 0100. Subsamples of concentrated algae and fish were taken from their microscreens and sorted. Seven larval suckers were collected from the July 7 to 11.

Juvenile suckers have been salvaged from Klamath Project canals receiving water from Upper Klamath Lake yearly since 1991. These operations were conducted during the fall when diversions were shut off. Canals were drawn down and sampled with seines and backpack electrofishers. Most suckers salvaged were small juveniles less than 250 mm FL. The number of suckers salvaged from 1991-1995 were 3,166; 2,618; 788; 334; and 4,072 respectively. The large catch in 1991 supports OSU sucker age 0 survival data for the same year indicating establishment of a year class; also the fish die-off sample in 1995 was dominated by 1991 fish. The 1991 salvage collection included approximately 75% age 0 and 25% age 1 suckers. In 1992, although the overall catch was high (2,618), about 95%, based on length frequency, were 1991 year class fish. This also tracked with OSU juvenile sucker survey data indicating Lost River and shortnose sucker year class failure in 1992. Numbers of 1992 year class shortnose suckers in the 1995 die-off were low.

In 1993, only 788 juvenile suckers were salvaged even though sampling effort was similar to 1992. OSU data indicated that successful age 0 survival for both shortnose and Lost River suckers occurred. Approximately 70% were age 0 and 25% age 1 suckers. Possible explanations for the lack of correlation with Upper Klamath Lake age 0 survival data from Upper Klamath Lake include:

- 1) High lake levels were maintained affording more shoreline habitat for juveniles reducing straying,
- 2) Irrigation deliveries were lower in 1993 than 1992 particularly during the spring when most larval entrainment occurs,
- 3) Sampling efforts may have been less efficient in capturing suckers in the canals due to uneven distribution, and
- 4) Canal shutdown procedures were more successful in flushing suckers from the canals in 1993.

The smallest number of suckers salvaged since 1991 were obtained in 1994 (334) with about 90% age 0. This low number was consistent with age 0 survival data from Upper Klamath Lake (Simon et al. 1995). In 1995, over 4,000 suckers were salvaged, the largest salvage total numbers for the 5 years of effort, including about 50% age 0 and 50% age 1. OSU juvenile sucker age 0 survival estimates were high in the fall from cast net and trawl surveys indicating year class establishment (Simon pers. comm.).

Canal salvage data represent only a qualitative index of year class strength in Upper Klamath Lake for the following reasons: 1) Since some irrigation water originates from the Lost River, suckers from Gerber, Clear Lake, and the Lost River are likely included in the salvage sample. 2) Many irrigation canals are treated with Acrolein during the summer to control aquatic plants and this herbicide is highly toxic to fish. 3) Several practices have been implemented since 1992 to reduce the number of suckers that have to be salvaged. Most of these practices lead to draining of canals into the Lost River or Klamath River. 4) Patchy distribution of stranded suckers can also effect salvage success since not all potential holding habitat is sampled. 5) Sampling effort and personnel has also varied during annual salvage operations.

3.2.2.8 Freshwater Inflow Area Use

Freshwater inflow areas of relatively good water quality may be important for Lost River and shortnose suckers in Upper Klamath Lake during the summer and early fall when DO and pH levels can be stressful or lethal in much of the lake. Other fish species including rainbow trout, yellow perch and brown bullheads show seasonal movements apparently related to heavy algal blooms and attendant poor water quality (Vincent 1968). These fishes were usually found in the freshwater areas at the northern end of the lake during the summer or in other areas affected by incoming fresh water (Bond et al. 1968). Small numbers of adult suckers were captured in or

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

20

adjacent to Pelican Bay, Wood River, Williamson River, and Crystal Creek during July and August of 1986 when water quality was poor in Upper Klamath Lake (Bienz and Ziller 1987). In 1987, a few adult shortnose and Lost River suckers were captured during the summer near the lake/freshwater inflow interface of Odessa Creek (Scoppettone and Coleman 1988). None were captured in Thomason Creek. In 1966, a late August migration of about 2,000 Lost River suckers was observed below the Sprague River Dam; this same run was reported in 1967 (Golden 1969).

Sucker utilization of freshwater inflow areas has been most pronounced during fish die-off events. In 1986, during the August die-off, schools of 100-200 Lost River suckers were observed in Pelican Bay (Bienz and Ziller 1987). In 1995, during a sucker die-off in September small groups of Lost River and shortnose suckers were observed in Pelican Bay, Harriman Springs, Odessa Creek, Williamson River and Short Creek.

Recent radio telemetry and trammel netting data suggest that freshwater inflow areas are infrequently used by adult suckers unless fish are stressed or dying. Reclamation has monitored movements of 15 radio-tagged adult shortnose and 12 adult Lost River suckers in Upper Klamath Lake from 1993-1995. Fish locations have been determined by air and boat at 1-2 week intervals from May through October. During this tracking effort, there have not been any observations of radio-tagged fish in freshwater refugial areas with the exception of migrations for spawning. Because tracking efforts were limited to daylight hours, a telemetry station was set up during September and October, 1994 and July-October, 1995 to continuously monitor radio-tagged fish movements at the entrance to Pelican Bay. During this monitoring, no radio-tagged suckers were detected in the bay. However, three suckers were detected just outside of Pelican Bay during September (1995).

In August 1995, during a time period when several radio-tagged fish were concentrated near Pelican Bay, Reclamation set trammel nets in the lake just outside the bay and in the transition zone between the bay and the lake. On August 8, 28 adult Lost River suckers and 10 adult shortnose suckers were captured outside the bay and none in the transition zone during short (3-4 hour) day-time net sets. On August 22, 16 adult shortnose suckers and 13 adult Lost River suckers were captured along Fish Banks outside the bay and none in the transition zone. Because sampling occurred during daylight hours, net avoidance may have occurred in the relatively clear bay netting locations. However, algae densities were moderate there, decreasing visibility. The sample sites outside the bay sites had low visibility (Secchi disk depth < 1 meter).

Areas adjacent to freshwater inflows, like Fish Banks and the entrance to Pelican Bay have been used consistently during the summer months by radio-tagged suckers even though water quality in these areas has not always been good. On September 13-14, 1995, the Klamath Tribes collected diel dissolved oxygen profiles throughout the Pelican Bay interface and Fish Banks area, and showed consistently low DO's (2.5-4.3 mg/L) in the morning hours. In 1994 during September 19-28 there were numerous, widespread kills of chubs (and probably other species) in the northern lake. While pH was near neutral, DO's were very low (2-4 mg/L) over wide areas, even at midday, and not one radio tagged fish was in or near to Fish Banks. In fact, many of them had been at Fish Banks just days or weeks earlier, and moved to an area generally north of Bare Island during this time of poor water quality.

During sucker die-off events substantial numbers of dead and dying fish have been observed and collected from freshwater inflow areas. In 1971, during a massive chub die-off, at least 25 Lost River suckers, were observed dead off Rocky Point in Pelican Bay (ODFW 1971). However, only 6-8 were seen during several days of surveying throughout Upper Klamath Lake. In 1986, the majority of dead suckers collected during the August die-off were found in or adjacent to Pelican Bay (Scoppettone and Coleman 1986). In August 1994, 10 large adult Lost River suckers were found dead in Pelican Bay. And finally during the September 1995 die-off, substantial numbers of suckers were collected from several refugial areas including: Pelican Bay (80), Williamson River (8), Short Creek (8), Odessa Creek (12), Thomason Creek (3), and Harriman Springs (38).

Most suckers observed in freshwater inflow areas during die-off events were lethargic and relatively unresponsive to disturbance indicating they were sick or stressed (Bienz and Ziller 1987, Green pers. obser.) In 1995, several

fish displaying this behavior were collected and taken to OSU for pathological examination. All were acutely infected by a bacteria disease, columnaris (*Flexobacter columnaris*) (Banner 1995). This pathogen, was also documented as a primary causative agent in the death of suckers collected during the 1971 and 1986 die-offs (Logan and Markle 1993). This information suggests that the freshwater inflow areas are used to a greater extent by acutely sick and dying fish than healthy fish and might be considered a dying ground. Since die-off events have occurred during periods of high lake temperature, it has been suggested that cold water shock may contribute to mortality of these already stressed fish (Bienz pers. comm.). Temperature differences between Pelican Bay and Upper Klamath Lake often exceed 10 C during the summer.

Recent large-scale fish die-offs have been documented from 1971, 1986, 1994, and 1995. Because of the long history of noxious blooms of bluegreen algae and associated poor water quality conditions, other fish kills most certainly have occurred. Fish kills involving non-game fish including chubs and suckers, may have not been reported by the public. Also, with the large populations of fish eating birds (cormorants, gulls, pelicans, grebes, terns) present in the area, sick and dead fish can be quickly consumed leaving no evidence of a fish kill. Large concentrations of fish eating birds were observed working local fish kills during summer 1994 (Dunsmoor pers. comm.) and 1995 (Simon pers. comm.).

Freshwater inflow areas provide rearing habitat for larval and juvenile suckers (Buettner and Scopettone 1990; Markle and Simon 1994, Simon et al. 1995; Logan and Markle 1993; Klamath Tribes 1992, 1995). The lower Williamson River typically has the highest densities of larvae because major spawning areas occur upstream on the Sprague and Williamson Rivers. The studies cited above generally report relatively low numbers of juveniles in inflow areas compared to shoreline locations in Upper Klamath Lake. Lack of food and cover, cooler water temperatures, and increased susceptibility to predation by avian and fish predators like rainbow trout and yellow perch in the clear water are likely factors limiting use of these areas.

Reclamation conducted larval and juvenile fish surveys at Barkley Springs and areas nearby during the summer of 1994 and 1995. Large numbers of larval suckers were observed in clear water along the shoreline in spring influenced areas during June in 1995. Also, approximately a dozen juvenile suckers (probably age 0 and age 1) were captured during both years in shoreline areas during July and August. Juvenile suckers have also been collected from the Odessa Creek area during summer (Dunsmoor pers. comm.). However, electrofishing surveys near Harriman Springs during August 1995 failed to document juvenile suckers.

Monda and Saiki (1993, 1994) and Bellerud and Saiki (1995) conducted water quality tolerance tests to assess toxic levels of temperature, DO, pH, and un-ionized ammonia on larval and juvenile shortnose and Lost River suckers. The 96-hr LC50 values (lower 95% confidence interval) for Lost River sucker larvae were 9.77 pH, 2.3 mg/l DO, 30.5° C temperature, and 0.43 mg/l un-ionized ammonia. For juvenile Lost River suckers values were 9.87 pH, 1.9 mg/l DO, 29.9° C temperature and 0.70 mg/l un-ionized ammonia. For larval shortnose suckers values were 10.01 pH, 1.8 mg/l DO, 31.2° C temperature, and 0.73 mg/l un-ionized ammonia. Lower confidence intervals for shortnose sucker juveniles were 9.76 pH, 1.7 mg/l DO, 29.4° C temperature, and 0.32 mg/l unionized ammonia. Of these four parameters only temperature is not a significant threat to larval and juvenile suckers in Upper Klamath Lake. Bellerud and Saiki (1995) concluded that DO and pH in Upper Klamath Lake can be acutely lethal to larval and juvenile Lost River and shortnose suckers. Moreover, stressful water quality conditions that curtail successful survival of early life stages could explain the long-term decline of sucker populations in Upper Klamath Lake.

3.2.2.9 Lake Habitat

Habitat use by larval, juvenile, and adult life stages was previously summarized in the Lost River and Shortnose Sucker Recovery Plan (USFWS 1993). Recent research by The Klamath Tribes (The Klamath Tribes 1995), OSU (Markle and Simon 1993, 1994; Simon et al. 1995) and Klamath Basin Water Users (Vogel pers. comm. 1992) on

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

22

larval and juvenile sucker distribution and habitat, and Reclamation and NBS on adult distribution and habitat (Buettner 1995, Perkins pers. comm.) has furthered our understanding of the habitat needs of these life stages.

3.2.2.10 Larval Habitat

Vogel (pers. comm.) monitored larval sucker habitat utilization in the lower Williamson River by visual observation during May 1992. He observed that larval suckers were more frequently oriented in or adjacent to shoreline structure including emergent vegetation, submerged aquatic plants and instream woody debris than in shoreline areas lacking structure. OSU had a similar assessment of larval habitat use in the lower Williamson River (Markle and Simon 1994). They saw large numbers of larvae within submerged vegetation and large schools of larvae were seen swimming near the edges of vegetation. In other areas that were sampled in Upper Klamath Lake, individual larvae and small schools were observed in or near vegetation and physical structures such as rocks or logs.

There was no reference to bottom substrate in describing larval habitat in the two studies referenced above. However, the lower Williamson River is generally characterized by sand and firm mud bottoms. Since larval suckers are more surface oriented, bottom substrate may not be an important habitat parameter. Water depth was also not discussed in these studies, but it can be interpreted that most larval suckers were observed in shallow water; all sampling occurred at depths less than 1m.

Larval sucker use of offshore areas has not been studied. High densities of the bluegreen algae, (*Aphanizomenon flos-aquae*), typically occur during the larval life stage, making it difficult to sample. Monitoring normally involves towing fine-meshed nets, that would quickly clog with algae if attempted in Upper Klamath Lake. However, the literature generally indicates that larval catostomids are shoreline oriented (Moyle 1993, Minkley 1973, Scopettone et al. 1990). The Klamath Tribes (1995) developed sampling methodology using pop nets to quantify densities of larvae in shallow shoreline habitats. One aspect of their investigation was to compare larval sucker densities in fringe emergent vegetation habitat versus that in adjacent areas without vegetative structure. At the mouth of the Williamson River and Goose Bay, larval sucker densities were several times more abundant in emergent vegetation than adjacent open water sites of similar depth. Larval suckers were documented in emergent vegetation consisting of: *Scirpus*, *Polygonum*, *Sparganium*, and willows.

OSU has studied spatial and temporal distribution of sucker larvae around Upper Klamath Lake since 1991 (Markle and Simon 1993; Markle and Simon 1994, Simon et al. 1995). However, sampling was less extensive during 1991-1993. Larval suckers were distributed along shoreline areas throughout Upper Klamath Lake in 1994 and 1995, with the highest number in the lower Williamson River. The sample sites along the east side of the lake generally had more larvae than other areas. Very few sucker larvae were captured along the west side of Upper Klamath Lake and in Agency Lake. In 1993, 81 larvae were captured over rock substrate along the shore of Bare Island. Larvae were collected primarily in May and June during all years. The Klamath Tribes (1995) indicated that in 1995 most suckers had developed into juveniles by late July.

Water quality associations with larval sucker distribution were monitored in 1995 by OSU during larval fish towing and larval searches. Larval suckers were found in pH ranging from 7 to 10 (Simon pers. comm.). Distribution of pH values where fish were found paralleled the distributions at sampling sites. Larval suckers were captured at DO ranging from 4.5-14.5 mg/l. This work was not designed to show either avoidance behavior or acute toxicity. Fish captured at many of these sites might have shown active avoidance of these areas if they had the choice of moving to a better location. It is possible that they sampled larvae in conditions that were actually acutely toxic and were collected while dying. OSU's data show that larval suckers are frequently found in areas in which water quality variables approach or exceed LC-50 values. Since chronic effect thresholds are usually substantially lower than acute, it is likely that chronic effects are expressed with regularity.

The catch data indicates that most larvae were captured in or near freshwater inflow areas that generally have good water quality (Markle and Simon 1994, Simon et al. 1995). A Hydrolab Datasonde 3 was placed at Goose Bay, a site heavily used by sucker larvae and juveniles, from June 15 to August 11, 1995 (The Klamath Tribes 1995). Water quality seldom exceeded acute toxicity thresholds in the *Polygonum* beds where larvae were located. DO infrequently decreased below 4 mg/l or 50% saturation and pH seldom rose above 9.7. However pH values of 9.6 were very common and are only slightly below measured 96hr LC 50 for larval and juvenile suckers (Bellerud and Saiki 1995). DO concentrations exceeded saturation in almost half of the measurements (The Klamath Tribes 1995). Acute toxicity to supersaturated water has not been evaluated.

3.2.2.11 Juvenile Ecology

Juvenile sucker ecology has been more extensively studied than that for sucker larvae in Upper Klamath Lake. Study objectives have included juvenile sucker distribution, habitat utilization, associated water quality, relative abundance, growth and parasites (Logan and Markle 1993; Markle and Simon 1993, 1994; Simon et al. 1995; Reclamation 1995; The Klamath Tribes 1995).

Examination of Lost River and shortnose suckers collected from Upper Klamath Lake in 1994 showed evidence of infestation by a digenetic trematode possibly of the genus *Neascus* (Simon et al. 1995). The parasite is present in the musculature and integument. It appears as a black, 1-2 mm cyst under the skin except in recently infested fish where it is yellow or white. In the normal host, one expects that infestation rates will increase over time (or size of fish) because the fish is a secondary host which must be eaten by a bird and the parasite often spends several years in the secondary host. There was no increase in infestation with fish size. The infestation rate seen in fish less than 49 mm (12.5-14%) was much greater than the 2.2% infestation rate found in fish 50-129 mm SL. There was little difference in infestation rate between species. Preliminary evaluation of 1990-1993 and 1995 samples show frequent infestation in young suckers collected from Upper Klamath Lake. Data from several years may provide long term trends in the infestation of this parasite and insight into the importance of this parasite in determining mortality. It seems probable that fish infected by parasites might have a lower rate of survival in Upper Klamath Lake where summer water quality conditions are also stressful to fish.

OSU has been collecting and reading otoliths from larval and juvenile suckers to help identify cohorts through otolith morphology and microchemistry, uncover timing of birth and document growth events (Markle and Simon 1993, Simon et al. 1995). Preliminary results from the otolith microchemistry investigation are suggestive that this tool can be used to distinguish lake-spawned from river-spawned Lost River suckers using either a bivariate measure or a multivariate measure of elemental composition (Markle and Simon 1993). Further study will be needed to determine whether individual spring-spawned stocks can be identified.

In 1995, depositional patterns of otolith rings was studied to determine if they were consistent and predictable (Hoff pers. comm.). Larval fish from the Braymill Hatchery were marked with a biological marker and held for varying time periods; wild larvae were also captured, marked and placed in an enclosure at the mouth of the Williamson River. After a period of a couple weeks the fish were sacrificed and otoliths removed. Examination of the otolith rings verified that the depositional patterns were constant and represented daily increments in both hatchery and wild suckers. This information indicates that sucker otoliths can be used to uncover time of birth and potentially cohort identity. To illustrate the utility of this information, cohorts produced from Sucker Springs might be easily identified since Lost River sucker spawning can be up to two months earlier than spawning in the Williamson and Sprague Rivers.

Other otolith research has shown that otolith growth appears to be driven by endogenous circadian rhythm while fish growth maybe slowed or halted due to various environmental stress factors. The implication is that otolith growth reflects age as well as, and perhaps more strongly than growth. Lapillus otolith weight and fish size were compared to determine if otolith weight can be used to predict fish ages. The data generally support a relationship between fish length (age) and lapillus otolith weight at lengths greater than about 80mm SL (Simon et al. 1995).

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

24

This method will allow processing of large numbers of fish for age analysis. In contrast, otolith preparation and counting of daily growth rings is very time consuming. Preliminary work has been conducted indicating that otolith growth and fish somatic growth are also coupled (Logan pers. comm.). When they are coupled and otolith ring widths are linearly related to somatic growth, these structures can be used to back calculate length at age. Growth rates of suckers surviving to fall can be analyzed to correlate with environmental variables. For example, juvenile suckers collected in the fall of 1994 were all recruits from late-spawned fish suggesting that environmental conditions during early season may have led to high mortality of cohorts produced from early spawning.

3.2.2.12 Juvenile Habitat

Spatial and temporal distribution of juvenile suckers in Upper Klamath Lake has been studied through systematic monitoring during the summer and fall (Markle and Simon 1993, 1994, Simon et al. 1995). In 1993, limited beach seining was conducted concurrent with larval sampling on June 5-6. No suckers were caught at any of the sites, and it was presumed that suckers had not reached sufficient size to be captured with beach seines. However, during the first seine survey from July 12-16, both species of suckers were captured. Median shortnose sucker size was 21mm SL and 30mm SL for Lost River suckers. Shortnose and Lost River suckers transform from larvae to juveniles between 17 and 25mm SL (Buettner and Scopettone 1990, Dunsmoor pers. comm.). Like the larval life stage, age 0 juveniles were generally most abundant in shoreline areas within a few miles of the Williamson River mouth. Shoreline sampling was typically limited to distances less than 100 feet from shore and less than three feet deep. Juveniles were also consistently captured along the east shore of Upper Klamath Lake. Distributions were patchy for other sample locations around the lake. Juveniles were rarely captured in Agency Lake. By October, a few shortnose suckers were captured offshore in trawl samples. Offshore sampling occurred at least 300 feet from shore at depths ranging from one to five meters deep. Juvenile Lost River suckers were captured in shallow shoreline areas during the summer in 1991 and 1993 but were uncommon from shoreline areas in 1994 and 1995. They were more commonly caught during fall trawl surveys (1991, 1994, 1995).

During cast net surveys in 1991 and 1993, OSU noticed apparent relationships between sucker density and substrate types (Markle and Simon 1994). They grouped substrate into four general categories: boulder, gravel, muck, and peat. Gravel spans the range of sand, rock, gravel or cobble; and muck is any type of soft unconsolidated organic material, silt, etc. They did not sample areas with emergent vegetation because of gear limitations. In 1991, age 0 suckers were captured mostly over gravel and muck substrates; muck substrate was found at offshore stations. Age 0 suckers were captured most commonly over gravel substrates in 1993. Because of the uneven distribution of juvenile suckers along the shoreline and because indices of abundance from fixed site sampling might lead to inappropriate conclusions, OSU shifted to a stratified random design. In 1994 and 1995 shoreline habitat types were mapped including substrate types and vegetation. In 1995, age 0 sampling was based on random monitoring of specific habitat types to provide habitat-specific fish densities. Catch rates using cast nets were much higher from stratified-random sampling than fixed-sites (Simon pers. comm.).

The Klamath Tribes conducted dip net surveys within the emergent zone in late July 1995 and frequently found juvenile suckers in very shallow water (Dunsmoor pers. comm.). Data on juvenile sucker utilization of the emergent zone is lacking because of difficulties associated with sampling this habitat type.

Age 0 juvenile sucker distribution and associated water quality data was collected in 1994 during beach seining (Simon et al. 1995). For 82 seine samples at which pH and DO were collected, samples with more than one sucker were generally noted over the range of pH and DO monitored. For pH, the frequency distribution of pH values from sites where suckers were found and that from all sites sampled followed a similar pattern. No pH values over 9.8 were sampled. The frequency distribution for DO were similar at DO concentrations greater than 6 mg/l. However, few suckers were captured from sites with DO of 6 mg/l and below even though many sites were sampled with DO values of 4-6 mg/l.

In 1995, pH was measured at 659 beach seine and cast net sample sites (Simon pers.comm.). Most age 0 suckers were captured at sites where pH ranged from 9-10. Interestingly, large numbers of juveniles were captured at pH 10, which based on laboratory acute toxicity tests is lethal to juvenile Lost River and shortnose suckers (using the lower 95% confidence interval) (Monda and Saiki 1993, 1994). This observation is not entirely surprising since the pH data represent instantaneous daytime measurements typically measured when diel maximums occurred. Diel fluctuations of 1 pH unit are common during the summer when *Aphanizomenon* blooms occur (Kann and Smith 1993). Thus, the exposure to high pH may be for only a few hours each day whereas toxicity tests were conducted with a constant pH exposure over a 96 hour period. If high pH persists, high mortality might occur. Juvenile monitoring data from 1995 seems to indicate that juvenile sucker survival into October in shoreline habitat was poor at fixed-site stations. Catch rates for shortnose suckers were high during beach seine surveys during August but relatively low during fall cast net surveys at fixed-site stations. Juvenile Lost River suckers were poorly represented in the shoreline beach seining and cast netting samples. However, catch rates were relatively high offshore in fall trawl samples indicating that they were probably distributed offshore throughout the summer. Continuous water quality monitoring of two near-shore and four offshore locations was conducted during the summer using Hydrolab Datasonde 3 dataloggers but the data has not been analyzed.

DO was monitored at 661 cast net and beach seining sites in 1995. Juvenile suckers were found at sites where DO ranged from 6-15 mg/l with the largest number of suckers captured at DO's of approximately 8 mg/l. From over 100 sample sites with DO less than 6 mg/l only one site had juvenile suckers. It appears likely that juvenile suckers will seek areas of better water quality when it becomes stressful. This may explain the relative absence of fish in areas with DO less than 6 mg/l. Since the acute lethal DO concentration is about 2 mg/l, it is not likely that the absence of fish from sites with DO from about 3-6 mg/l was related to water quality induced mortality.

OSU has been monitoring juvenile sucker (age 0) survival in Upper Klamath Lake since 1991. Fall age 0 sucker surveys using cast nets and bottom trawls have been used to assess year class survival. The cast nets were effective for larger age 0 shoreline oriented fish and the trawl was used to monitor offshore abundance. The cast netting surveys were more consistent and successful in capturing suckers than trawl surveys. Trawl surveys were not conducted in 1992, and in 1994 and 1995 a larger trawl with a smaller mesh was used. Cast net survey results indicated that year class establishment occurred in 1991, 1993, and 1995 for both Lost River and shortnose suckers. No age 0 suckers were captured during fall cast netting surveys in 1992, and 1994 catches were minuscule (Simon et al. 1995).

Except for 1991, trawl catch rates seemed to have no correlation with shoreline abundances. In 1993, very few suckers were caught in trawl sampling while cast net catches were the highest of all years sampled. In 1994, trawl catch rates for Lost River suckers were the highest of the years sampled while cast net catches were small. Very few shortnose suckers were captured in either cast nets or trawl samples in 1994. In 1995, shortnose sucker catch rates patterns were similar for both cast net and trawl data. However, Lost River sucker trawl catch rates were high in 1995 while cast net catches were low. The inconsistencies between the cast net and trawl catch data may be related to size dependent changes in distribution. Simon et al. 1995 noted that suckers in the trawl samples were larger than those in shoreline cast net samples for the same sample period. It was suggested that suckers may gradually move to offshore regions as they grow larger (possibly 90 mm for LRS and 80 for SNS). This may explain the presence of age 0 LRS in trawl samples in 1991 and 1994, and the near absence of suckers in the 1993 trawl sampling, when age 0 suckers of both species were small. During early fall of the years trawled, trawling has been an ineffective sampler of age 0 SNS. In 1991, trawl surveys were conducted weekly beginning on September 8 and continuing until October 13. No suckers were captured until September 29 and catches increased on October 6 and October 15. The combined trawl and cast net data indicate Lost River year class establishment in 1991, 1993, 1994, and 1995. For shortnose suckers, year classes were produced in 1991, 1993, and 1995.

It should be noted that although these year classes were documented surviving the first 6-8 months of life, it does not ensure recruitment to the adult population. The fish kill in 1995 demonstrates that mortality can be significant for older fish. Survival to adult life stages is more important in terms of the species' long term viability.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

26

3.2.2.13 Adult Habitat

Adult Lost River and shortnose sucker spatial and temporal distribution in Upper Klamath Lake was assessed using radio telemetry methods from 1993-1995. Also, a trammel netting survey during the fall of 1994 provides additional distributional information. Fifty-five trammel net sets were made throughout Upper Klamath Lake from September 20 to November 3. Daytime sets of 1-3 hours were made with 90 m long by 1.8 m deep sinking trammel nets. A total of 40 Lost River suckers and 84 shortnose suckers were captured along with 22 rainbow trout and hundreds of blue and tui chub. Suckers were caught throughout the upper two-thirds of Upper Klamath Lake above Squaw Point. Only one sucker was caught in the lower portion of the lake. Largest numbers of suckers were captured from Ball Bay. Very few were caught in Shoalwater Bay. Sucker catch rates were similar between open water and near-shore areas; suckers were captured at depths ranging from 1m to 12m.

This fish survey was conducted when Upper Klamath Lake was at a record low elevation (4136.8 feet). During September, water quality (particularly DO) conditions were highly variable both vertically and spatially in Upper Klamath Lake. In particular, DO concentrations were low in several areas particularly near the bottom. From 16 sites where associated water quality was collected, suckers were captured where bottom DO ranged from 3.7 to 7.8 mg/l. At two net sites where bottom DO was 1.3 mg/l, no suckers were captured; DO at 0.5 m at these sites were 4.7 and 11.7 mg/l. Cold weather occurred the first week of October leading to improved water quality throughout Upper Klamath Lake.

Suckers were distributed vertically throughout the 1.8 m deep bottom set nets indicating that they were not exclusively bottom oriented. This pattern has been observed in other trammel netting efforts conducted in 1993 and 1995 (Buettner pers. observ.). This observation is important since water quality can vary throughout the water column particularly in deeper locations and during calm periods. Bottom DO's were consistently lower than other water column values. Suckers may avoid bottom areas when degraded water quality exists there.

During periods of degraded water quality in Upper Klamath Lake, freshwater inflow areas can provide refugial habitat for suckers and other fish. It has been well documented that these areas provide summer habitat for rainbow trout, brown bullhead, and yellow perch (Vincent 1968, Logan and Markle 1993, Bienz and Ziller 1987). Adult suckers have been reported from these areas during die-off events (1971, 1986, 1995). These areas are also important rearing areas for sucker larvae and juveniles. Water quality was monitored extensively in the two largest refugial areas, Pelican Bay and the lower Williamson River during 1992 and 1993. Hydrolab Datasonde 3 dataloggers continuously monitored water quality during the summer and early fall in 1992. Water quality remained good throughout the sampling period in Pelican Bay with temperature remaining below 18 C, pH below 9.7, and DO at 5.5 mg/l and above. In the lower Williamson temperatures remained below 20 C, pH below 9.2 and DO above 6.1 mg/l.

In 1994, extensive water quality monitoring was conducted beginning in mid-August and continuing through September after several dead Lost River suckers and trout were found in Pelican Bay (Kann pers. comm.). It was suspected that the dense macrophyte beds were negatively affecting water quality. Two dataloggers continuously monitored water quality near the mouth of the bay (near Fish Banks) and at the confluence of Crystal Creek. During August and September, the lowest recorded DO was 6.5 mg/l while pH reached a maximum of 9.2 (Crystal Creek hydrolab site). Weekly profile data indicated that stratification was minimal.

With historic low lake levels in 1994, the area of refuge with adequate water depth for adult suckers was greatly reduced. The dense macrophyte growth in Pelican Bay further reduced available habitat. To improve refuge conditions, macrophytes were removed from about 20 acres of the bay during September 7-15. Vegetation was cut above the bottom with a mower, collected, and off-loaded to shoreline disposal sites nearby. Water quality monitoring during this operation showed no deterioration with the exception of a temporary increase in turbidity (Vogel pers. comm.).

Intensive water quality monitoring was conducted in the lake outside Pelican Bay in 1994 to define the area of influence of the bay water on the lake (September 8 to October 4). Hydrolab water quality instruments were used to monitor temperature, dissolved oxygen, pH, and specific conductance during the morning and late afternoon/early evening hours. The survey indicated that the area of influence from Pelican Bay extended approximately 1 km out and 2 km north along Fish Banks. Dissolved oxygen concentrations were occasionally less than 4 mg/L near the bottom during the morning hours, particularly at sites south and west of the entrance to Pelican Bay. Also, no radio-tagged fish were located in this area during the time of the survey.

Locations of 9, 22, and 20 radio-tagged adult shortnose and Lost River suckers were monitored during 1993, 1994, and 1995 respectively (Figure 7). These fish were mostly captured from pre-spawning aggregations at Sucker Springs and at the mouth of the Williamson River. A few were captured from spawning runs in the Williamson River and others from Shoalwater Bay. All fish were implanted with transmitters and released immediately after surgery. Of 39 fish implanted with transmitters 6 died shortly after release. Fish were tracked at one to two week intervals from June through October. Fish locations were first made by plane followed by boat tracking to obtain more exact locations. When location were fixed by boat, coordinate data was documented using a global positioning system or Loran navigational instruments and habitat data collected including depth, substrate, and water quality. Hydrolab water quality was monitored at 0.5 m below the surface and 0.1 m above the bottom (temperature, DO, pH, specific conductance). Tracking efforts from November through May were less frequent, usually monthly and were by airplane only during the winter and early spring.

Radio-tagged suckers were restricted to the upper two-thirds of Upper Klamath Lake during 1993-1995. No fish were located in the lake below Howard Bay and observations below Bare Island were rare. Also, no fish were tracked from Agency Lake or the freshwater inflow areas, Pelican Bay and Williamson River (with the exception of spawning migrations).

During May, after most fish had spawned, many moved into Shoalwater Bay (SB; 45% of fish locations). A substantial number were also located near the Williamson River (WR; 27%). Smaller percentages were reported for Ball Bay (BB; 10), Entrance to Pelican Bay (EPB; 9), and Mid-North (MN; 8).

During June, SB was still the most frequently used area (34%) followed by the EPB (19%). The WR, BB, and MN had similar numbers of fish observations (15-16%). By July all fish had exited SB and were mainly distributed near MN (46%) and EPB (36%). No radio-tagged fish entered SB from June through September. BB was used throughout the May through October period, but not as frequently during July and August.

The more restricted fish distribution first observed in July continued in August with 84% of fish locations from EPB and MN. By September, fish began to disperse over a wider area. This dispersal was greatest in October with fish utilizing most lake areas north of Howard Bay. Fourteen percent of the fish locations were below Bare Island, the highest of any month.

Fish were generally distributed in off-shore areas at depths ranging from 1-9 m (Figure 8). Most fish locations were at 2-3 m. Fish generally avoided water less than 1 m (possibly due to greater vulnerability to bird predation) and greater than 5 m (possibly due to greater frequency of poor water quality conditions developing during calm periods).

Radio-tagged fish were located in areas with near-surface (0.5 m) water temperatures ranging from 7-28° C and near-bottom temperatures ranging from 6-24° C (Figure 9). Near-surface DO concentrations were 4-15 mg/l and near-bottom readings were 1-15 mg/l (Figure 10). Near-bottom readings which are probably more representative of preferred sucker habitat, were mostly above 4 mg/l (95th percentile).

pH at fish locations ranged from 7.5-10.8 at 0.5 m and 7.4-10.6 near-bottom (Figure 11). Very few fish locations were documented at sites with near-bottom pH of 10 or greater (5% of values).

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

28

Fish distributions followed similar patterns each year. It is suspected that food and water quality conditions were major factors affecting distribution. During May when water quality is good lake-wide, fish concentrated in the Shoalwater Bay area. During June and July when *Aphanizomenon* blooms lead to water quality degradation in Upper Klamath Lake fish moved out of bay areas that had more extreme fluctuations in water quality (USGS 1995 in preparation). Many fish were concentrated near the entrance to Pelican Bay during July and August, an area where a large inflow of freshwater enters the lake. The lack of fish in the lower portion of Upper Klamath Lake and Agency Lake is probably related to the more frequent degraded water quality conditions that occur there during the summer than in the open water areas of the northern portion of Upper Klamath Lake (USGS 1995 in preparation). Comparison of water quality associated with fish locations with that of sites representing a wide range of areas in the lake have not been completed.

Many radio-tagged fish captured and tagged just before the spawning season, exhibited movements suggesting that they spawned during that season, 6 of 10 in 1994 (2 Sucker Springs, 4 Williamson River) and 9 of 13 in 1995 (Williamson River). In 1993, fish that were radio-tagged were captured late in the spawning season at Sucker Springs (April 22 and 26). Since the next tracking effort occurred May 20, spawning activities were likely missed. Two Lost River suckers were tagged during their spawning run on the Williamson River (May 18 and 20).

Repeat spawning was indicated by several fish radio-tagged in 1993 and 1994. Four suckers tagged in 1993 at Sucker Springs (1 shortnose sucker, 3 Lost River suckers) returned during spring 1994. However, none of the three surviving fish were tracked at Sucker Springs during spring 1995. Two Lost River suckers tagged in the Williamson River in 1993 returned to spawn in 1994 and one returned again in 1995. One shortnose sucker radio-tagged at the mouth of the Williamson River in 1994 migrated up the river in both 1994 and 1995. Also, a Lost River sucker tagged at Sucker Springs in 1993 appeared to have spawned in 1994 and 1995. Spawning movements may have been missed for some fish in 1995 because tracking occurred at wider time intervals (3/23, 4/19, 5/3). All radio-tagged fish showed fidelity to the spawning area in which they were initially tagged.

Spawning migrations up the Williamson River by radio-tagged fish, were similar to spawning sites documented from other spawning distribution studies (Bienz and Ziller 1987, Buettner and Scopettone 1990). Fish were located near Waterwheel Park (RM 6.5), near the Sportsmen's Access (RM 9), and near the confluence of the Sprague and Williamson River. No fish were tracked above Chiloquin Dam.

Besides the 6 of 39 tagged fish that died shortly after release due to handling stress, 13 died between 2 and 6 months after release. Mortality among this group was probably related to infections that developed due to exposure to poor water quality conditions during the summer or the stress of poor water quality itself. In 1994, several dead Lost River suckers and trout were found dead in Pelican Bay in early August indicating a die-off. One radio-tagged Lost River sucker also died about the same time near Pelican Bay. In 1995, a major sucker die-off occurred during September and early October. Three of 14 radio-tagged suckers (2 shortnose, 1 Lost River sucker) also died during this event.

zal

4.0 CHAPTER 3 -EFFECTS OF PROJECT OPERATIONS

4.1 Effects of PacifiCorp Operations on Endangered Suckers

4.1.1 Entrainment

Each of the six Klamath River hydroelectric developments has the potential to entrain fish. All of the hydroelectric diversion intakes have trash racks constructed of iron bars with 3 inch spacing, but only the J.C. Boyle intake has 1/4 inch screens to prevent entrainment of small fish. Entrainment of Lost River and shortnose suckers has been documented at the Eastside forebay and Westside canal. Likelihood of sucker entrainment at downstream facilities is related to abundance of fish in the project area. For instance, only one shortnose sucker has been documented during population monitoring activities by CDFG in Iron Gate reservoir, thus it is probably unlikely entrainment of this species occurs at Iron Gate powerhouse.

4.1.1.1 Link River

The extent of fish entrainment from Upper Klamath Lake has not been fully evaluated. In a study conducted by OSU, suckers (species unknown) were collected in the Eastside forebay, however the abundance was low (Reclamation 1992). It seems reasonable that we could expect similar larval entrainment at the dam as that measured in the A-Canal based on their similar flows (see Section 4.2.1.1 Entrainment A-Canal).

Fish salvages conducted as part of project maintenance events have collected both shortnose and Lost River suckers from the forebay. Recent salvage efforts on May 11, 1995 retrieved 40 juvenile suckers and on December 11, 1995, collected 78 juvenile suckers. Suckers collected were less than 120 mm FL making it difficult to positively identify species (Green pers. comm.). Previous forebay fish salvages in September, 1989 collected a total of 87 juvenile suckers and 1 adult Lost River sucker during four different maintenance events (Shrier pers. comm.). In 1989, one of these juvenile suckers collected was a shortnose sucker and another was a Lost River sucker as identified by Larry Dunsmoor of The Klamath Tribes. Mr. Dunsmoor also identified some of the suckers as potential hybrids and others as Klamath largescale suckers (Shrier pers. comm.). In April 1988, the Eastside forebay was dewatered and no suckers were found either in the forebay or under the flowline (Shrier pers. comm.). The methodology to salvage fish from the forebay has changed slightly for recent salvages. For 1995 dewatering events, a seine was placed over the penstock entrance to prevent fish from escaping as the water was drawdown in the forebay.

Not all fish entrained at the powerhouse will suffer mortality. In a review of past studies of turbine-related fish mortality, Eicher Associates (1987) found turbine mortality is closely associated to the peripheral runner speed. Additional but less important factors include cavitation, wicket gate openings, and runner/tailwater relationships (Eicher Associates 1987). Fish size is generally believed to influence mortality because smaller fish are normally less subject to injury (Eicher Associates 1987). Based on the Eastside turbine specifications, past studies estimate the turbine mortality to range from 10 to 26 percent (Eicher Associates 1987). Injury rates and delayed mortality effects from entrainment are unknown.

Destination for surviving fish is Link River and Lake Ewauna. Fish population and water quality monitoring information indicate that very few suckers reside in this area and water quality is highly degraded during the summer (Buettner pers. comm.). Therefore, surviving entrained fish probably have a low rate of survival in the Link River and Lake Ewauna. The fish ladder at Link River dam is rarely used by suckers, indicating an eventual, almost complete loss of entrained suckers to the population.

Westside powerhouse facility like the Eastside facility diverts water from Klamath Lake at Link River dam. Flows from the generators are released into lower Link River. Normal diversion into the canal is 200 cfs. Typically this powerhouse only operates when water is needed downstream or to meet energy demands.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

30

In 1991, entrainment of larvae and juvenile suckers into the Westside canal was demonstrated (USBR 1992). Sucker species were not identified, and similar to the Eastside collection, abundance of fish was low (Markle pers. comm. in USBR 1992). No fish salvage records are available for past maintenance events. Based on entrainment studies conducted by Eicher Associates 1987 turbine mortality is likely to range from 20 to 26 percent. All surviving fish would be transported to Link River and Lake Ewauna. They have the opportunity to pass upstream over the dam when their swimming capabilities allow and if. However, degraded water quality conditions in Lake Ewauna may lead to high mortality of fish surviving turbine entrainment.

4.1.1.2 J.C. Boyle

The effectiveness of the J.C. Boyle screening system to prevent entrainment has not been studied. The 1/8 inch mesh screen are probably effective in preventing entrainment of suckers age 1 and older. Based on fish recovered during canal maintenance fish salvages, some fish (trout, minnows) are able to get by the screens and enter the canal. The screen system was recently rebuilt and reviewed by divers in 1993 who did not find any visible gaps.

Fish salvages have been conducted during J.C. Boyle maintenance events since 1962. In April of 1994, 2 small suckers (approximately 3 inches in length) were observed, the first to be noted in the canal. The fish were too small to be identified to species. In 1995 no suckers were found following dewatering of canal. Both adult shortnose and Lost River suckers as well as Klamath smallscale and largescale suckers have been caught in J.C. Boyle reservoir (Green pers. comm). Klamath smallscale suckers spawn in Spencer Creek, a tributary to J.C. Boyle reservoir, approximately 3 miles upstream of the dam. Recruitment of Lost River and shortnose suckers to this area may be a result of larval, juvenile, and/or adults moving downriver from Upper Klamath Lake, however this has yet to be documented (Scoppettone pers. comm. in USBR 1992).

If fish somehow pass the screening system, they will be exposed to an estimated turbine mortality ranging from 33 to 48 percent (Eicher Associates 1987).

4.1.1.3 Copco Number 1

The occurrence of fish entrainment into the Copco No. 1 intakes has not been evaluated. The intake is not screened. Both shortnose and Lost River suckers are known to be present in Copco Reservoir. Population size and distribution of species in this reservoir are not well known. Reservoir surveys by Reclamation in the fall of 1993 caught 10 adult shortnose suckers and no Lost River suckers (Green pers. comm.). Lengths of the shortnose suckers ranged from 427 to 500 mm FL. Few Lost River suckers have been observed in the area. Beak Consultants (1987) caught only one Lost River sucker yet collected 136 adult shortnose suckers over a 3 month period in sampling near mid-reservoir. No suckers have been observed downstream of the dam. Turbine mortality at the powerhouse is estimated to range from 10 to 20 percent (Eicher Associates 1987).

4.1.1.4 Copco Number 2

It is unknown if sucker entrainment occurs at Copco No. 2 powerhouse. The intake is not screened. No suckers have been observed in the project area. Every 5 to 10 years the Copco No. 2 forebay is lowered to allow inspection of the tunnel and units. In September 1994, a fish salvage was conducted in response to such a maintenance event. Survey efforts found no suckers in the forebay area or in the bypass reach downstream of the dam. Only one endangered sucker has been observed downstream of Copco No. 2; a shortnose sucker in Iron Gate Reservoir.

4.1.1.5 Irrigation of PacifiCorp Ranchland

PacifiCorp owns property which borders the Klamath River for approximately 5 miles from near the Oregon/California state line downstream to just above Copco reservoir. The land is currently managed for

ranching. To provide irrigation water for pastures, several rock berm diversions extend into the Klamath River supplying water to 6 separate irrigation ditches. Amount of water diverted varies with each ditch and is dependent on seasonal needs. The total amount of water diverted is estimated to be less than 50 cfs. Ditches are typically shutoff in November and opened in April. These diversions do not have fish screens. Entrainment to these open ditch systems has not been evaluated.

Shortnose suckers have been observed to migrate upstream from Copco Reservoir into the Klamath River adjacent to PacifiCorp's holdings to access spawning habitat (Beak Consultants 1987). Most spawning occurred within 2 miles of the reservoir, however in searching the river for larval fish, some sucker larvae were found at 2 sites further upstream (Beak Consultants 1987).

The potential to entrain suckers into the irrigation ditches exists, however the extent of entrainment is unknown. The fact that larval suckers occupy shoreline habitats during daylight hours may increase the likelihood that they are entrained during that time period. However, because most spawning occurs below their diversion point the likelihood of fish entrainment is small. Small fry or larvae are most vulnerable to entrainment as they have little swimming capability and are dependent on flow for dispersal. PacifiCorp is in the process of reviewing land management activities and the current irrigation system.

4.1.2 Spill Termination at Link River Dam

Spill may occur at the Link River hydrofacilities when basin water inflow is greater than can be stored in system reservoirs and is more than can be passed through generating facilities or when facility maintenance requires no flow through a powerhouse and water must be spilled to meet downstream flow requirements. When a spill is completed, the potential to strand fish in isolated pools of the river bed is likely dependent on ramping rate, season, and period of spill prior to shutoff.

The stranding area downstream of the Link River Dam is variable depending on flow. Spill of 100 cfs or less is confined to the main river channel. At spill flows greater than 100 cfs side channels are watered up, and at flows greater than 500 cfs adjacent low lying areas become inundated. To provide time for fish to escape stranding areas, a rate of spill change was established in 1987 (Table A) as part of standard operating procedures for spill termination.

Table A. Link River Spill Decreasing Ramping Schedule

	Spill Flow (cfs)		
	0 to 300	300 to 500	500-1500
Ramp Rate (cfs/min)	20 cfs/ 5 min	50 cfs/ 30 min	100 cfs/ 30 min

The number of suckers that have been salvaged following spill termination has ranged from 0 to 133 fish. In May 1994, after roughly 8 hours of 100 cfs spill, a fish salvage of the area found no stranded suckers. Recent maintenance events at the Eastside facility in December of 1995 resulted in a 16 day spill event with spill flows of approximately 500 cfs. Following spill termination and implementation of the ramping procedure, only one 100 mm sucker was found in a side channel and was returned to Link River. In 1995 Link River dam spilled water from March 14 to April 27 with an average spill flow of approximately 1850 cfs. Upon spill termination, fish salvage efforts collected 12 juvenile suckers; 10 shortnose and 2 Lost River. Four days later on May 1, the spill resumed May 24, 1995. Average spill flow for this period was approximately 2,370 cfs, with a maximum of 4,900 cfs noted on May 14, 1995. A fish salvage conducted at the conclusion of spill collected 132 juvenile shortnose suckers, 5 juvenile Lost River suckers, and 1 juvenile Klamath largescale sucker. It appears that short-

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

32

term maintenance events that require spill at Link River dam result in a lower probability of fish stranding as opposed to longer spill events caused by climatic conditions.

The extent to which fish stranding occurs following spill termination at dams downstream of Link River is unknown. Ramp rates are used to minimize stranding at all facilities. Both Copco No. 1 and Iron Gate dams have plunge pools located at the base of the dam. These pools are directly connected to the river and have little stranding potential.

Bird predation also occurs as a result of spill termination at Link River Dam. Large numbers of fish eating birds have been observed on some occasions (Shrier pers. comm.). The extent of bird predation on stranded fish is unknown. However, intensive bird predation particularly by seagulls is an annual event during Klamath Project canal shutdown at the end of the irrigation season.

4.1.3 Power Operations at the J.C. Boyle Development

As described in Chapter 1, the J.C. Boyle powerhouse operates as a power peaking facility. During such operations, generation occurs when there is sufficient water available for efficient use of one or both turbine units. During times of low river flows, generation typically occurs only during the day. At night or off-peak, the project is shutoff to allow the reservoir to refill. The water fluctuation in the reservoir averages 1 to 2.5 ft. during this daily cycle.

The extent that power peaking generation can change downstream flow is limited to a 9 inch per hour ramp rate set by the FERC license (FPC 1961). Ramp rate is measured at an established USGS gage downstream of powerhouse. Actual timing and extent of stage change downstream of the powerhouse is dependent on whether one or both generators are operated.

Shortnose sucker spawning runs have been documented in this reach primarily in the area near Copco Reservoir (Buettner pers. obser.). The area is roughly 12 miles downstream of the J.C. Boyle powerhouse. The effects of large daily flow fluctuations to spawning behavior is unknown. There may be a negative affect of peaking on sucker eggs and embryo survival. Eggs deposited during low river flow in riffle areas with large-sized and compacted cobble substrate may be swept downstream when flows are increased. Eggs could be moved to unsuitable incubation areas or be exposed to fish predation. Eggs or larvae in shallow water areas during high river flow conditions may become desiccated during low flow periods.

Sucker larvae have been observed stranded in certain areas downstream of the J.C. Boyle powerhouse following a downramp in river flow (Beak Consultants 1987). In reviewing the amount of potential stranding areas, Beak Consultants determined that stranding of sucker larvae could occur on less than 10 percent of the total stream length of the Klamath River from the Oregon-California state-line downstream to Copco Reservoir (Beak Consultants 1987). Timing of flow fluctuation is important as peak sucker larval drift was shown to occur between 2200 and 0300 hours (Beak Consultants 1987). Powerplant operations during this nighttime period are typically steady with low river flows. The study concluded that considering the brief residence time in the river coupled with the short migration to the reservoir, susceptibility of sucker larvae to mortality from stranding may be a relatively minor occurrence (Beak Consultants 1987).

4.1.4 Fish Passage

Link River Dam, Keno Dam, and J.C. Boyle Dam have fish ladders to provide fish passage. Ladders were originally designed for trout passage, however suckers have been observed to use both the Link River Dam and Keno Dam ladders. In 1988 through 1991 a cooperative study was conducted by PacifiCorp and ODFW to help evaluate the status and effectiveness of trout management programs and activities in the Oregon portion of the Klamath River (Hemmingen et. al. 1992). As part of the study, fish traps were installed near the top of the 3

project fish ladders. Trout and suckers collected in the traps were noted with some fish being tagged in hopes of recovering them at upstream traps or during spawning ground surveys.

Located on the east side of the Link River Dam, the fish ladder is a pool and weir type structure with a vertical slot entrance. The ladder consists of 11 pools, each pool approximately 8 ft. wide and 8 ft. long. Flow through the ladder is dependent on Upper Klamath Lake elevation along with wind direction and speed. Ladder water flow is controlled by the addition or removal of stop logs. Approximate flow is 15 cfs. The exit weir into the lake is at an elevation of 4138.5 ft. mean sea level (msl). In dry water years when lake elevations are below 4138.5 ft., no water is available for the ladder. In 1992, Upper Klamath Lake was below this elevation during August, September and October; in 1994 lake levels were below this level from August through December.

Few suckers have been observed to use the Link River Dam fish ladder. The trap in the fish ladder collected 4 adult shortnose suckers and 2 adult Lost River suckers from 1988 through 1991. All of these suckers were caught in April and May of 1989. During the 4 year sampling period, 131 trout were collected, with most of those captured in 1989.

The fish ladder at Keno Dam is a 24 pool weir and orifice type structure. Each pool is approximately 6 ft. wide, 10 ft. long, and 5 ft. deep. The orifice is located near the pool floor and is approximately 10 inches wide with a height of 15 inches. Water flow down the ladder is maintained at approximately 25 cfs.

The number of fish passing through the Keno Dam ladder has been variable. During the study period, suckers were observed each year with the majority of fish being Klamath smallscale suckers. Total number of endangered suckers collected was low; 7 adult Lost River suckers and 5 adult shortnose suckers. Numbers of trout caught ranged from 11 in 1989 to 160 fish in 1990.

The longest of the project fish ladders, the J.C. Boyle structure consists of a weir and orifice type ladder with 57 pools and an elevation gain of 67 feet. Pools are approximately 6 ft. wide, 6 to 8 ft. long, and 3.5 ft. deep (weir height). A small orifice (4 in. by 4 in.) is located at a bottom corner of each weir. Flow at the top of the fish ladder is maintained at approximately 6.5 cfs. To attract fish to the ladder, approximately 55 cfs is released from a conduit parallel to the fish ladder entrance.

Although trout were observed using the ladder in each year of the study, no suckers were collected from the ladder. The apparent non-use of the ladder by suckers may be a factor of the low sucker population in the immediate area of the ladder and Klamath River downstream of the facility. Electrofishing surveys downstream of the ladder entrance did not locate any suckers that could potentially use the ladder (Shrier, pers. comm.).

It is not known whether the lack of suckers trapped from the Keno, Boyle and Link River fish ladders was related to inadequate ladder designs, fish avoidance of ladder and fish trap facilities, low sucker population numbers in adjacent reservoirs, or lack of migratory behavior. However, this information suggests that sucker populations in the Klamath River reservoirs are segregated. Segregation has negative impacts with regards to genetic isolation.

4.1.5 Instream Flow

The FERC license that governs Klamath River hydropower operations established monthly instream flow releases from the Iron Gate development (FPC 1961). Specific instream flows between the hydrofacilities upstream of Iron Gate dam were not stipulated in the license. However, Keno and J.C. Boyle projects are operated to meet formal agreements with ODFW. No instream flow analysis has been done within this reach of the river to help describe the relation of fish habitat to river flow.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

34

A minimum of 90 cfs is released continuously into Link River from the Link River Dam. Downstream of the Eastside powerhouse, operations typically maintain at least a minimum of 450 cfs.

To provide sufficient flow for fishery resources within the Keno reach, PacifiCorp has an agreement with ODFW to provide a minimum stream flow of 200 cfs. Flow in the reach rarely approaches the minimum, only doing so in critically dry water years. During the summer of 1992, a critically dry year, Reclamation reduced the outflow from Upper Klamath Lake thereby reducing flows in the Keno reach to 150 cfs. Visual surveys by personnel in the river reach below Keno dam did not observe dead or dying trout or suckers. Water quality monitoring indicated water temperatures and DO levels were marginal for salmonids (Fortune pers. comm.).

Under FERC license conditions, instream flows were stipulated to protect aquatic life immediately downstream of the J.C. Boyle Dam. The minimum instream flow below J.C. Boyle Dam was set at 100 cfs by agreement with the Oregon State Game Commission. Several springs are located in this reach of the river and contribute approximately 300 cfs increasing the total flow to roughly 400 cfs.

The minimum flow in the 1.3 mile reach below Copco No. 1 dam is approximately 5 cfs and is released at Copco No. 2 Dam through a slide gate.

4.1.6 Reservoir Operations - Klamath River

PacifiCorp jointly operates Link River Dam with Reclamation and therefore affects Upper Klamath Lake through their water management program. Impacts of lake operations have been previously discussed in the Reclamation's 1992 BA. A new biological assessment is planned after KPOP has been developed that will address the effects of reservoir operations on endangered suckers. The following discussions focus solely on reservoir operations downstream of Link River Dam.

Operation of Klamath River mainstem reservoirs downstream of Link River dam are operated to maintain fairly stable water elevations with the exception of J.C. Boyle Reservoir. Reservoirs have little active storage and capacity is limited by project works (ie. intake depth) which set minimum operating elevations. Drafting may occur on occasion to allow facility maintenance or in extreme conditions to provide some water to downstream resources. Iron Gate dam flows as given in the FERC license are to be greater than 1,300 cfs from September through April, 1,000 cfs in May and August, and 710 cfs in June and July (FPC 1961).

Keno Dam controls the elevation of the reservoir through 6 spill gates and a sluice valve. The reservoir is normally maintained at an elevation between 4085.3 and 4085.6 ft. msl. as gaged at Weed bridge. The reservoir may be slightly drafted in the winter and spring for flood control. The operating elevation provides a stable water source for local irrigation pumps, the ADY Canal, Lost River Diversion Channel and the F Canal. Approximately every 5 years, the reservoir is drawdown approximately 2 ft. for a 2 day period to allow maintenance of irrigation pump intakes.

J.C. Boyle Reservoir water elevations are typically maintained between 3789.5 and 3793.0 ft. msl. Elevation may fluctuate 1 to 2 feet on a daily basis dependent on J.C. Boyle powerhouse operations. At an elevation of 3788.0 ft. water ceases to flow down the fish ladder.

Copco Reservoir is maintained near the maximum pool elevation in the summer, while in the winter and spring the pool is drawdown 3 to 5 feet for flood control. Summer elevations generally range from 2604.5 to 2606.0 ft. msl. while winter and spring elevations range from 2601.0 to 2603.0 ft.

The most downstream reservoir, Iron Gate Reservoir is typically maintained near an elevation of 2326.0 to 2328.0 ft. msl. Maximum pool elevation is 2328.0 ft. Based on the need for winter and spring flood control, the reservoir may be drafted to 2324.0 ft.

The potential indirect effects of reservoir regulation at all mainstem Klamath reservoirs on endangered suckers appears to be minimal with the possible exception of J.C. Boyle where the daily fluctuations are 1-2 feet. Substantial areas of shoreline habitat particularly in the reservoir upstream of Highway 66 are impacted and even dewatered daily. These areas provide habitat for larval and juvenile suckers. Fluctuations may result in greater predation rates by larger fish as small suckers are forced from shoreline vegetation habitat; sucker food organisms dependent on these areas could be negatively impacted; and aquatic vegetation which serves multiple habitat functions may be affected.

4.1.7 Water Quality - Klamath River

Operation of the project and hydrofacilities on the Klamath River mainstem could potentially affect water quality in the river reach from Link River to downstream of Iron Gate Dam. Water in this section originates from Upper Klamath Lake, the Lost River through the Lost River Diversion Canal and from return flows from the Klamath Straits Drain into Keno Reservoir. Downstream of Keno Dam, most water use is nonconsumptive.

It is difficult to assess the impacts of project operations on water quality. With the exception of temperature and flow data, little other water quality data has been collected near the hydrofacilities. Some periodic monitoring of other water quality constituents has been conducted within and downstream of the project, however monitoring is infrequent and was not designed to evaluate project effects. Additional information is being prepared by ODEQ as part of a Total Maximum Daily Load study that addresses water quality in the Klamath River between Upper Klamath Lake and Keno Dam.

In review of Klamath River temperature data, surface water temperatures at Keno Dam and Iron Gate Dam are in the same range as surface water temperatures in Upper Klamath Lake (CH2MHill 1995). Water temperature appears to be controlled by a combination of meteorological and flow conditions. The maximum temperature in the river however, does not appear to vary substantially between years (CH2MHill 1995). Bartholow (1995) indicates there appears to be a downstream warming trend of approximately 0.045 F per year since the construction of Iron Gate Dam in 1962. Additionally, Bartholow found that project operations may have reduced downstream temperatures in July up to 3.6 F and increased downstream temperature in October by the same amount (Bartholow 1995). Bartholow has qualified his analysis by noting temperature modeling is needed before definite conclusions can be reached (Bartholow 1995).

Monitoring has shown that the Klamath River water quality criteria most commonly exceeded were temperature, DO concentrations, pH, ammonia and ortho-phosphorus (Campbell 1995). River water quality conditions appear to be controlled by Upper Klamath Lake conditions and further affected by various pollutant loadings in Keno Reservoir (CH2MHill 1995).

4.1.8 Exotic Fish - Klamath River

A number of exotic fish species have been introduced into the Klamath River system. Some of these species have taken advantage of the reservoir habitat and now comprise large populations in Iron Gate, Copco, and J.C. Boyle reservoirs (Buettner and Scoppettone 1991). In sampling conducted by Reclamation in Copco Reservoir (1993), pumpkinseed and yellow perch composed 55 percent of the total number of fish caught (Mike Green pers. comm.). The significance of the large yellow perch population is in the timing of their spawning migration into the Klamath River upstream of Copco Reservoir. Yellow perch migrate into the sucker spawning areas at approximately the same time young suckers are emerging from the gravel. The suspected result is heavy predation by the yellow perch on the sucker larvae (USBR 1992). Largemouth bass populations exist in all mainstem reservoirs and are very effective piscivores.

RECEIVED

OCT 11 1996

36

WATER RESOURCES DEPT.
SALEM, OREGON

4.1.9 Habitat Modification - Klamath River

Construction of the project and associated reservoirs resulted in the inundation of several hundred acres. Riverine habitat has decreased and lacustrine type habitat has increased. This change in habitat may benefit suckers in the area. Both shortnose and Lost River suckers generally are only found in free flowing river sections during spawning or migration. Other life stages appear to prefer lake type habitat.

4.2 Effects of The New Earth Company Algae Harvest Operations on Endangered Suckers

4.2.1 Entrainment

4.2.1.1 A Canal

1995

A collection permit was obtained from the Service and New Earth initiated a study in July 1995 to elucidate the number of suckers taken during algae harvest operations as well as to determine environmental relationships which might be used to predict their occurrence in the A Canal. Though the study was initiated too late in the season to intercept early larval migration (Markle and Simon 1993), collected data indicated that fish less than 30 mm in total length could pass through the DRDs and are taken on algae harvest screens. Sucker larvae were documented in samples collected during the study. However, this study was not designed to evaluate entrainment of juvenile fish. No monitoring was conducted to determine fish impingement on the DRDs.

1996

New Earth harvest operations have the potential to "take" fish which pass through the DRDs. It is assumed that larval fish will pass through and be taken according to the amount of flow which is diverted and processed through harvest screens. As more flow is diverted through harvest screens, more fish will theoretically be taken.

Results of an OSU study of sucker entrainment in the A Canal estimated a total of 422,474 entrained suckers from June 27 through October 13, 1990 (95% confidence interval = 0 to 1,124,594; Harris and Markle 1991). A similar study conducted from May 21, 1991 to July 21, 1991 estimated that a total of 759,150 suckers entered the canal during this time period (95% confidence interval = 204,701 to 1,422,248; Markle and Simon 1993). Based on these numbers, it is estimated that New Earth will "take" 400,000 to 800,000 suckers during the 1996 harvest season.

Although identification of larval stage suckers in these studies was tentative, principal component analysis showed that A Canal suckers compared best to known Klamath largescale suckers, which are not protected by the Endangered Species Act (Harris and Markle 1991). However, later identification work indicated that the shortnose and Klamath largescale suckers were similar in appearance. For numerical comparison, The Klamath Tribes (Dunsmoor pers. comm.) estimated a 70 million larval sucker emigration during 1989 sampling at River mile 6 on the Williamson River. However, only 5 million larval suckers were monitored at the mouth of the Williamson River.

The employment of the DRDs across the intake of the C Canal (approximately June 1 - October 15, 1996) will minimize entry of juvenile and adult suckers into the C Canal. No entrainment reduction actions occur from April 15 (when the A Canal is normally opened) to June 1. Consequently, fewer suckers will be lost to the C Canal and released in downstream field irrigation. Instead fish are expected to be concentrated in the shorter B Canal. It is anticipated that concentration of fish in the B Canal will accommodate a more thorough salvage effort at the

irrigation season's end (when the canal is drained), and might offer a more plausible route for fish back to the Lost River when the canal is drained (Green pers. comm.). It is speculated that these factors might benefit the overall numbers of suckers which are entrained in the A Canal as less will be lost in crop irrigation flows downstream.

Though we have estimated this direct take of suckers, it is likely that a large percentage of A Canal larval fish would be lost to the population as a result of downstream irrigation practices or poor water conditions regardless of algae harvest operations.

4.2.1.2 Eastside and Westside Diversion Canals on the Link River

1997-1998

An estimation of larval suckers screened during harvest activities at PacifiCorp's Eastside and Westside facilities is difficult to ascertain as no complete studies of fish entrainment have been performed at these sites. However, if we assume that similar numbers of suckers will be available for entrainment in these diversion canals as are diverted into the A canal, then we can make an estimate of harvest take based on flow. By using an approximate average summer flow in the A canal of 750 cfs and a season entrainment of 759,150 suckers (Markle and Simon 1993), we can estimate a flow dependent entrainment of about 1012 suckers per cfs of water flowing in the harvested canals during the summer period. Using this method, the seasonal take of sucker larvae is estimated at 1,012,200 and 202,400 in the Eastside (1,000 cfs average flow) and Westside (200 cfs average flow) diversions, respectively. A total harvest of less than 1,300,000 suckers would be expected at the proposed New Earth - Link River harvest site.

Similar to harvest operations on the A Canal, it is expected that New Earth harvest operations should enhance water quality on the Link River, downstream of the Eastside and Westside harvest locations. Enhancement of water quality should have beneficial effects for the aquatic habitat and its inhabitants downstream in Lake Ewauna and the Klamath River.

The employment of ERDs across the intakes of the Eastside and Westside power canals (June 1 to October 15 or for the duration of the algae harvest season whichever is greater) will reduce entry of juvenile and adult suckers into these facilities. Therefore entrainment losses will be reduced and more fish are likely to remain in Upper Klamath Lake.

4.3 Lower Williamson River Restoration

PacifiCorp and New Earth propose to invest in the purchase and operation and maintenance of Tulana Farms or other offsite habitat mitigation, such as Goose Bay Farms. The restoration project is intended to restore essential habitat for millions of larval suckers produced in the Sprague and Williamson rivers. The project is anticipated to recreate the wetland habitat needed to reduce population losses from predation, starvation, and water quality during the most vulnerable life stage. It is anticipated that the wetland restoration project will benefit other native fish and water associated bird species and is also likely to improve water quality in Upper Klamath Lake. However, this restoration will likely take several years to actually benefit the fish.

Restoration plans are likely to call for movement of dikes and other earth movement work that may increase turbidity and sedimentation potentially negatively impacting food resources for larval and juvenile suckers and their ability to see food items. Sediment may also cause temporary reduction of oxygen in the water due to sediment oxygen demand and potential release of toxic substances in the sediments. Construction of new channels off the Williamson River may lead to the diversion and stranding of suckers. New habitat may also benefit sucker predators like fathead minnows and yellow perch.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.38
SALEM, OREGON

A short-term and long-term restoration plan will be developed by a technical work group which will include considerations for reducing adverse impacts during restoration activities and later operations, and implemented as per Service/Reclamation review and approval.

4.4 Cumulative Effects

The cumulative effects of future non-federal activities on endangered and threatened species or critical habitat that are reasonably certain to occur within the action area were described in the 1992 BO (USFWS 1992). The major impacts were related to continued farming and grazing that occurs over a large area upstream of the Project area in the Wood River, Williamson River, Sprague River, and Lost River watersheds. New activities not addressed include the development of the Running Y Ranch Resort which calls for restoration of 1000 acres of marsh habitat. This action may benefit water quality and sucker habitat conditions in Upper Klamath Lake. Other activities likely to occur include largescale riparian restoration along the major tributaries through fencing and improved grazing practices, and wetland restoration.

5.0 CHAPTER 4 - DETERMINATION OF EFFECTS

Operation of the PacifiCorp and New Earth facilities associated with the Klamath Project affect the endangered Lost River suckers and shortnose suckers through loss of spawning and larval and juvenile rearing habitat and degradation of water quality related to regulation of water levels in lakes and reservoirs; insularization of sucker populations increasing the risk of hybridization, introgression and loss of genetic variability due to dams and other facilities that have decreased the connectivity between different lakes and rivers in the Upper Klamath Basin; and entrainment and loss of fish through diversions including irrigation canals, pumping plants, power turbines, and algae harvesting screens. Although the project has had, and continues to effect endangered suckers, we believe these effects may be ameliorated in the long-term by the fish restoration actions being proposed as part of the action. It is our determination that the Klamath Irrigation Project and associated operations by PacifiCorp and New Earth is likely to affect the shortnose and Lost River sucker or its proposed critical habitat. Reclamation requests an Incidental Take Statement (authorization) in addition to Reclamations current Incidental Take Statement for these entities operations, under their federalized status.

6.0 Literature Cited

- Banner, C. 1995. Upper Klamath Lake sucker pathological report. Oregon Department of Fish and Wildlife, Corvallis, Oregon.
- Bartholow, J.M. 1995. Review and Analysis of Klamath River Basin Water Temperatures as a Factor in the Decline of Anadromous Salmonids with Recommendations for Mitigation. River Systems Management Section, Midcontinent Ecological Science Center, U. S. National Biological Service, Fort Collins, Colorado. Final Draft.
- Beak Consultants, Inc. 1987. Shortnose and Lost River Sucker Studies Copco Reservoir and the Klamath River. Prepared for City of Klamath Falls, Klamath Falls, Oregon.
- Bellerud, B., and M.K. Saiki. 1995. Tolerance of larval and juvenile Lost River and shortnose suckers to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration. Final Report. National Biological Survey, California Pacific Science Center, Dixon Field Station.
- Bienz, C.S. and J.S. Ziller. 1987. Status of three lacustrine sucker species (Catostomidae). Report to the U.S. Fish and Wildlife Service, Sacramento. 39 pp.

- Bond, C.E., 1948. Fish management problems of Lake of the Woods, Oregon. M.S. thesis, Department of Fisheries and Wildlife, Oregon State University, 108 pp.
- Bond, C.E., C.R. Hazel, and D. Vincent. 1968. Relations of nuisance algae to fishes in Upper Klamath Lake. Terminal Progress Report, U.S. Federal Water Pollution Control Administration publication WP-00625, 119 pp.
- Buettner, M. 1995. Lost River and shortnose sucker status review (Upper Klamath Lake). Unpublished report. U.S. Bureau of Reclamation, Klamath Falls, Oregon.
- Buettner, M. 1992. Potential refugial habitat for suckers, in Upper Klamath and Agency lakes, at different lake elevations. August 27, 1992 Letter to the files.
- Buettner, M., and G. Scoppettone. 1990. Life history and status of catostomids in Upper Klamath Lake, Oregon. Completion Report. U.S. Fish and Wildlife Service, National Fisheries Research Center, Reno Field Station, Nevada.
- Buth, D., and T. Haglund. 1994. Genetic analysis of endangered Klamath basin suckers. Preliminary report submitted to California Department of Fish and Game. 9 pp.
- Campbell, S.G. 1995. Klamath River Basin Flow-Related Scoping Study - Phase I Water Quality. River Systems Management Section, Midcontinent Ecological Science Center, U. S. National Biological Service, Denever, Colorado.
- CH2MHill. 1995. Draft Technical Memorandum. United States Bureau of Reclamation Klamath Project Operations Plan, Effects of Facility Operations on Water Quality in the Klamath River.
- Coots, M. 1965. Occurrences of the Lost River sucker, *Deltistes luxatus* (Cope) and shortnose sucker, *Chasmistes brevirostris* (Cope), in northern California. Calif. Fish and Game 51:68-73.
- Eicher Associates, Inc. 1987. Turbine-Related Fish Mortality: Review and Evaluation of Studies. Prepared for Electric Power Research Institute, Palo Alto, California.
- Federal Power Commission (FPC). 1961. The California Oregon Power Company Project No. 2082. Order Further Amending License (Major). Issued March 27, 1961.
- Golden, M.P. 1969. The Lost River sucker. Oregon Game Commission Administrative Report No. 1-69.
- Harris, P. M. and D. Markle. 1991. Biochemistry and morphology of Upper Klamath Lake suckers. Final Report to Oregon Department of Fish and Wildlife. Oregon State University, Corvallis.
- Hemmingsen, A.R., R.A. French, D.V. Buchanan, D.L. Bottom and K.P. Currens. 1992. Native Trout Project. Oregon Department of Fish and Wildlife, Fish Research Project F-136-R, Annual Progress Report, Portland, Oregon.
- Hummel, D. 1993. Distribution of fish on the Klamath River from Lake Ewauna to Keno. Unpublished manuscript.
- Kann, J., and V.H. Smith. 1993. Chlorophyll as a predictor of elevated pH in a hypertrophic lake: estimating the probability of exceeding critical values for fish success. Klamath Tribes Natural Resources Department research report: KT-93-02. Chiloquin, Oregon. 22 pp.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

40

- Logan, D.J. and D.F. Markle. 1993. Fish faunal survey of Agency Lake and Northern Upper Klamath Lake, Oregon in Environmental Research in the Klamath Basin, Oregon. 1992 Annual Report. S.G. Campbell ed. U.S. Bureau of Reclamation, Denver CO, R-93-16.
- Markle, D.F., and D.C. Simon. 1993. Preliminary studies of systematics and juvenile ecology of Upper Klamath Lake sucker. Final Report. Oregon State University, Corvallis, Oregon. 128 pp.
- Markle, D.F., and D.C. Simon. 1994. Larval and juvenile ecology of Upper Klamath Lake suckers. Annual report. Oregon State University, Department of Fisheries and Wildlife. Corvallis.
- Minkley, W.L. 1990. Fishes of Arizona. Arizona Game and Fish Department. Sims Printing Company. Phoenix, Arizona.
- Monda D., and M.K. Saiki. 1993. Tolerance of juvenile Lost River and Shortnose suckers to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration in Environmental Research in the Klamath Basin, Oregon. 1992 Annual Report. S.G. Campbell ed. U.S. Bureau of Reclamation, Denver, CO, R-93-16.
- Monda, D. and M.K. Saiki. 1994. Tolerance of larval Lost River sucker to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration. Final Report. National Biological Survey-National Fisheries Contaminant Research Center, Dixon, CA.
- Moyle, P.B. 1993. Inland Fishes of California, Univ. California Press, Berkeley, CA. 405 pp.
- Moyle, P.B., and W.J. Berg. 1991. Population genetics of endangered catostomid fishes of northern California. Draft final report, California Fish and Game Contract FG-8143.
- Oregon Department of Fish and Wildlife. 1971. Unpublished File data. Klamath Falls, Oregon.
- Scoppettone, G. 1986. Upper Klamath Lake, Oregon, catostomid research. U.S. Fish and Wildlife Service Report, Reno, Nevada. 14 pp.
- Scoppettone, G. and G. Vinyard. 1991. Life history and management of four endangered lacustrine suckers. In Battle Against Extinction. W.L. Minkley and J.E. Deacon eds. University of Arizona Press.
- Simon, D. C, Markle, D.F., and G.R. Hoff. 1995. Larval and juvenile ecology of Upper Klamath Lake suckers. Annual Report. Oregon State University, Department of Fisheries and Wildlife, Corvallis. 49 pp.
- The Klamath Tribes. 1995. Upper Klamath and Agency lakes water quality assessment and inflow nutrient budget and endangered species restoration program support. Progress report submitted to the Bureau of Reclamation (Cooperative Agreement 4-PC-20-12360). December, 1995.
- The Klamath Tribes. 1991. Effects of water management in Upper Klamath Lake on habitats important to endangered catostimids. Report submitted to the U.S. Fish and Wildlife Service, Sacramento, California. Natural Resources Department. February 1991. 7 pp.
- Vincent, D. T. 1968. The influence of some environmental factors on the distribution of fishes in Upper Klamath Lake. M.S. thesis, Oregon State University, Corvallis.
- U.S. Fish and Wildlife Service. 1992. Biological Opinion on effects of Long-Term Operation of the Klamath Project. Sacramento, California.

U.S. Fish and Wildlife Service. 1993. Lost River and shortnose sucker Recovery Plan. Portland, Oregon.

U.S. Fish and Wildlife Service. 1994. Biological Support Document for the Proposed Critical Habitat.

U.S. Bureau of Reclamation (USBR). 1992. Klamath Project. Biological Assessment on Long Term Project Operations.

7.0 Personal Communications

Craig Bienz, Fish and Wildlife Biologist, The Klamath Tribes, Chiloquin, Oregon.

Donald Buth, Professor, UCLA, Los Angeles, California.

Larry Dunsmoor, Fisheries Biologist, The Klamath Tribes, Chiloquin, Oregon.

John Fortune, Fisheries Biologist (retired), Oregon Department of Fish and Wildlife, Klamath Falls, Oregon.

Mike Green, Fisheries Biologist, U.S. Bureau of Reclamation, Klamath Basin Area Office, Klamath Falls, Oregon.

Brandt Gutermuth, Aquatic Biologist, The New Earth Company, Klamath Falls, Oregon.

Gerald Hoff, Research Associate, Oregon State University, Department of Fisheries and Wildlife, Corvallis, Oregon.

Jacob Kann, Aquatic Biologist, The Klamath Tribes, Chiloquin, Oregon.

Dan Logan, Research Associate, Oregon State University, Department of Fisheries and Wildlife, Corvallis, Oregon.

Dennis Maria, Fisheries Biologist, California Department of Fish and Game, Yreka, California.

Paul Marsh, Professor, University of Arizona, Tuscon, Arizona.

Dave Perkins, Aquatic Ecologist, National Biological Survey, Reno Field Station, Reno, Nevada.

Gary Scopettone, Lead Scientist, National Biological Survey, Reno Field Station, Reno, Nevada.

Frank Shrier, Senior Fish and Wildlife Biologist, PacifiCorp, Portland, Oregon.

Roger Smith, Fisheries Biologist, Oregon Department of Fish and Wildlife, Klamath Falls, Oregon.

David Vogel, Lead Scientist, Natural Resource Scientists, Inc. Red Bluff, California.

David Simon, Research Associate, Oregon State University, Corvallis, Oregon.

Rollie White, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service, Portland Field Station, Portland, Oregon.

Jeffrey Ziller, Fisheries Biologist, Oregon Department of Fish and Wildlife, Springfield, Oregon.

Figure 1. PacifiCorp and The New Earth Company facilities in the Upper Klamath Basin, Oregon, associated with the Klamath Irrigation Project.

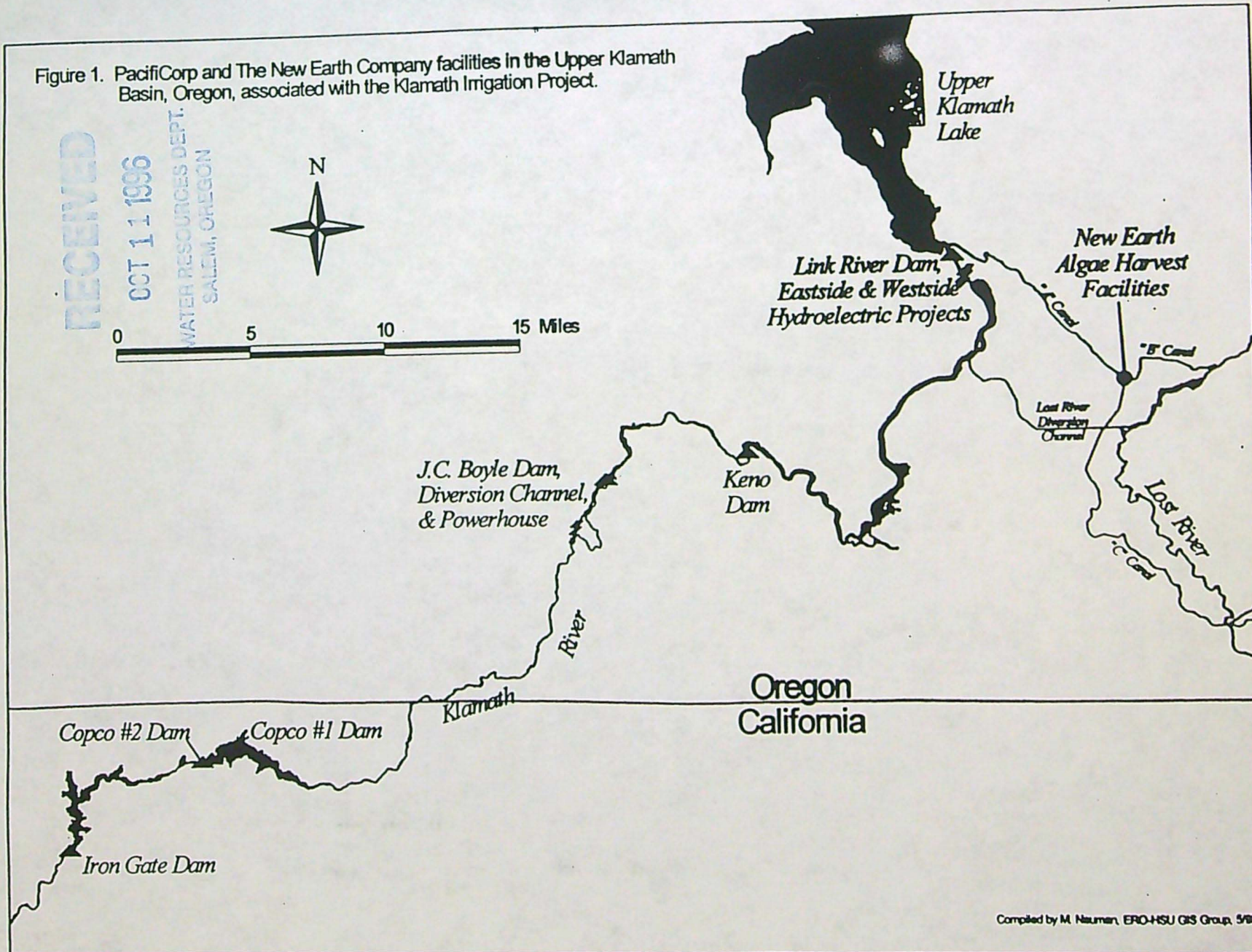
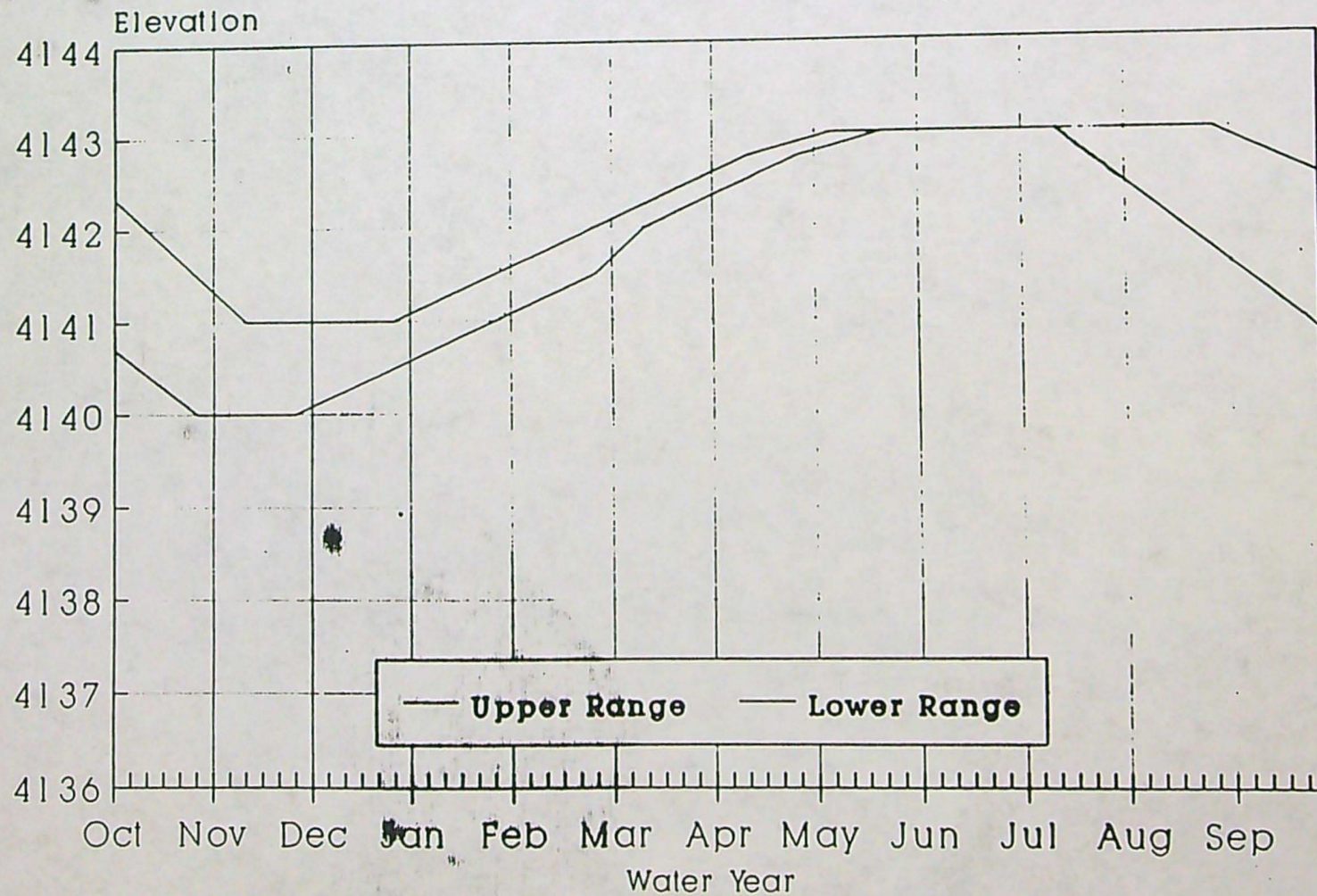


Figure 2. Flood Control Envelop for Upper Klamath Lake, Oregon

UPPER KLAMATH LAKE

PacifiCorp Operational Ranges



Source: U.S. Bureau of Reclamation

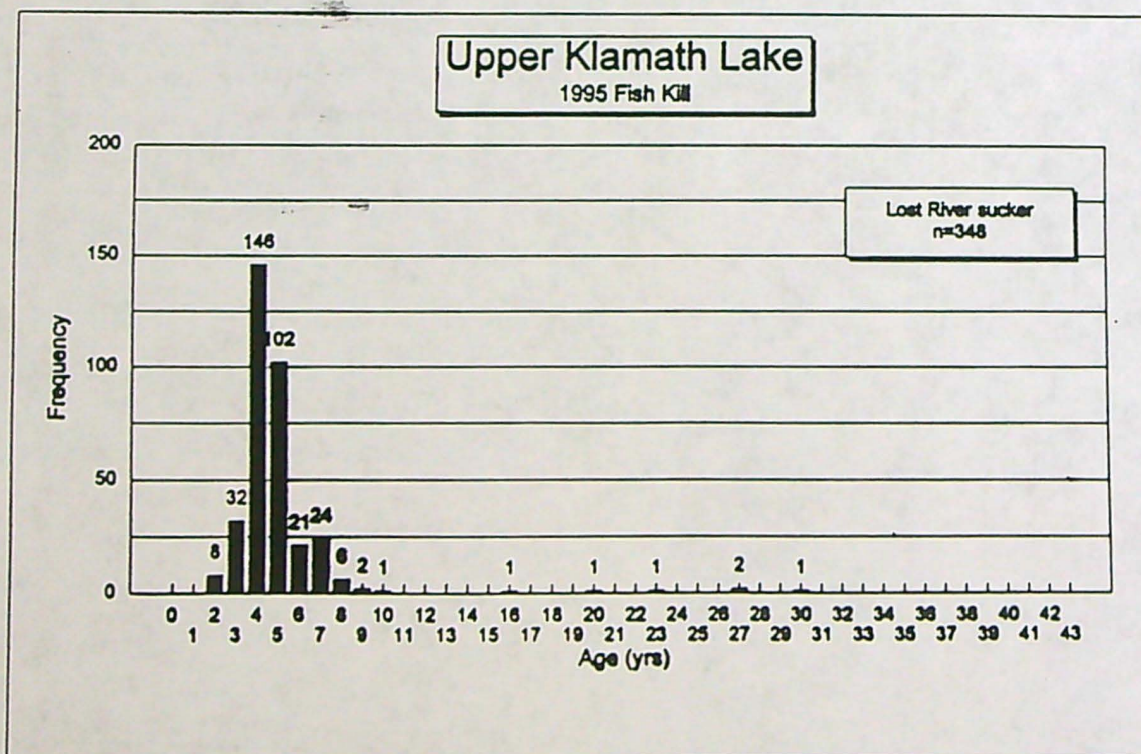
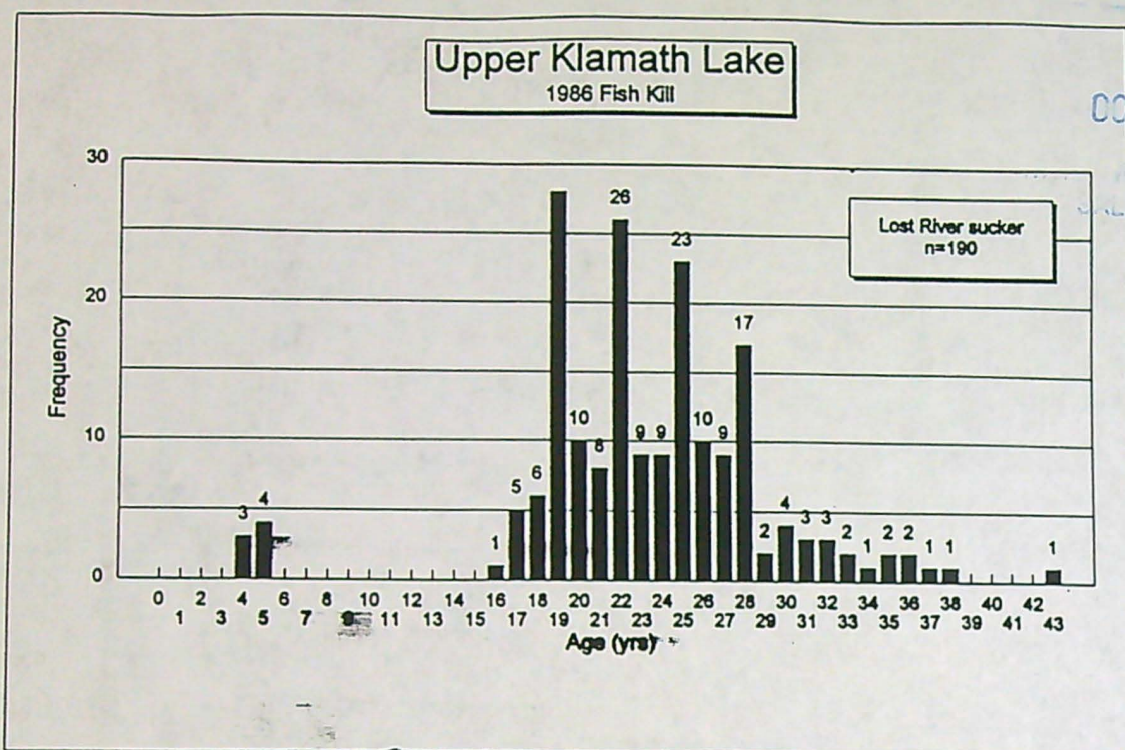


Figure 3. Age-frequency (number) of Lost River suckers collected in the 1986 and 1995 fish kills on Upper Klamath Lake, Oregon.

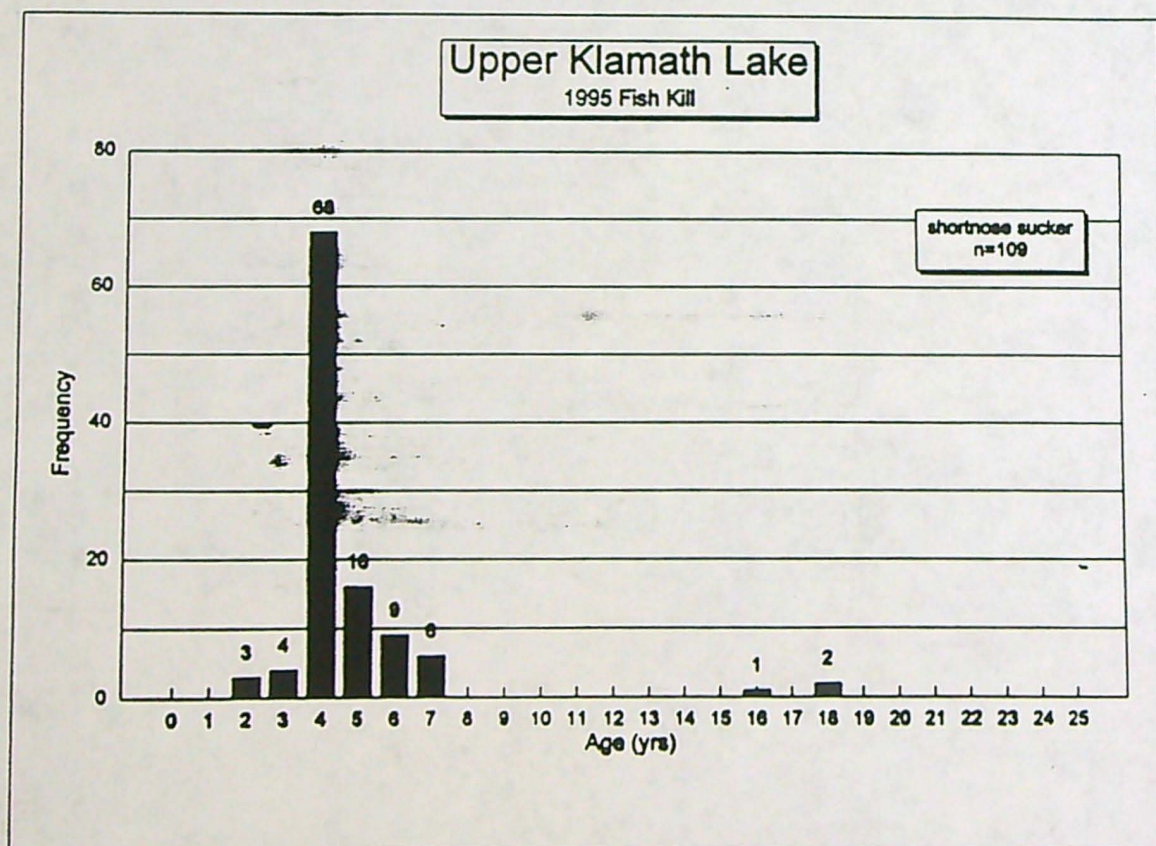
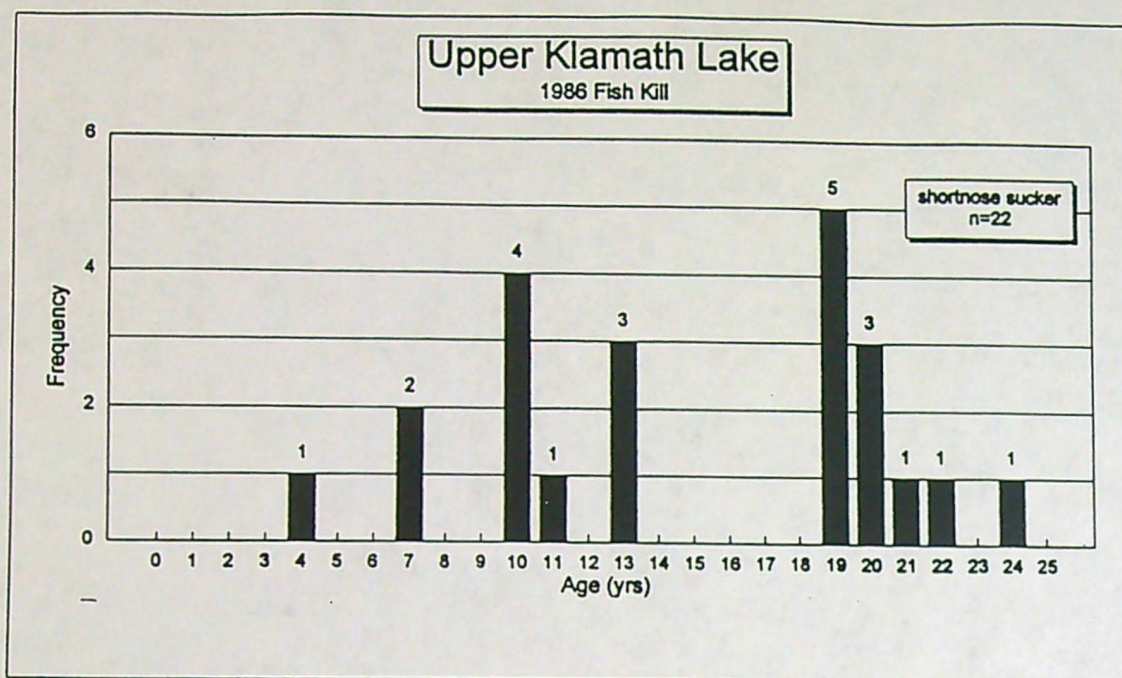


Figure 4. Age-frequency (number) of shortnose suckers collected in the 1986 and 1995 fish kills on Upper Klamath Lake, Oregon.

RECEIVED

OCT 11 1996

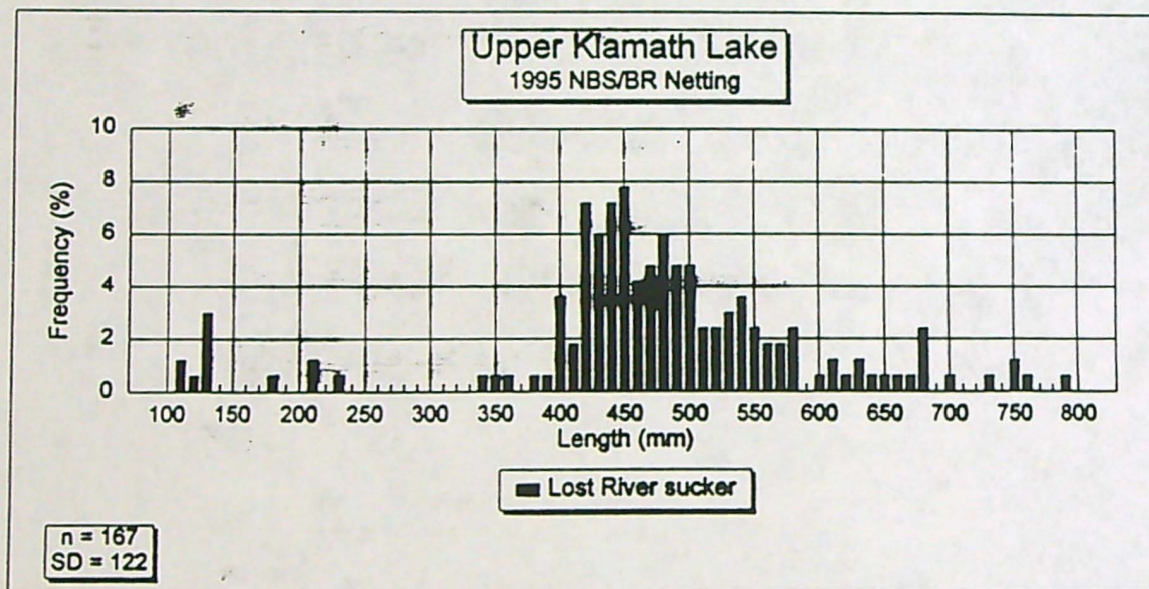
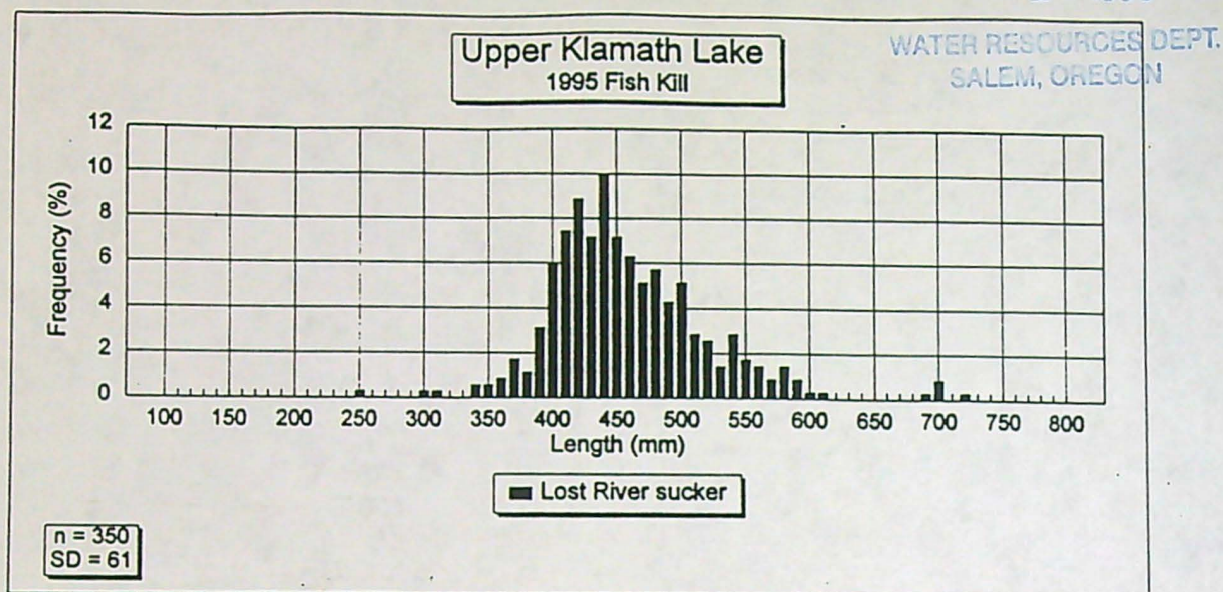


Figure 5. Length-frequency (%) of Lost River suckers collected in the fish kill and netting activities on Upper Klamath Lake, Oregon, in 1995.

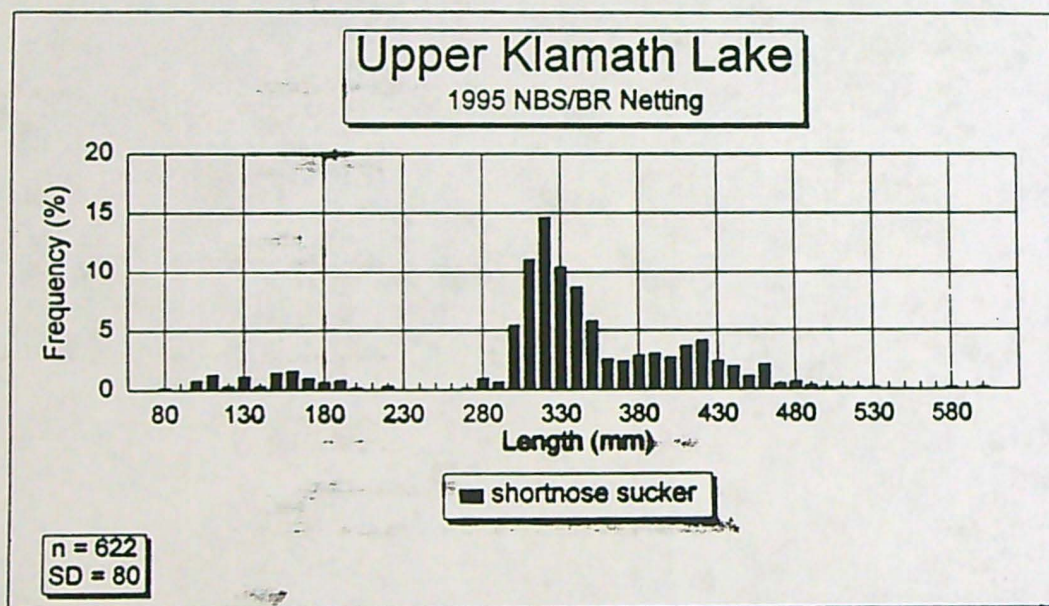
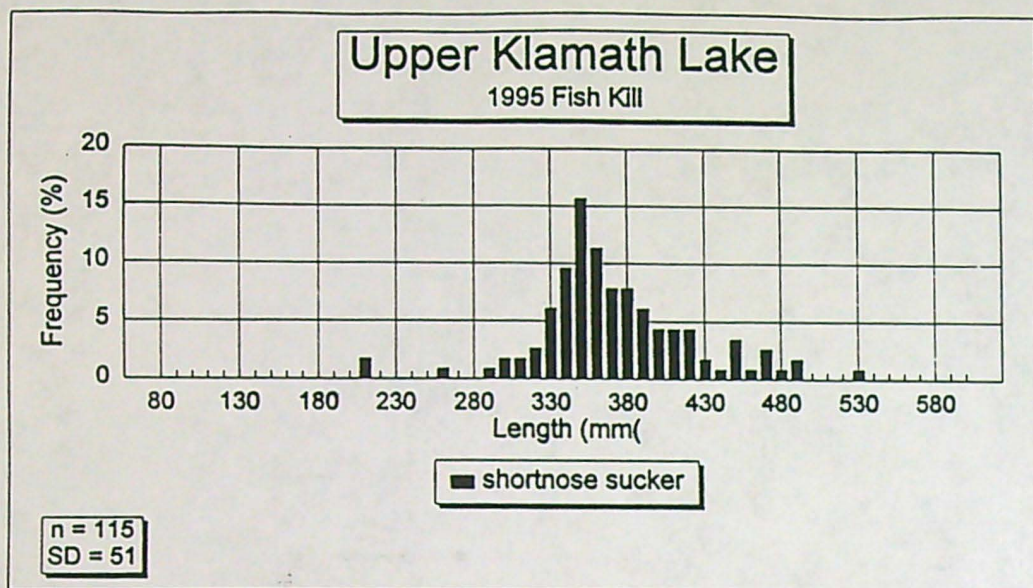
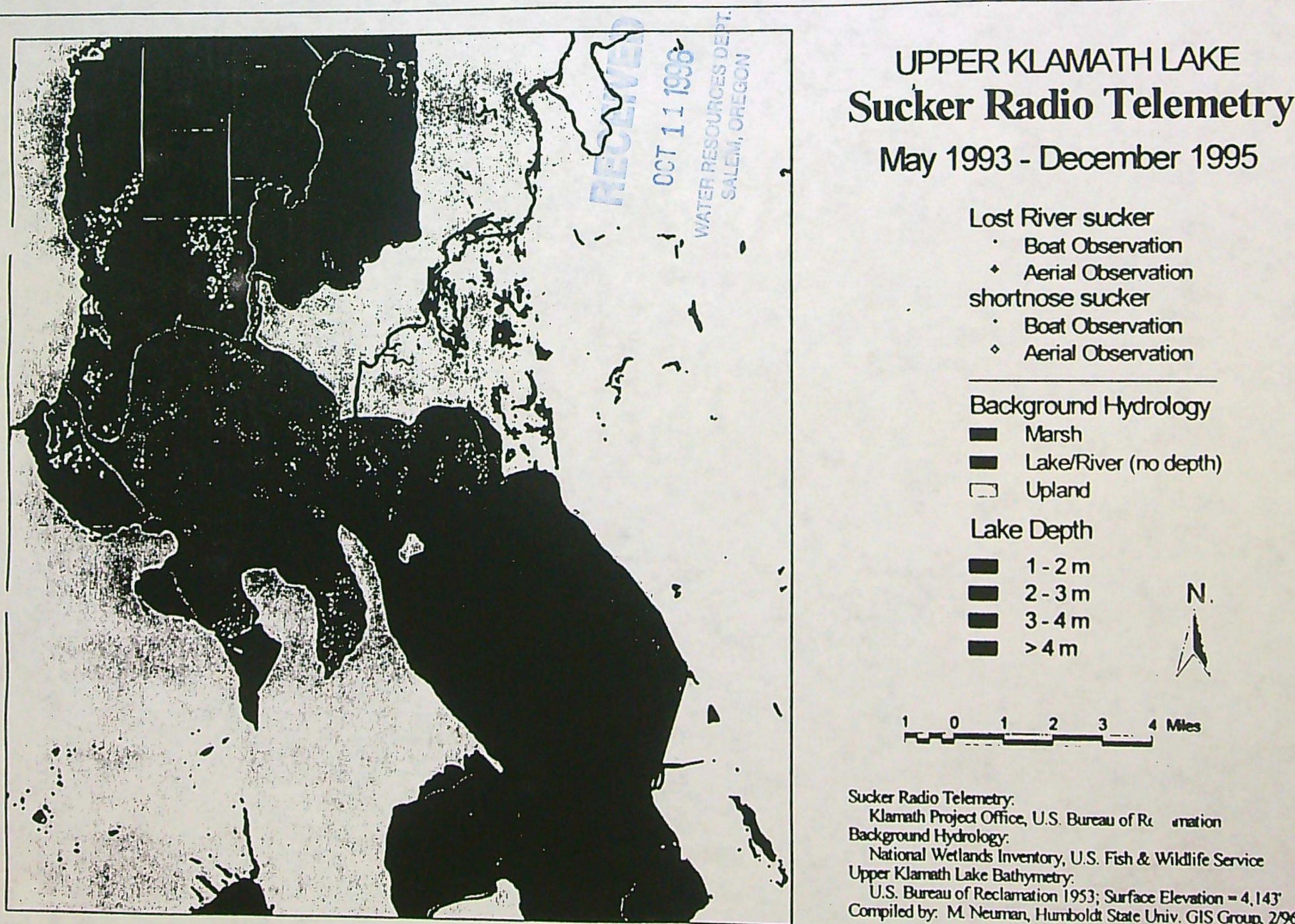


Figure 6. Length-frequency (%) of shortnose suckers collected in the fish kill and netting activities on Upper Klamath Lake, Oregon, in 1995.

Figure 7. Radio-tagged Lost River and Shortnose Sucker locations in Upper Klamath Lake, Oregon (1993-1995).



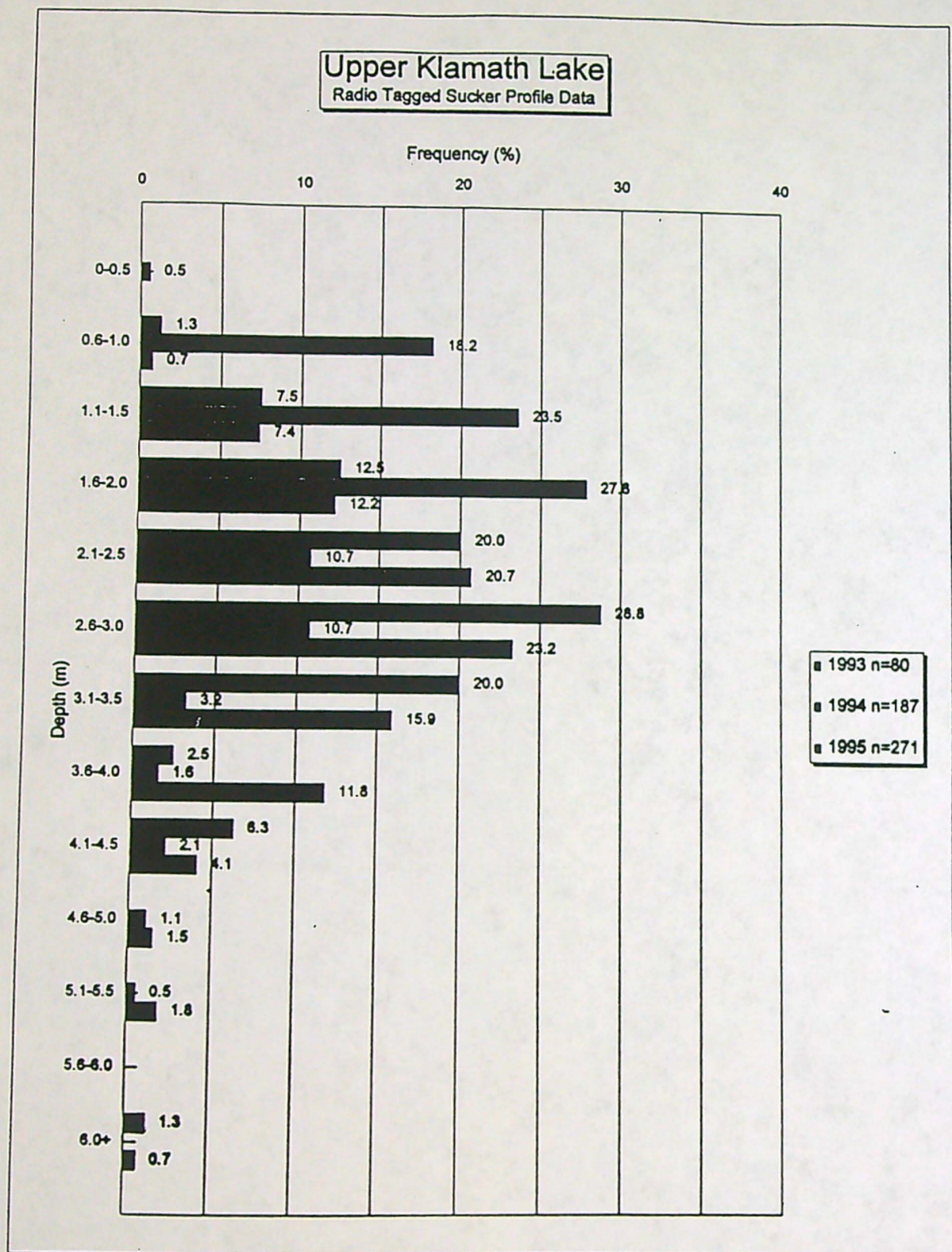


Figure 8. Frequency (%) of bottom depths where radio-tagged suckers occurred in Upper Klamath Lake, Oregon 1993-1995.

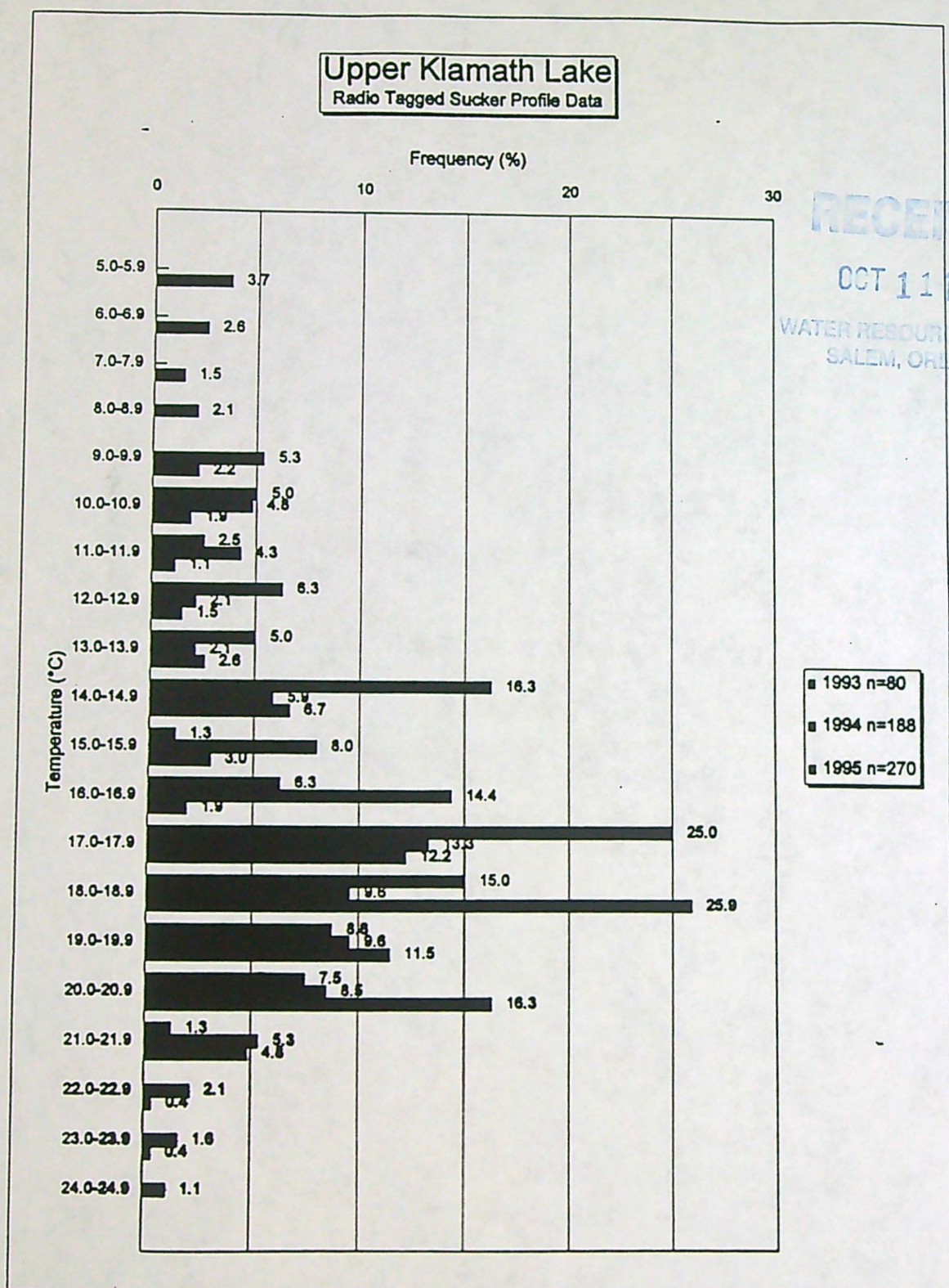


Figure 9. Frequency (%) of bottom water temperatures where radio-tagged suckers occurred on Upper Klamath Lake, Oregon, in 1993-1995.

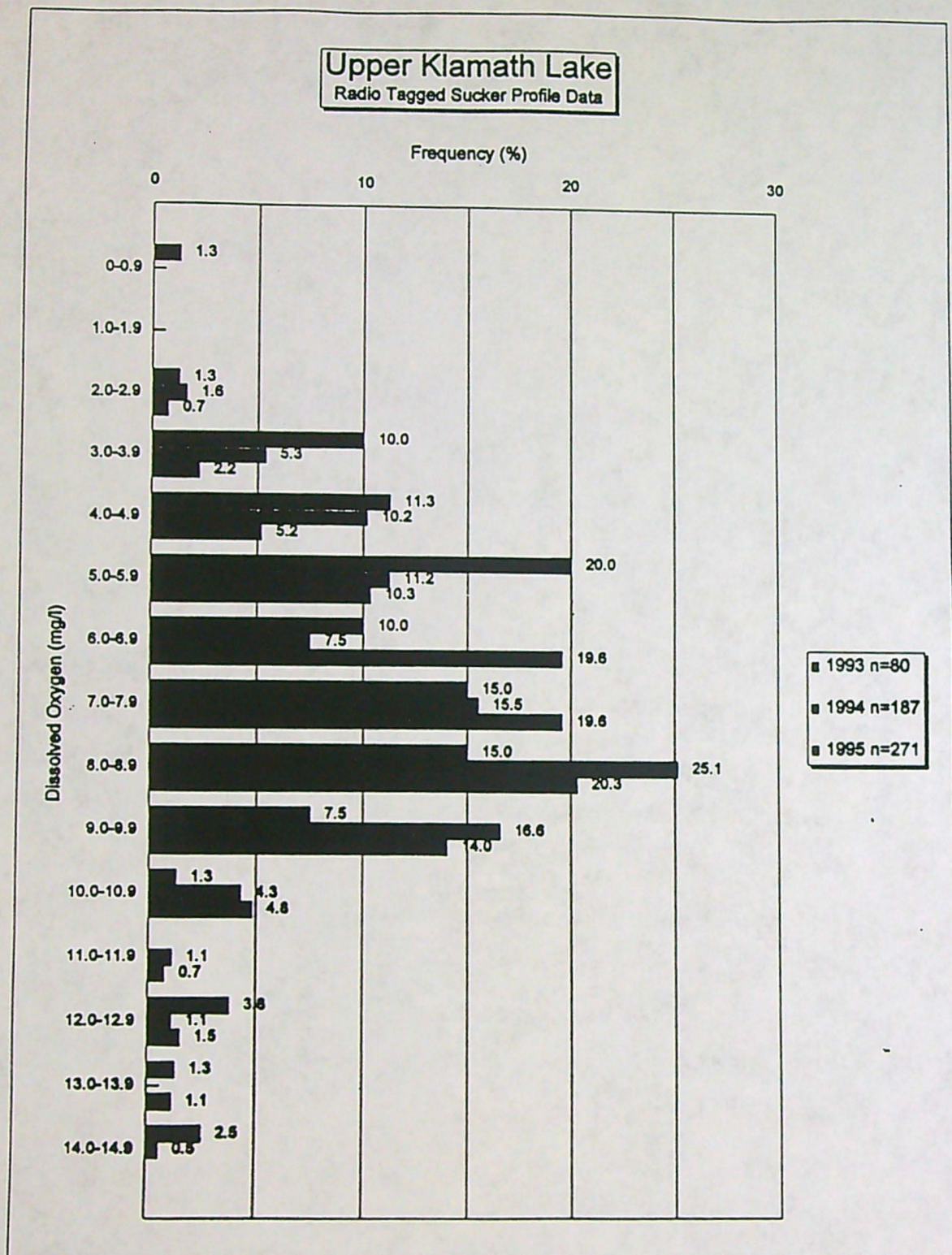


Figure 10. Frequency (%) of bottom dissolved oxygen where radio-tagged suckers occurred on Upper Klamath Lake, Oregon, in 1993-1995.

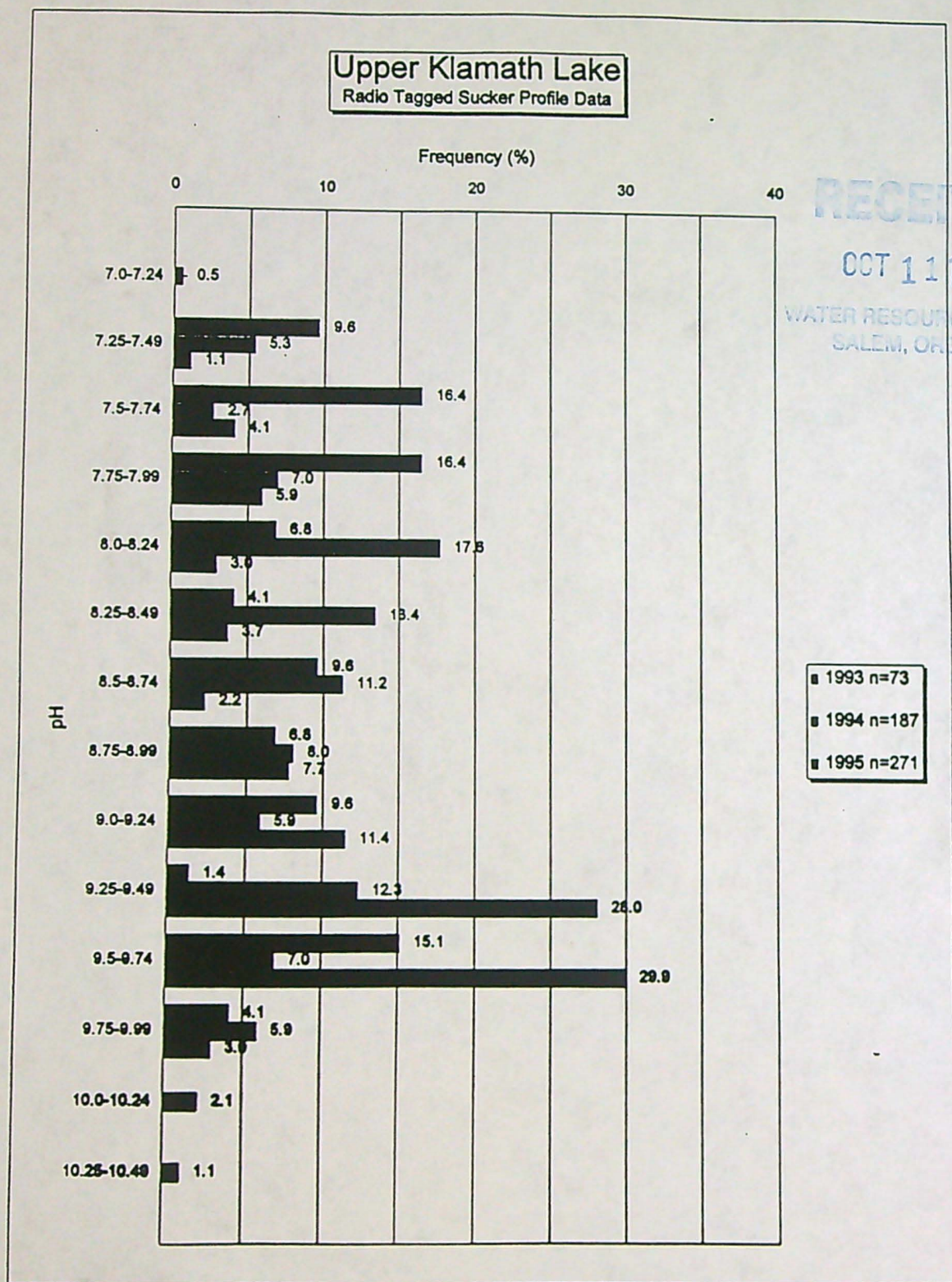


Figure 11 . Frequency (%) of bottom pH where radio-tagged suckers occurred on Upper Klamath Lake, Oregon, in 1993-1995.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Klamath Basin Ecosystem Restoration Office
6600 Washburn Way
Klamath Falls, OR 97603
(541) 885-8481 FAX: (541) 885-7837

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

In Reply Refer To: 1-10-96-F-039

July 15, 1996

Memorandum

To: Area Manager, Bureau of Reclamation, Klamath Basin Area Office
Klamath Falls, OR

From: Project Leader, Ecosystem Restoration Office, Klamath Falls, OR
Steven C. [Signature]

Subject: Formal Consultation on PacifiCorp and The New Earth Corporation Operations, as Permitted by Bureau of Reclamation, for the Lost River Sucker and Shortnose Sucker

Attached is the U.S. Fish and Wildlife Service, Ecosystem Restoration Office's (Service), biological and conference opinions for PacifiCorp's and The New Earth Company's proposed operations and actions, as permitted by Bureau of Reclamation (Reclamation), on Klamath Project (Project) lands and facilities. These actions effect the endangered shortnose sucker *Chasmistes brevirostris* and endangered Lost River sucker *Deltistes luxatus*, and proposed critical habitat for shortnose and Lost River suckers.

Important assumptions were made by the Service in completing these biological and conference opinions: 1) The Service assumed, in the interim between this consultation and completion of the Upper Klamath Lake endangered sucker consultation by spring 1997, water elevations and corresponding target dates in Reclamation's "low range elevations" proposal would be achieved during 1996; 2) The Service assumed Reclamation will complete the anticipated Upper Klamath Lake endangered sucker consultation by spring 1997. The Service anticipates the Upper Klamath Lake endangered sucker consultation will address other Project impacts and summarize and/or update new data not addressed in these PacifiCorp and The New Earth Company biological and conference opinions; 3) The Service assumed new information presented in the Upper Klamath Lake consultation would be integrated into Reclamation's and PacifiCorp's management of Upper Klamath Lake water elevations. These operations should provide annual lake levels in 1997 and beyond that are conducive to enhanced endangered sucker survival while proposed long-term habitat restoration activities are implemented and biotic response is monitored; 4) The Service assumed all ongoing research and monitoring, as specified under the July 22, 1992 Project long-term biological opinion, would continue; 5) The Service assumed that, in the long term, Lower Williamson River restoration efforts would prove successful and benefit all life stages of endangered suckers, reducing the need for short-term protections; 6) The Service assumed proposed short-term actions will remain valid until long-term Lower Williamson River restoration efforts are determined successful and Service analysis of species recovery potential validates relaxation of short-term measures.

EXHIBIT C

The Incidental Take Statement (ITS) contained in these biological and conference opinions estimates incidental take of Lost River suckers and shortnose suckers resulting from operations of PacifiCorp and The New Earth Company facilities and exempts the Applicants from the Endangered Species Act's section 9 prohibitions. This exemption is specific to PacifiCorp and The New Earth Company operations and does not supersede or otherwise replace Reclamation's responsibilities under ITS's in previous Project biological opinions. Additionally, all pre-existing Reasonable and Prudent Alternative elements from previous Project biological opinions remain in effect for Reclamation.

The biological opinion and ITS define specific timeframes for proposed activities and take reduction guidelines. The following table summarizes these actions.

Responsible Entity	Action	Timeframe/Due Date
PacifiCorp	Develop Entrainment Study Plan	August 31, 1996
PacifiCorp	Complete Entrainment Study	May 31, 1999
PacifiCorp	Entrainment Study Annual Report	October 15 (2 years)
PacifiCorp	Genetics Funding	To Be Determined
PacifiCorp	Klamath Reservoirs Study Report	December 31, 1999
PacifiCorp	Flood Operations Plan	October 31, 1996
PacifiCorp	ESA O&M Activity Plan	September 30, 1996
PacifiCorp	ESA O&M Report	December 31 Annually
PacifiCorp/BOR	Identify Fish Ladder Ownership	December 31, 1996
PacifiCorp or BOR	Fish Ladder Report	December 31, 1998
New Earth	Implement Entrainment Reduction at East/West Hydros	June 1, 1997
New Earth	Annual Entrainment Report	February 28 (2 years)
New Earth	Annual Salvage Report	Annual If Salvage Occurs
LWRRT	Draft Long Range Restoration Plan	December 31, 1996
LWRRT	Final Long Range Restoration Plan	April, 1997
LWRRT	Annual Restoration Plans	Prior to Annual Activities
PacifiCorp/New Earth	Assist with Land Purchase	January 1, 1997
PacifiCorp/New Earth	Land O&M Payments	Annually
Agricultural Land Owners	Annual Agricultural Operations Plans	Prior to Annual Activities

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

The ERO compliments Reclamation, PacifiCorp, and The New Earth Company for cooperatively and proactively participating in this consultation process. The proposed Lower Williamson River restoration action is an outstanding example of Federal government and private industry partnership opportunities to cooperatively benefit endangered species. If you have any questions please contact Steve Lewis, Project Leader, Marcus Horton, Supervisor Ecological Services, or Doug Young, Fish and Wildlife Biologist, at the above letterhead address/phone.

cc:

Stoel Rives, attn: Barb Craig

PacifiCorp: Frank Shrier, Tim O'Connor, Terry Flores

New Earth Company: Jim Carpenter, Brandt Gutermuth

Larry Salata

Dale Hall

Russell D. Peterson, OSO, attn: Rollie White

Randy Brown

Yreka

Arcata

ODFW: Roger Smith

Klamath Tribes, attn: Craig Bienz

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Formal Consultation on PacifiCorp and The New Earth Company Operations,
as Permitted by Bureau of Reclamation,
for the Lost River Sucker and Shortnose Sucker

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

INTRODUCTION

The U.S. Fish and Wildlife Service (Service), Ecosystem Restoration Office (ERO), has reviewed PacifiCorp's and The New Earth Company's proposed operations and actions, as permitted by Bureau of Reclamation (Reclamation), on Klamath Project (Project) lands and facilities, located in California and Oregon. Reclamation's biological assessment (Assessment) requesting initiation of formal consultation and conference for these operations and actions was received on June 7, 1996. This document represents the Service's biological opinion on the effects of the proposed operations and actions on shortnose sucker (*Chasmistes brevirostris*) and Lost River sucker (*Deltistes luxatus*), and conference opinion on the effects of the proposed operations and actions on proposed critical habitat for shortnose and Lost River suckers, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.)(Act).

These biological and conference opinions are based on the following information: 1) the June 7, 1996 Assessment (Reclamation 1996a); 2) previous Project Assessments and their appendices; 3) information presented in all previously released biological opinions addressing Project operations; 4) results of previous and current field and laboratory research activities; 5) information provided in published and non-published literature pertaining to the listed species; 6) file information in this office; 7) documents provided by PacifiCorp and The New Earth Company; 8) personal communication between ERO staff and researchers familiar with these listed species; 9) the Klamath Tribes; 10) discussions with members of the informal Lower Williamson River Restoration Team (LWRRT); 11) phone and direct communication between ERO, PacifiCorp, The New Earth Company, and Reclamation staffs and representatives; and 12) a July 11, 1996 letter from The New Earth Company clarifying the intent of the proposed Cooperative Agreement between The New Earth Company and the Service for future Upper Klamath Lake algae harvest (described below).

Important assumptions made by the Service in analyzing these data and developing these opinions included: 1) The Service assumed, in the interim between this consultation and completion of the Upper Klamath Lake endangered sucker consultation by spring 1997, water elevations and corresponding target dates in Reclamation's "low range elevations" proposal (Reclamation 1996b) would be achieved during 1996; 2) The Service assumed Reclamation will complete the anticipated Upper Klamath Lake endangered sucker consultation by spring 1997. The Service anticipates the Upper Klamath Lake endangered sucker consultation will address other Project impacts and summarize and/or update new data not addressed in these PacifiCorp

and The New Earth Company biological and conference opinions; 3) The Service assumed new information presented in the Upper Klamath Lake consultation would be integrated into Reclamation's and PacifiCorp's management of Upper Klamath Lake water elevations. These operations should provide annual lake levels in 1997 and beyond that are conducive to enhanced endangered sucker survival while proposed long-term habitat restoration activities are implemented and biotic response is monitored; 4) The Service assumed all ongoing research and monitoring, as specified under the July 22, 1992 Project long-term biological opinion (LTBO), would continue; 5) The Service assumed that, in the long term, Lower Williamson River restoration efforts would prove successful and benefit all life stages of endangered suckers, reducing the need for short-term protections; 6) The Service assumed proposed short-term actions will remain valid until long-term Lower Williamson River restoration efforts are determined successful and Service analysis of species recovery potential validates relaxation of short-term measures. Should any of these assumptions not hold true, Reclamation, on behalf of PacifiCorp and The New Earth Company, will be required to reinitiate section 7 consultation. A complete administrative record of this consultation is on file in the ERO.

The New Earth Company is proposing, under a separate Cooperative Agreement and consultation with the Service, to implement an Upper Klamath Lake algae harvesting operation. The New Earth Company will propose to offset any unavoidable impacts to endangered suckers through, in part, annual contributions to a Tulana Farms operations and maintenance fund. While The New Earth Company's proposed financial contribution for purchase of Tulana Farms for canal harvest impacts (identified in this consultation) is separate from The New Earth Company's proposed contribution for lake harvest impacts (proposed in the Cooperative Agreement), both proposed actions are analyzed together in this consultation to ensure a full review of this long-term restoration action.

ERO and Reclamation staff worked to "streamline" this consultation process by cooperatively developing the proposed operations and actions, then negotiating and proposing measures deemed necessary to avoid jeopardy to these species and to reduce take of listed suckers. This progressive approach involved describing PacifiCorp/The New Earth Company actions, identifying and analyzing effects by action and endangered sucker life stage, and proposing biologically sound jeopardy avoidance actions and additional conservation measures to help facilitate survival and recovery of the species under review. Proposed jeopardy avoidance actions and conservation measures include research, monitoring, review of flood control rules, habitat enhancement, and entrainment reduction activities. Research and operational reviews do not, in and of themselves, reduce impacts to endangered species, reduce take, or enact corrective measures. However, Reclamation has stated in its Assessment that Service review of research and results with subsequent determination if reinitiation of consultation is required will be expected in the future. Therefore, research may eventually bring about changes in actions to avoid jeopardy or assist species conservation in ways not previously considered.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

CONSULTATION HISTORY

The shortnose sucker and Lost River sucker were listed as endangered species on July 18, 1988. Reclamation initially consulted with the Service on the use of Acrolein on Project lands (biological opinion dated June 14, 1989). Several subsequent short-term consultations were completed for Project operations (biological opinions dated August 14, 1991, January 6, 1992, March 27, 1992, and May 1, 1992). On July 22, 1992, a jeopardy biological opinion was transmitted for the long-term operations of the Project. This LTBO's Reasonable and Prudent Alternative (RPA) and Incidental Take Statement (ITS) superseded all previous Project RPA's and ITS's. In April, 1993, the Service published a Recovery Plan for the shortnose and Lost River suckers. On August 11, 1994, a jeopardy biological opinion was transmitted for Project operations at Clear Lake Reservoir. The 1994 opinion's RPA requirements superseded the portions of the 1992 LTBO's RPA that referred to Clear Lake Reservoir, and provided an updated ITS for the entire Klamath Project operations. On December 1, 1994, critical habitat was proposed for Lost River and shortnose suckers. On February 9, 1995, a non-jeopardy biological opinion was completed, including an ITS, for Reclamation's Lease Lands pesticides applications. On February 2, 1996, additional Lease Lands pesticides were addressed in another non-jeopardy biological opinion and new ITS requirements were provided. On April 19, 1996, a consultation was completed that amended the February 2, 1996 opinion.

Reclamation's February 28, 1992 Assessment discussed PacifiCorp and The New Earth Company's activities within the Project area. Due to modified operations and actions, PacifiCorp and The New Earth Company have requested review of their impacts with a desire to receive an exemption to the section 9 prohibitions against take of endangered species under the Act. The 1992 LTBO addressed effects of The New Earth Company's algae harvest, estimated in 1992 at 20% of the flow of Reclamation's C-Canal. The New Earth Company's new proposed activity, as described below, has been expanded to include harvest from the entire flow of the C-Canal and all flows of the B-Canal (during algae harvest season only) and flows into the Eastside and Westside hydroproject diversions on the Link River (also during algae harvest season only). The 1992 LTBO addressed Reclamation's agreements with PacifiCorp for operating Link River Dam on Upper Klamath Lake and described a flood control operational "envelope". Due to lack of other specific information regarding the impacts of PacifiCorp's operations, other impacts and incidental take were not analyzed in the 1992 LTBO or ITS. New information and additional analysis regarding PacifiCorp's and New Earth Company's potential impacts and incidental take is therefore provided in this consultation.

Reclamation has been developing a long-term operations plan (KPOP) for the Project that will provide a template for water distribution to protect endangered suckers, provide agricultural supplies, maintain flows to the Tule Lake and Lower Klamath National Wildlife Refuges, protect anadromous fisheries below Iron Gate Dam, and support Tribal Trust resources. The Service anticipates a biological assessment on effects of the Project on Upper Klamath Lake water

elevations will be finalized with a biological opinion completed by spring 1997. In the interim period, Reclamation has provided a "low range elevations" proposal (Reclamation 1996b), to identify target Upper Klamath Lake elevations and corresponding dates during 1996. These water elevations are more protective for listed suckers than the requirements of the 1992 LTBO. The anticipated Upper Klamath Lake water elevations consultation will address other Project impacts, both beneficial and detrimental, and summarize new data that are not addressed in these PacifiCorp and The New Earth Company biological and conference opinions. Water operation impacts associated with PacifiCorp's activities, as addressed in this document, will be analyzed fully in the anticipated Upper Klamath Lake water elevations consultation.

BIOLOGICAL AND CONFERENCE OPINIONS

DESCRIPTION OF THE PROPOSED ACTION

PacifiCorp's and The New Earth Company's proposed action is a combination of historic and new operational activities, specific research and review, endangered species jeopardy avoidance and take reduction actions, and associated conservation measures. The action area encompasses Upper Klamath Lake downstream to Iron Gate Dam on the Klamath River, Oregon and California.

As described below, New Earth proposes to operate algae harvest facilities within the Klamath Project at sites near the junction of Reclamation's B- and C-Canals and at the Eastside and Westside Canals at the Link River Dam. They have requested issuance of a license to operate on these Reclamation facilities. Reclamation has made operation of these facilities contingent on the completion of this consultation and subsequent implementation of the necessary measures required in the opinions.

As described below, PacifiCorp proposes to operate Link River Dam and associated facilities in compliance with the 1992 LTBO and the contract with Reclamation. Continued operation of five hydrofacilities on the Klamath River are also proposed. Reclamation has made future operation of these facilities contingent on the completion of this consultation and subsequent implementation of the necessary measures required in the opinions. A subsequent Upper Klamath Lake water elevation consultation between the Service and Reclamation, to be completed by spring, 1997, will update PacifiCorp's 1992 LTBO lake level commitment identified above.

Operational Activities

PacifiCorp's facilities are comprised of six hydroelectric and/or re-regulating dams on the Link and Klamath Rivers, Oregon and California. Operations at these facilities occurs 24 hours a day, all year long. The Project Description and Proposed Action section of Reclamation's

OCT 11 1996

WATER RESOURCES DEPT.
OREGON

Assessment describes the various hydrofacilities' locations, purposes, designs, features, and associated operational information. Description of PacifiCorp's Flood Control "envelope" and operations based on water year scenario is provided in Reclamation's 1992 biological assessment. The Service incorporates those descriptions by reference in these biological and conference opinions.

The New Earth Company's existing algae harvest facilities are located on Reclamation's C-Canal, below the A-Canal diversion from Upper Klamath Lake, Oregon. Harvest operations at this facility occur 24 hours a day, from approximately June 1 to October 15, and utilize approximately 20% of C-Canal flows. Harvest activities cease at the end of the irrigation season when the A-Canal headworks are closed. The Project Description and Proposed Action section of Reclamation's Assessment describes the purposes, designs, features, and associated operational information. The Service incorporates those descriptions by reference in these biological and conference opinions.

The New Earth Company's proposed new activity would include harvesting algae from the entire flow of the C-Canal and all flows of the B-Canal (during algae harvest season only, ending when irrigation season ceases). Debris Reduction Devices will be employed at both B- and C-Canal facilities only during actual harvest periods. However, unlike the C-Canal where all flows would be screened via Debris Reduction Devices, only the pumping facilities would be screened with Debris Reduction Devices at the B-Canal, potentially allowing some unimpeded flow down the middle of the canal and therefore some incidental movement of suckers past this facility without site-specific entrainment impacts. Additionally, The New Earth Company proposes to expand harvest activities in 1997-1998 to the Eastside and Westside hydroproject diversions at Reclamation's Link River Dam, where all flows passing through the diversion channels would eventually be harvested. Entrainment reduction devices, described below, would be operated at the Eastside and Westside facilities during all algae harvest activities or between June 1 through October 15, whichever is a greater period of time. Reclamation's Assessment, Project Description and Proposed Action section, describes the purposes, designs, features, and associated operational information for these new actions. The Service incorporates those descriptions by reference in these biological and conference opinions.

Existing Protections

PacifiCorp currently operates fish ladders on the following facilities: Link River Dam, Keno Dam, and J.C. Boyle Dam. A fish entrainment reduction device is provided at J.C. Boyle Dam. Fish entrainment reduction devices are not installed at the Link River Dam spillway or either of the Link River Dam powerhouse intakes. Minimum flows are provided downstream of Link River Dam (80 cfs), Keno Dam (200 cfs), and J.C. Boyle Dam (a combination of up to 500 cfs of various accretions). Ramp rates have been developed for the Link River below Link River Dam to reduce fish stranding. PacifiCorp's Standard Operating Procedures includes a salvage plan for salvaging endangered suckers from the Link River and from various hydrofacilities. The Link River salvage plan directs PacifiCorp to collect all suckers in dewatered areas and return them

safely, after biological evaluation and data collection, to their water of origin. During 1995 and 1996, PacifiCorp implemented salvage activities after spill termination under Reclamation's section 10(a)(1)(A) Recovery Permit.

The New Earth Company currently operates coarse (3/8" mesh) debris screens at its C-Canal algae harvest facility. These debris screens may incidentally serve to reduce The New Earth Company's entrainment of juvenile and adult fish.

Future Research, Review, Jeopardy Avoidance Measures, and Conservation Measures

Discussions between the Service, Reclamation, PacifiCorp, and The New Earth Company identified PacifiCorp and The New Earth Company operational impacts to endangered suckers from Upper Klamath Lake downstream to Iron Gate Reservoir. The impacts are identified and discussed in Effects of Action section of these opinions. As a result of these discussions, PacifiCorp and New Earth Company, in consultation with Reclamation and the Service, agreed upon a combination of long-term and short-term measures intended to avoid jeopardizing the continued existence of the listed Lost River and shortnose suckers. The purchase of Tulana Farms as offsite habitat is the primary jeopardy-avoidance measure, and Service, Reclamation, tribal, PacifiCorp, and New Earth biologists expect that the restoration of off site habitat at Tulana Farms in the Williamson River Delta will significantly benefit the Lost River and shortnose suckers in the long term. See Lower Williamson River Restoration Project - Tulana Farms Initial Biological Justification (PacifiCorp 1996). The above-mentioned scientists collectively project the restoration effort will significantly increase the number of surviving sucker larvae which should, in turn, benefit each species as a whole.

The purchase of, and provision of operation and maintenance funds for, Tulana Farms is the major jeopardy-avoidance measure in this consultation, however, because the restoration of Tulana Farms is a long-term project, the following short-term measures were included in the consultation: entrainment reduction study (PacifiCorp), entrainment reduction devices at Link River power canal headgates during algae harvest season (New Earth Company), flood control study (PacifiCorp), genetics management study (PacifiCorp), and reservoir sucker population status studies (PacifiCorp). In addition, New Earth Company has agreed to a number of conservation measures including: endangered sucker and water quality monitoring and assisting PacifiCorp with the entrainment reduction study.

Reclamation, PacifiCorp, and The New Earth Company understand the Service or Reclamation may determine it necessary to reinitiate consultation on the Lost River and shortnose suckers at some future date if there is significant new information and after a thorough consideration of the status of the species overall.

PacifiCorp Action Items - PacifiCorp agrees to include the following action items that demonstrate their commitment to the survival and recovery of the endangered suckers. These items also are incorporated as conditions of the contract issued by Reclamation.

OCT 11 1996

WATER RESOURCES DEPT.
OREGON

1) **Entrainment Reduction Study** - Data on sucker entrainment rates into the unscreened hydropower diversions at Link River Dam are lacking. The primary goal of this study is to determine the timing, size, magnitude, and duration of juvenile (age 1 and older or > 75mm) and adult sucker entrainment into the Eastside and Westside diversion canals. Entrainment will be evaluated during the period when entrainment reduction devices are not in operation, October 15 through May 31 (season). This study will be conducted in coordination with New Earth, Reclamation, Oregon Department of Fish and Wildlife and the Service. A study design will be "Service-approved" prior to implementation. It is anticipated that these studies will be conducted over two seasons and will be completed by May 31, 1999, with the intent of beginning field activity during 1996.

2) **Genetics Management Plan** - Management of endangered Lost River sucker and shortnose sucker populations has been complicated by the lack of genetic information and potentially conflicting taxonomic status. These species also display highly variable morphological characteristics that have lead to concern over potential hybridization/introgression among sucker species. This study is designed to determine the genetic relationships among four Klamath Basin sucker species, differences within the endangered species, and whether or not these species are presently hybridizing or may have hybridized in the past. This information will be used to improve management of the different stocks of endangered suckers and is essential for any future hatchery operations.

Although the Service listed the Lost River and shortnose suckers as taxonomic species and not distinct population segments, the Service believes there are important spawning subpopulations of suckers found in Upper Klamath Lake. As a result, PacifiCorp has agreed to cost share with Reclamation and other agencies to perform additional taxonomic and genetic studies. Reclamation made a collection of suckers throughout the Upper Klamath Basin in 1993 that can be used for these additional taxonomic and genetic studies. Findings from this research will be used to develop a genetics management plan that will guide management of sucker populations and potential future hatchery supplementation. This work is tentatively scheduled to begin in October 1996 and continue for 3-4 years. PacifiCorp will fund these studies in a pro rata share amount, based on the financial contributions of other research participants, not to exceed \$80,000 total.

3) **Sucker Population Status in Mainstem Reservoirs** - Very little information is known about the endangered sucker populations in the Klamath mainstem reservoirs (J.C. Boyle, Copco, and Iron Gate). PacifiCorp will coordinate with Reclamation, Oregon Department of Fish and Wildlife, California Department of Fish and Game, and the Service to develop a scope of work for sucker studies on the mainstem reservoirs. Study objectives are likely to include: determination of distribution and abundance, age class structure, recruitment success and habitat use by different life stages. A study design will be "Service-approved" prior to implementation. It is anticipated that the study period would be from 1997 to 1999. PacifiCorp will fund these studies and analyses, which are expected not to exceed \$120,000.

4) Sucker Nursery Habitat Restoration - Recent research on factors limiting sucker populations in Upper Klamath Lake indicates that a bottleneck exists at the larval life stage. Poor larval survival in sucker nursery habitat areas appears to be related to degraded water quality, predation, and lack of emergent vegetation habitat. The 1992 LTBO analyzed a Conservation Measure for marsh restoration construction and assessment. Based on this commitment, Reclamation, the Service, The Nature Conservancy (TNC), NRCS, PacifiCorp, and New Earth have cooperatively proposed funding, restoring and maintaining a property on the Lower Williamson River. The NRCS proposes to enroll a large portion of the property under a permanent easement in the Wetlands Reserve Program. This proposed action also includes any future federal funds transferred for restoration activities. This restored habitat would be designed and managed to benefit riverine and lake water quality, reduce larval predation, and substantially increase larval sucker habitat in historic locations. This type of habitat restoration action is strongly supported within the Recovery Plan for the two sucker species (Service 1993).

PacifiCorp and New Earth propose to invest 1.8 million dollars combined in the purchase of Tulana Farms with TNC and NRCS, and PacifiCorp proposes to commit \$75,000 each per year for ten years or the equivalent present net worth in lump sum to the operation and maintenance of the property. If unforeseen circumstances occur, and the purchase of Tulana Farms with TNC and NRCS does not materialize, PacifiCorp and New Earth agree to pursue the option to purchase Tulana Farms or other offsite habitat mitigation. PacifiCorp and New Earth agree to acquire property identified for offsite mitigation by January 1, 1997. If an acquisition is not facilitated, the Incidental Take Statement will become invalid and reinitiation of consultation will be required.

As proposed, approximately 1,150 acres of Tulana Farms would be excluded from the perpetual NRCS conservation easement to allow for agricultural use. The NRCS and TNC, with assistance of the LWRRT, will determine the precise location of these agricultural lands to be excluded from the easement. PacifiCorp, The New Earth Company, and TNC ("the parties"), or some combination of these parties, may hold an interest in the agricultural inholdings. The parties who ultimately acquire an interest in the agricultural inholdings will work with the Service to ensure that the management of these lands are consistent with the protection of the suckers under the Act. The Service maintains the ability to reinitiate consultation with the parties via Reclamation if agricultural practices are still occurring on these lands after 10 years.

PacifiCorp and The New Earth Company will assist in formation of, and also participate in, the LWRRT for the Lower Williamson River restoration program. The LWRRT will include representatives from Reclamation, Service, Oregon Department of Fish and Wildlife (ODFW), TNC, NRCS, and the Klamath Tribes. This technical team would, among other activities, develop a recommended long-range restoration plan for the property and provide annual work plans to the Management Committee. The Management Committee will be made up of representatives from PacifiCorp, The New Earth Company, Reclamation, Service, ODFW, TNC, NRCS, and the Klamath Tribes. The Management Committee would oversee the LWRRT's activities and also address non-technical issues. TNC would operate Tulana Farms and would

act in good faith to implement the recommendations of the LWRRT. If the LWRRT is unable to reach consensus on the Restoration Plan, TNC and NRCS may nonetheless continue to take reasonable steps to restore Tulana Farms, consistent with the ITS requirements applicable to PacifiCorp and The New Earth Company. Restoration project success will be annually monitored via specific habitat and larval and early juvenile production criteria, as developed by the LWRRT. The Service would review the long-range restoration plan and the annual work plans to ensure consistency with this consultation. The annual and long-range restoration plans will be developed to meet NRCS restoration program guidelines.

5) Re-evaluate Flood Operations Plan for Upper Klamath Lake - A review of scientific data pertaining to endangered suckers in Upper Klamath Lake suggests that elevations higher than those listed as an element of the Reasonable and Prudent Alternative in the 1992 LTBO are necessary to provide habitat for sucker spawning, larval and juvenile rearing, and also provide water quality protection. Some of these elevations, particularly those during late winter and early spring, are outside of PacifiCorp's operating envelope for Upper Klamath Lake.

PacifiCorp will develop a scope of work that includes consideration of the flood control rule curves, operational constraints, hydropower, and shoreline habitat benefits to the suckers. The scope of work will be reviewed by Reclamation and the Service. PacifiCorp will complete the re-analysis of the Flood Operations Plan by October 1996.

The New Earth Company Action Items - New Earth agrees to include the following action items that demonstrate their commitment to the survival and recovery of the endangered suckers. These items also are incorporated as conditions of the amended licence issued by Reclamation.

1) Sucker Nursery Habitat Restoration - Same as #4 PacifiCorp action item above for property acquisition, agricultural inholdings, and restoration planning and implementation. Additionally, The New Earth Company will provide, at final closing of the Tulana Farms property, \$75,000 for the first year's operation and maintenance of the property. As noted in the Introduction section, The New Earth Company will provide \$75,000 per year, for years two through ten, or the equivalent present net worth in lump sum, for the operation and maintenance of the property via the proposed Cooperative Agreement with the Service. This total contribution of \$675,000 is proposed to offset The New Earth Company's future Upper Klamath Lake algae harvest operations, and is a separate action from this consultation. If the Cooperative Agreement is not completed by December 31, 1996, The New Earth Company commits to providing \$75,000 per year, for years two through ten, or the equivalent present net worth in lump sum, for the operation and maintenance of the property, under the same process proposed above by PacifiCorp.

2) Entrainment Reduction Devices - New Earth will install and maintain entrainment reduction devices that maintain exclusion of suckers greater than 75 mm, at the Eastside and Westside diversion canals at the Link River Dam during all algae harvest activities or between June 1 through October 15, whichever is a greater period of time, for ten years or the remaining

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

life of the Federal Energy Regulatory Commission (FERC) permit, beginning in June 1, 1997 regardless of whether algae harvest activities have commenced. The entrainment reduction devices will be operated 24 hours a day. They will be manually removed, cleaned, and replaced several times a day.

The New Earth Company Conservation Measures - The following are additional research and conservation measures proposed by The New Earth Company. None of the three actions described below will require reinitiation of this consultation upon completion of the individual activity. Reclamation and the Service believe these activities are important in developing additional information on the endangered suckers and therefore support their progressive implementation by The New Earth Company.

1) Endangered Sucker Monitoring - Endangered sucker research will be conducted in relation to algae harvest activities at the B- and C-Canal harvest facilities. Life stages targeted include larval, juvenile, and adult forms. In coordination with the Service and Reclamation, The New Earth Company proposes a study to determine the extent to which fish respond to algae harvest operations and associated debris reduction devices. Research will focus on identifying species composition, timing, and magnitude during entrainment. It is anticipated that this study will be initiated in 1996 and conducted over two years.

2) Water Quality Monitoring - The New Earth Company will be harvesting large quantities of algae from the B- and C-canals and has plans to expand its harvest operations to PacifiCorp's Eastside and Westside power diversions. These activities are expected to improve water quality conditions in the Lost and Klamath rivers below their operations. The New Earth Company will begin monitoring water quality conditions (DO, pH, temperature, specific conductivity, turbidity) above and below harvest operations at the B- and C-canals in 1996. Link River monitoring will be initiated during the 1997 harvest season.

3) Entrainment Reduction Study - The New Earth Company will participate in a study to determine the timing, size, magnitude, and duration of juvenile (age 1 and older or >75mm) and adult sucker entrainment into the Eastside and Westside diversion canals and guide development of additional entrainment reduction methods and operating periods if required in reinitiation. Entrainment will be evaluated during the period when entrainment reduction devices are not in operation, October 15 through May 31 (season). This study will be conducted in coordination with PacifiCorp, Reclamation, ODFW, and the Service. A study design will be "Service-approved" prior to implementation. It is anticipated that these studies will be conducted over two seasons and will be completed by May 31, 1999, with the intent of beginning field activity during 1996.

STATUS OF THE SPECIES

Historically, populations of shortnose and Lost River suckers occupied the Upper Klamath River basin and the seasonally-connected Lost River drainage. A complete description of known historic distribution is provided in Reclamation's February 28, 1992 Assessment. Current distribution is reduced from historic due to damming of rivers, diversions, loss of marsh habitat (FR 53 27130), and poor water quality (Kann and Smith 1993). Sucker populations in the Lost River are segregated without passage facilities between water developments; Tule Lake supports limited sucker populations due to historic habitat loss and continued habitat degradation due to sedimentation of the sumps and poor water quality (D. Mauser, Service, pers. comm., 1996). Sucker populations in Clear Lake and Gerber Reservoir, while more stable than other populations (Scoppettone et al. 1995; M. Buettner, Reclamation, pers. comm.), are still faced with restricted distribution, lack of genetic connectivity with other populations, and, in the case of Clear Lake, limitation to one spawning tributary system. Numerous spawning populations in Upper Klamath Lake and its tributaries have been extirpated; spawning populations that historically utilized Seven Mile Creek, Four Mile Creek, tributaries to the Wood and Sprague Rivers, Barkley Springs, Odessa Springs, Harriman Springs and at least four other springs in Upper Klamath Lake have disappeared (Reclamation 1996a; Simon et al. 1995). Spawning activity is greatly reduced in the Sprague River, especially above Chiloquin Dam, in the Wood River and its tributaries, and springs in Upper Klamath Lake. Historic habitat conditions in Upper Klamath Lake and its tributaries have been altered; wetland habitats around Upper Klamath Lake, critical to survival of all life stages, have been reduced approximately 35,000 acres in the last 80 years (Gearhart et al. 1995). Remaining Upper Klamath Lake wetland areas are affected by Project water level management.

These types of data were originally used to determine these two sucker species to be endangered, to develop these species' Recovery Plan, and to propose critical habitat. These conditions, which led to the listing of these species in 1988, still exist and continue to endanger the Lost River and shortnose suckers. These conditions will require long time periods for their resolution. However, numerous activities have been initiated and/or completed, mainly supported by Reclamation, since the 1992 LTBO. These activities include development of water elevation requirements, within the 1992 LTBO and 1994 Project biological opinion, for Gerber Reservoir, Clear Lake, Tule Lake, and Upper Klamath Lake. Minimum flows have been established for the Lost River below Anderson-Rose Dam during sucker spawning periods. The 20 conservation measures proposed in the February 28, 1992 biological assessment have been initiated or completed. These activities have been necessary to ensure Project operations do not jeopardize the continued existence of the suckers. Additionally, a total of 51 recovery actions from the 1993 Recovery Plan, including those listed above as required under the 1992 LTBO and 1994 Project biological opinion, have been initiated, are in various ongoing stages, and/or completed by Reclamation or with cooperation from Reclamation.

Major summaries of endangered suckers' general biology, habitats, distribution and abundance, taxonomy, reasons for decline, life history, and reproduction are found in Reclamation's February 28, 1992 biological assessment, the Service's 1992 LTBO and 1994 Project biological opinion, the Lost River Sucker and Shortnose Sucker Recovery Plan (Service 1993), and the

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Proposed Critical Habitat Biological Support Document (Service 1994). These data are incorporated into these biological and conference opinions by reference.

ENVIRONMENTAL BASELINE

The Environmental Baseline is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species or its habitat. This analysis describes the status of the shortnose and Lost River suckers and factors, including the proposed action, affecting the environment of the two suckers and their proposed critical habitat in the proposed action area.

Status of Species Within Action Area

Significant new research, monitoring, and management actions have been conducted throughout the range of the listed suckers since the 1992 LTBO. These new data will be considered under the forthcoming Upper Klamath Lake water elevations consultation, which will address all other Reclamation impacts specific to the entire range of these species. The following provides new scientific data for the current consultation's action area, Upper Klamath Lake downstream to Iron Gate Reservoir on the Klamath River. A complete list of new scientific data citations for Upper Klamath Lake, if not cited below, is provided in Reclamation's Assessment, Literature Cited section.

Areas Below Upper Klamath Lake

The following includes a summary of new endangered sucker information provided in Reclamation's Assessment. This new information from the Assessment is incorporated by reference.

Limited endangered sucker sampling has occurred since 1992 in the Link River, Lake Ewauna, the Klamath River, and PacifiCorp reservoirs downstream to Iron Gate Dam. Few juvenile and adult suckers were collected during this period. Efforts to collect larval stages in this area have not been attempted since 1992 (M. Buettner, Reclamation, pers. comm.). Water quality is a limiting factor in the Link River to Keno Dam reach; summer and fall dissolved oxygen concentrations throughout this reach are reduced to lethal levels.

In 1993, Reclamation sampled J.C. Boyle Reservoir eight times collecting 20 shortnose suckers, one Lost River sucker, 30 Klamath smallscale suckers, and 6 Klamath largescale suckers. The ODFW conducted an electrofishing survey at J.C. Boyle Reservoir on June 14, 1995. They captured 32 juvenile suckers but did not identify them. In 1993, Reclamation sampled Copco Reservoir and captured 10 adult shortnose suckers ranging from 427-500 mm fork length (FL). PacifiCorp's salvage activities during 1994 and 1995 in the Link River have collected between 0 and 138 suckers. In May 1994, a fish salvage of the Link River found no suckers. Fish salvage

efforts in April, 1995, collected 12 suckers; 10 shortnose and 2 Lost River. A fish salvage conducted at the conclusion of spill in May 1995 collected 132 shortnose suckers, 5 Lost River suckers, and 1 Klamath largescale sucker. In December, 1995, only one 100 mm sucker was salvaged in a side channel and was returned to Link River. Salvage operations at J.C. Boyle hydrofacility since 1992 have resulted in observation of only 2 juvenile suckers (Reclamation 1996a).

As noted in the February 28, 1992 Assessment, limited spawning occurs in the Klamath River above Copco Reservoir. It is possible limited spawning also occurs in the Klamath River above J.C. Boyle Reservoir.

Upper Klamath Lake

Substantial new information has been collected from Upper Klamath Lake since the 1992 LTBO. Reclamation's Assessment summarizes this new information in the following 12 categories: age and growth; hybridization and genetics; reproduction; population status; condition; sucker die-offs; entrainment; freshwater inflow area use; larval habitat; juvenile ecology; juvenile habitat; and adult habitat. The following includes a summary of new information provided in Reclamation's Assessment, and includes new information not addressed in Reclamation's Assessment on larval ecology and habitat, larval and juvenile sucker water quality tolerances, Upper Klamath Lake water quality, and endangered sucker passage at PacifiCorp's facilities. The new information addressed in the Assessment is incorporated by reference, with additional citations from other sources provided to complement this newly-summarized information.

Age and Growth

New information collected since 1992 indicates that both shortnose and Lost River sucker maturation can occur at an earlier age than was previously determined. Faster growth rates also have been documented from recent shortnose and Lost River sucker year classes compared to those from the 1960's and 1970's (Buettner and Scopettone 1990). Age at maturity for shortnose and Lost River suckers appears to be related to growth rate, with faster growing fish maturing earlier than slower growing fish. This phenomenon has been well documented with the cui-ui, a species closely related to the shortnose sucker (Scopettone pers. comm., cited in Reclamation 1996a). Growth rate and sexual maturity appears to be density dependent in cui-ui with fast growth and earlier sexual maturation related to lower population size. As the cui-ui population increased substantially in recent years, growth rates decreased markedly and correspondingly age of maturity shifted to older ages. Unfortunately, population size data for shortnose and Lost River suckers are not available to evaluate whether the recently-recorded faster growth rates and earlier sexual maturation are density dependent. These age and growth data and comparisons are addressed in detail within the Assessment, and are included herein by reference.

RECEIVED
OCT 11 1996
FISH RESOURCES DEPT.
SALEM, OREGON

RECEIVED
OCT 11 1996
FISH RESOURCES DEPT.
SALEM, OREGON

Hybridization and Genetics

Recent studies by Buth and Haglund (1994) focus on shortnose suckers. This study supports previous protein electrophoresis work (Harris and Markle 1991, Moyle and Berg 1991) indicating that substantial hybridization has not occurred in shortnose sucker populations. Buth and Haglund's 1994 data support the hypothesis that the wide range of morphological variation observed in the wild reflect differences in phenotypic expression as a response to differing physical environments, or the age of the individual (Moyle and Berg 1991). However, Buth and Haglund (1994) determined that there was genetic variation separating Upper Klamath Lake shortnose suckers from those in Clear Lake, Gerber Reservoir, and Copco Reservoir. Shortnose expressed similar genetic variation in the latter three reservoirs.

Buth and Haglund (1994), and a recent abstract by Buth et al. (1996), indicate the Upper Klamath Lake shortnose sucker population should be managed as a separate genetic unit. Buth et al. (1996) indicate shortnose and Lost River suckers, throughout their ranges, do not exhibit inbreeding depression and, for Lost River sucker, this was the first study to indicate Lost River sucker do not exhibit hybridization. These studies did not include different sucker age classes or different Upper Klamath Lake spawning populations in their analyses. A thorough, basinwide analysis, utilizing allozyme electrophoresis, mtDNA, and meristics/morphometrics data collected simultaneously from the same individual fishes, must be completed to adequately address hybridization, introgression, and genetic structuring of sub-populations (L. Dunsmoor, Klamath Tribes, pers. comm.).

Reproduction

In 1995, Klamath Tribal biologists captured mature Lost River suckers during late March at Kirk Springs, 128 km upstream from Upper Klamath Lake (L. Dunsmoor, Klamath Tribes, pers. comm.). Mature Lost River suckers were again collected in this location in 1996. Unit 5 of the proposed sucker critical habitat extends to just downstream of this location (Service 1994). Klamath Tribes collected 157 shortnose suckers and 139 Lost River suckers at the Sprague River Dam fish ladder during 1996 (L. Dunsmoor, Klamath Tribes, pers. comm.). These data verify that some individuals of this species successfully negotiate the Sprague River Dam fish ladder and migrate long distances upstream to spawn. Previous scientific literature indicates only Klamath largescale suckers as having migrated through the ladder and spawning at Kirk Springs (Buettner and Scoppettone 1990), although Klamath Tribes biologists have recorded shortnose and Lost River sucker passage at the Sprague River Dam in past years (L. Dunsmoor, Klamath Tribes, pers. comm.). Of additional interest are data collected at Sprague River Dam in 1996 that indicate a temporal spawning separation between largescale sucker upstream migration (migration in March) and shortnose/Lost River suckers upstream migration (migration in April/May) (L. Dunsmoor, Klamath Tribes, pers. comm.). Lost River and shortnose suckers were collected during downstream migration at the Sprague River Dam in 1996; numerous individuals had completed spawning, verifying spawning was occurring upstream of the Sprague River Dam (L. Dunsmoor, Klamath Tribes, pers. comm.).

OCT 11 1996

WATER RESOURCES DEPT.
OREGON

Intensified monitoring of lake spawning since 1993 by Reclamation and the Klamath Tribes have identified Lost River sucker spawning at six spring and two non-spring sites along the east shoreline of Upper Klamath Lake. Shortnose sucker spawning has been identified since 1992 at three sites: Sucker Springs, Silver Building Spring, and Ouxy Springs. Since 1993, small numbers of shortnose and Lost River suckers have been observed spawning in gravelly shoreline sites with no detectable spring influence.

The Klamath Tribes has been qualitatively monitoring spawning runs in the Williamson and Sprague Rivers since 1988 (L. Dunsmoor pers. comm., cited in Reclamation 1996a). Beginning in 1992, a substantial increase in small Lost River and shortnose suckers was observed. During May 1993, small-sized shortnose and Lost River suckers dominated the catch on the Williamson and Sprague Rivers. Radiotracking studies indicated suckers were spawning in historic sites in the lower Williamson River and the Sprague River below Sprague River Dam (M. Buettner, Reclamation, pers. comm.). Presumed pre-spawning aggregations of suckers have been collected at the mouth of the Williamson River (M. Buettner, Reclamation, pers. comm.). During 1995, adult shortnose and Lost River suckers were collected at the mouth of the Williamson River beginning February 23, whereas in 1996 few adult suckers were collected at this location until April.

During March to mid-May, 1996, Reclamation sampled Agency Lake at the mouth of the Wood River (M. Buettner, Reclamation, pers. comm.). A total of three adult Lost River and 15 adult shortnose suckers were captured. One Lost River and six shortnose suckers were implanted with radiotags. Most radiotagged suckers migrated into the lower Wood River in May and early June, presumably to spawn. On May 17, 1996, Reclamation, assisted by ODFW, conducted an electrofishing survey of the lower Wood River and captured 11 adult shortnose suckers. Larval suckers were collected in late June and early July, 1996, in the lower Wood River (M. Green, Reclamation, pers. comm.).

Population Status

Monitoring of distinct Lost River spawning aggregations at Sucker Springs in Upper Klamath Lake has resulted in updated population estimates since 1992. In 1993, 900 Lost River sucker adults were estimated to be using this spring complex. This estimate is similar to estimates in 1987 (1,038 adults), 1988 (817 adults), and 1989 (960 adults). Recaptured suckers comprised approximately 46% of all suckers collected at Sucker Springs in 1993.

Reclamation has captured, tagged and released several hundred juvenile and adult shortnose and Lost River suckers in Upper Klamath Lake between 1993 and 1995. Specifically, 305 shortnose suckers have been PIT and/or Floy anchor-tagged and 15 radio-tagged. Twelve Lost River suckers were radio-tagged and 355 PIT and/or Floy tagged. During the spring of 1995, NBS PIT tagged 60 Lost River sucker adults and 405 shortnose sucker adults at the mouth of the Williamson River, and approximately 1,300 additional Lost River and shortnose suckers

were collected in 1996. Recapture rate for both these marked groups has been extremely low. Reclamation recaptured one PIT tagged Lost River sucker in 1994 and one in 1995. One PIT tagged shortnose sucker was recaptured at Ouxy Springs in 1995. Out of the approximately 900 adult shortnose and Lost River suckers collected at the mouth of the Williamson River in 1996, only one 1995 shortnose sucker recapture occurred. Suckers collected at the Sprague River Dam fish ladder in 1996 could not be checked for PIT tags due to equipment failure (L. Dunsmoor, Klamath Tribes, pers. comm.). In 1993, 60 Lost River suckers were recaptured at Sucker Springs; all these fish had been tagged with Floy anchor tags. Preliminary 1996 data indicates a 30% recapture rate at Sucker Springs (M. Buettner, Reclamation, pers. comm.).

A widespread sucker die-off (described below) provided some insight regarding current population levels in Upper Klamath Lake. A total of 526 suckers, including 378 Lost River suckers (72% of total collected), 124 shortnose suckers (24% of total collected), and 24 unidentified (5% of total collected), were recovered. No recaptures of previously tagged fish were recorded from the carcasses collected. These data indicate the 1990 and 1991 age classes were successful; approximately 42% of the Lost River suckers and 62% of the shortnose suckers were age 4 (1991 cohort) and 29% of the Lost River suckers and 15% of the shortnose suckers were age 5 (1990 cohort). These data from smaller-sized shortnose and Lost River suckers suggests that their population numbers are at least in the thousands of fish. However, a carcass condition index, identifying the relative decomposition state for each sucker, revealed approximately 35% of the carcasses were badly decomposed, increasing the chance of tag loss (M. Green, Reclamation, pers. comm.). These data may indicate bias in utilizing a mark-recapture method of estimating Upper Klamath Lake sucker populations exclusively from sucker die-off data. Additionally, it is noted that three of 14 radiotagged fish perished during the die-off event, indicating substantial mortality in the overall sucker population and providing a conflicting cross reference to the above mark-recapture population estimate. Additional research and further analyses of these data are necessary, such as stratification of mark-recapture analysis based on size of fish recaptured, not on total fish recaptured, comparison of sampling methodologies to standard mark-recapture assumptions, and determination of total recapture sampling effort required, before definitive statements on current sucker abundance in Upper Klamath Lake can be made.

Population monitoring conducted in the 1980's (Buettner and Scopettone 1990; Bienz and Ziller 1987) indicated that recruitment of Lost River and shortnose suckers to adult-size age classes was inconsistent, as evidenced by gaps in known year classes of spawning adults. Reclamation's Assessment discusses continued, recent losses of older sucker cohorts, and increases in relative abundance of younger (1990 and 1991) cohorts. These recent data are discussed in more detail under Reproduction (above) and Sucker Die-Offs (below).

Condition

Fulton condition factors were calculated for younger age shortnose and Lost River suckers to assess interannual differences during spring and fall in wet and critically dry years. In general,

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

shortnose and Lost River suckers exhibited minor condition factor differences between these two water year types. These data might indicate the suckers maintain "condition" regardless of water year. Alternatively, two biases may be occurring in these condition factor data. First, environmental stressors can cause up to 25% weight gain, due to osmoregulatory imbalances causing water retention, which would result in higher condition factor values (R. Goede, UDWR, pers. comm.). Second, if mortality is occurring during stressful water quality periods, density dependant mechanisms could be effecting the condition of surviving fish, thereby providing the perception of similar condition factors between water year types. A better and less biased measure of sucker condition would be based on physiological and "abnormality" indices (R. Goede, UDWR, pers. comm.). These data are currently unavailable. Another less biased measure of condition would be based on relative weight; however, a "standard weight" calculation for various sizes of Lost River and shortnose sucker has not been developed.

Sucker Die-offs

Between mid-September through late October, 1995, a widespread fish die-off occurred in Upper Klamath Lake, from which 378 Lost River suckers and 124 shortnose suckers were collected. Suckers collected during the die-off included mostly young fish (ages determined using opercle bones, M. Buettner, Reclamation, pers. comm.). Several suckers displaying lethargic and unresponsive behavior were collected during the die-off event and taken to Oregon State University (OSU) for pathological examination. All were acutely infected by a bacterial disease, columnaris (*Flexibacter columnaris*) (Banner 1995). This pathogen was also documented as a primary causative agent in the death of suckers collected during the 1971 and 1986 die-offs (Logan and Markle 1993). Ninety-five percent of the Lost River and shortnose suckers from the 1995 die-off event were age 7 years and younger. A total of only 14 and 9 year classes were documented for Lost River and shortnose suckers, respectively. For comparison, a similar fish die-off in 1986 reflected 26 Lost River sucker age classes represented. Only eight shortnose suckers were collected during the 1986 die off. Lost River suckers have been aged to 43 years while shortnose have been aged to 33 years (Scoppettone 1988); these data indicate many more cohorts should be present in a healthy population than were collected in recent die-off events. In 1995, Age 4 and 5 fish, representing the 1991 and 1990 year classes respectively, numerically dominated the collection for both species. Population surveys conducted on Upper Klamath Lake using trap nets and trammel nets from 1993-1995 has documented very few large adults, and Williamson and Sprague River spawning data during this same time period also have noted a similar decline in larger sized suckers. These data seem to substantiate 1995 fish die-off data which suggest loss of numerous, older age classes of both sucker species. Reclamation's Assessment provides these cohort-loss data in graphical form; these data are incorporated herein by reference.

Recent large-scale Upper Klamath Lake fish die-offs have been documented from 1971, 1986, 1994, and 1995. Because of the long history of blooms of blue-green algae (*Aphanizomenon flos-aquae*) and associated poor water quality conditions, other fish kills most certainly have occurred. Fish kills involving native, non-game fish, including chubs and suckers, may have not

been reported by the public. Also, with the large populations of fish eating birds (cormorants, gulls, pelicans, grebes, terns) present at Upper Klamath Lake, sick and dead fish can be quickly consumed leaving no evidence of a fish kill. Large concentrations of fish eating birds were observed feeding on local fish kills during summer 1994 (L. Dunsmoor pers. comm., cited in Reclamation 1996a) and 1995 (D. Simon pers. comm., cited in Reclamation 1996a).

Entrainment

Entrainment of all Upper Klamath Lake endangered sucker life stages occurs at Reclamation's A-Canal, and PacifiCorp's East and Westside diversions, Link River Dam. Juvenile suckers have been salvaged from Klamath Project canals receiving water from Upper Klamath Lake yearly since 1991. The number of suckers salvaged from 1991-1995 were 3,166; 2,618; 788; 334; and 4,072, respectively. Most suckers salvaged were small juveniles less than 250 mm FL. Canal salvage data represent only a qualitative index of year class strength in Upper Klamath Lake for the following reasons: 1) Since some irrigation water originates from the Lost River, suckers from Gerber, Clear Lake, and the Lost River are likely included in the salvage sample. 2) Many irrigation canals are treated with Acrolein during the summer to control aquatic plants and this herbicide is highly toxic to fish. 3) Several practices have been implemented since 1992 to reduce the number of suckers that have to be salvaged. Most of these practices lead to draining of canals into the Lost River or Klamath River. 4) Patchy distribution of stranded suckers can also effect salvage success since not all potential holding habitat is sampled. 5) Sampling effort and personnel has also varied during annual salvage operations.

The large salvage collection in 1991 (3,166 suckers) supports OSU juvenile sucker survival data for the same year indicating establishment of a 1991 year class. In 1992, although the overall catch was high (2,618 suckers), about 95% of suckers collected, based on length frequency, were 1991 year class fish. This lack of age 0 suckers in salvage collections also correlated with OSU juvenile sucker survey data indicating Lost River and shortnose sucker year class failure in 1992. In 1993, only 788 juvenile suckers were salvaged even though sampling effort was similar to 1992. However, OSU survey data from 1993 indicated that survival for both juvenile shortnose and Lost River suckers occurred. This is the only year since salvage operations began where salvage numbers and annual recruitment data didn't correlate. Possible explanations for lower numbers of entrained suckers include better quality habitat maintained by higher lake levels reduced larval sucker emigration; lower A-Canal entrainment occurred due to lower irrigation demands; biased canal sampling methods; and successful canal "flushing" methods (Reclamation 1996a). In 1994 low numbers of suckers were salvaged (334), with about 90% age 0. This low number was consistent with OSU recruitment data from Upper Klamath Lake indicate poor 1994 year class survival. In 1995, over 4,000 suckers were salvaged, the largest salvage total numbers for the 5 years of effort, including about 50% age 0 and 50% age 1. OSU juvenile sucker recruitment estimates were high in the fall, relative to other years, from cast net and trawl surveys indicating year class establishment.

In 1995, The New Earth Company intermittently monitored sucker entrainment at the C-Canal Drop for a period of about 8 weeks (July and August). This sampling period was too late to intercept the earlier, and greater magnitude, sucker migration. Seven larval suckers were collected during several sample days. These data further substantiate entrainment of suckers into the A-Canal, as was first documented in 1990 and 1991 (Markle and Simon 1993), and discussed in detail within the 1992 LTBO.

No larval entrainment work has been conducted at Eastside or Westside Diversions since 1992. On May 11, 1995, PacifiCorp dewatered the Eastside forebay. A total of 41 juvenile suckers (3 Lost River, 37 shortnose and 1 Klamath largescale sucker) were collected from the forebay and returned to Upper Klamath Lake. All fish were less than 200 mm FL. On December 11, 1995, the Eastside forebay was again dewatered. A fish salvage collected 78 suckers. All suckers were less than 200 mm FL, and were not identified to species.

Freshwater Inflow Area Use

Reclamation's Assessment summarizes sucker "refugial" habitat use and water quality measurements in tributaries to and freshwater interfaces within Upper Klamath Lake. These data are incorporated by reference. Previously, researchers believed freshwater "refugial" areas served as a place of sanctuary during poor water quality events (Service 1992; 1994); these freshwater sources are important to maintenance of water quality in the northern portion of Upper Klamath Lake (J. Kann, Klamath Tribes, pers. comm.). Recent investigations indicate freshwater inflow areas are infrequently used by adult suckers, unless these fish are stressed or dying (M. Buettner, Reclamation, pers. comm.). Mobile and fixed-station radiotelemetry studies described in Reclamation's Assessment did not identify, other than for spawning migration purposes, any use of freshwater "refugial" areas by adult suckers. However, adult suckers have been observed utilizing the low-visibility interface between Upper Klamath Lake and freshwater inflow areas, including the mouth of Pelican Bay and Fish Banks. A review of movements by radiotagged suckers indicates, during extremely poor water quality events, even areas such as Fish Banks, a low-visibility interface area, are abandoned, further invalidating the original belief that freshwater inflow areas provide consistent "refugial" habitat (L. Dunsmoor, Klamath Tribes, pers. comm.).

Larval suckers utilize the freshwater inflow area in the lower Williamson River for rearing habitat (Markle and Simon 1994, Simon et al. 1995; Logan and Markle 1993; Klamath Tribes 1992, 1995). The above studies generally indicate juvenile suckers utilize shoreline habitats in Upper Klamath Lake instead of inflow areas. Reclamation's Assessment cites lack of food, cooler water temperatures, and increased susceptibility to predation by avian and fish predators, including rainbow trout and yellow perch, in the clear water inflow areas as likely factors limiting use of these areas by juvenile suckers. However, clearwater shoreline areas influenced by Barkley Springs are occupied by both larval and juvenile sucker life stages (Reclamation 1996a).

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Upper Klamath Lake Water Quality

Annual occurrences of blue-green alga blooms within Upper Klamath Lake have been associated with poor water quality conditions (Kann and Smith 1993). Likely causes for this increase in eutrophication include agricultural practices, loss of wetlands, and elevated background levels of nutrients in surface and groundwater (Gearhart et al. 1995). Effects of algal blooms include photosynthetically-elevated pH during bloom events, both supersaturated and low dissolved oxygen concentrations (Kann 1993a,b), and increased ammonia concentrations (Bortelson and Fretwell 1993). Water quality impacts to endangered sucker early life stages are addressed in Larval and Juvenile Water Quality Tolerances, below.

Significant water quality data have been reported for Upper Klamath Lake since 1992 (Bortelson and Fretwell 1993; Kann 1993a,b; Kann and Smith 1993; Jassby and Goldman 1995; Kann 1995; Laenen and LeTourneau 1995; Gearhart et al. 1995). Kann (1995) identified relationships between low Upper Klamath Lake elevations and poor water quality conditions. Investigations by Gearhart et al. (1995) and Jassby and Goldman (1995) support Kann's observations. Reclamation contracted with U.S. Geological Survey to analyze pertinent Upper Klamath Lake water quality data, collected between 1990 and 1994, to determine if year-to-year differences in water quality parameters are correlated with year-to-year differences in lake elevation. Results of this analysis are provided in Wood et al. (1996). Significant findings by Wood et al. (1996) include: 1) periods of poor water quality occurred between June and September for all study years; 2) no apparent relation between lake level and water quality was obvious when dates were analyzed on a season-long (May through October) basis; 3) lake level was related to timing of initiation of first algae bloom, which created poorer June water quality conditions; 4) climatic events also exhibited significant relationship with water quality during the early season period. Further analyses and review of these and other water quality data is currently ongoing and will be addressed in the upcoming Upper Klamath Lake water elevations consultation.

Larval and Juvenile Water Quality Tolerances

Larval and juvenile suckers are less water quality tolerant, and, especially for the larval life stage, less able to avoid poor water quality events than adult suckers (based on adult radio telemetry and associated water quality measurements, M. Buettner, Reclamation, pers. comm.). Monda and Saiki (1993, 1994) and Bellerud and Saiki (1995) conducted water quality tolerance tests to assess acutely toxic levels of temperature, dissolved oxygen (DO), pH, and un-ionized ammonia on larval and juvenile shortnose and Lost River suckers. The 96-hr LC50 values (lethal concentration where 50% of the test organisms die within 96 hours, lower 95% confidence interval for pH, un-ionized ammonia, and temperature, upper 95% confidence interval DO) for larval and juvenile shortnose and Lost River suckers is provided (Table 1). It is important to note that sub-lethal effects commonly occur prior to reaching the lethal levels provided below (Kann and Smith 1993; Markle and Simon 1994). It also is important to note that these tests were "single parameter" tests; it is currently unknown what LC50 values would result from combined testing of pH, DO, temperature, and un-ionized ammonia.

Table 1. Acute water quality tolerance levels from 96 hour LC50 studies (from Monda and Saiki 1993, 1994; and Bellerud and Saiki 1995).

Water Quality Parameter	Shortnose Sucker Larval	Shortnose Sucker Juvenile	Lost River Sucker Larval	Lost River Sucker Juvenile
Temperature °C	31.2	29.4	30.5	29.9
Dissolved Oxygen (mg/l)	1.7	2.4	2.3	2.0
pH	10.01	9.76	9.77	9.87
Un-ionized Ammonia (mg/l)	0.73	0.32	0.43	0.70

Of these four water quality parameters, only temperature is not a significant threat to larval and juvenile suckers based on current water quality conditions in Upper Klamath Lake. Bellerud and Saiki (1995) concluded that current DO and pH levels in Upper Klamath Lake can be acutely lethal to larval and juvenile Lost River and shortnose suckers. Moreover, stressful water quality conditions that curtail successful survival of early life stages could explain the long-term decline of sucker populations in Upper Klamath Lake.

Water quality associations with larval sucker distribution were monitored in 1995 by OSU during larval fish towing and larval searches. Larval suckers were found in pH ranging from 7 to 10 (Simon pers. comm., cited in Reclamation's Assessment). Larval suckers were captured at DO ranging from 4.5-14.5 mg/l. A Hydrolab Datasonde 3 was placed at Goose Bay from June 15 to August 11, 1995 (The Klamath Tribes 1995). Goose Bay water quality seldom exceeded acute toxicity thresholds in the *Polygonum* beds where abundant sucker larvae were located. DO infrequently decreased below 4 mg/l or 50% saturation and pH seldom rose above 9.7. However, pH values of 9.6 were very common and are only slightly below the 96 hr LC 50 for larval and juvenile suckers (Bellerud and Saiki 1995). DO concentrations at the Goose Bay location exceeded saturation in almost half of the measurements (The Klamath Tribes 1995). Chronic effects of poor water quality are most likely occurring at these locations; presence of suckers in these instantaneous samples collected from poor water quality areas noted in the OSU and Klamath Tribes data does not necessarily mean those fish survived the ambient conditions. Acute and chronic toxicity to early sucker life stages from supersaturated water have not been evaluated, however, loss of appetite and reduction in growth during supersaturated conditions has

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

been noted in other fish species (Stewart et al. 1967). Stewart et al. (1967) also noted decreased growth in dissolved oxygen <70% saturation.

Water quality associations with Age 0 juvenile sucker distribution were monitored in 1994 and 1995 by OSU researchers (Simon et al. 1995; Reclamation 1996a). Generally, juvenile suckers were collected in DO concentrations between 6.0 and 15 mg/l, with the greatest number collected at approximately 8.0 mg/l. DO concentrations in study sites often ranged from 4-6 mg/l, however, very few juveniles were collected in this lower DO range. Juvenile suckers appear to avoid DO concentrations less than 6.0 mg/l. Juvenile suckers were collected over the entire range of recorded pH values, with the majority of 1995 captures occurring in pH of 9-10. Juvenile suckers were regularly collected in pH within the lethal ranges for juvenile shortnose and Lost River suckers (> 9.8). However, instantaneous sampling occurred when diel pH levels are at maximum levels, whereas diel fluctuations in pH in Upper Klamath Lake can be as high as 1 pH unit (Kann and Smith 1993). Chronic effects are expected to occur at these lower pH levels, however, the juvenile suckers may not experience immediately lethal effects. Reclamation's Assessment indicates juvenile sucker near-shore abundance in 1995 decreased between August and October samples, whereas offshore sample abundance remained high. These data may reflect chronic effects to juvenile suckers in areas experiencing non-acute pH levels, or simply ontogenetic movement to offshore rearing areas with an increase in fish size.

Larval Ecology

Klamath Tribes (1995) investigated flatworm predation on sucker larvae. Past monitoring of incubating embryos in several springs within Upper Klamath Lake indicated low embryo survival and high concentrations of flatworms present. Additional experimental data indicates flatworm predation on sucker embryos does occur. Substrate may play a significant role in reducing flatworm predation; Tribal biologists determined that flatworms were less effective in preying upon embryos placed in fine substrate vs. medium and coarse substrates (Klamath Tribes 1995).

Dunsmoor (1993) determined that introduced fathead minnow (*Pimephales promelas*) readily prey on larval suckers in a laboratory experiment. Dunsmoor (1993) also determined that vegetative structure reduced the predation rate in shallow water. Klamath Tribes (1995) therefore expanded the Dunsmoor (1993) studies to investigate micro-distributional dynamics of, and interaction between, sucker larvae and fathead minnows. Laboratory results indicated fathead predation on sucker larvae: a) increases with decreasing water depth; b) increases in the absence of structure in shallow water; and, c) decreases with age/size of larvae. Klamath Tribes (1995) laboratory studies conclude, using various depth and vegetation treatments using experimental stocking rates of 10 sucker larvae and 20 fathead minnows per tank, fathead minnows were capable of consuming up to 90% of sucker larvae present in less than 24 hours, with an average of 80% consumed for all trials where structure was absent, water depth was 0.3 m, and larvae were less than 30 days old. These predation rates are significantly reduced when simple structure is present or when water depths are greater than 0.6 m. Field validation of these

data has not occurred. However, these preliminary data indicate strong associations between water elevation, structure, and the ability of larval suckers to avoid potentially-significant fathead minnow predation.

Larval Habitat

Vogel (pers. comm., cited in Reclamation's Assessment) and OSU (Markle and Simon 1994) report similar observation of larval sucker habitat use. These researchers noted, in the lower Williamson River area, that larvae oriented in, or adjacent to, emergent vegetation, submerged aquatic plants and instream woody debris. Within Upper Klamath Lake, larval suckers occupied habitats in and near vegetation and physical structures, such as logs or rocks. Larval suckers generally are surface-oriented (Reclamation 1996a). Klamath Tribes (1995) found larval suckers in emergent vegetation consisting of *Scirpus*, *Polygonum*, *Sparganium*, and willows. Additionally, higher densities of larval suckers were found in emergent vegetation than in open water areas (Goose Bay) or submergent vegetation (lower Williamson River) (Klamath Tribes 1995). These data are especially strong for the lower Williamson River, where very few sucker larvae were collected outside of emergent vegetation habitats.

Klamath Tribes (1995) investigated relationships between Upper Klamath Lake elevation and availability of emergent vegetation. Tribal investigators quantified the amount of emergent habitat available at different water elevations in Goose Bay and in the Lower Williamson River. These data indicate important relationships between Reclamation and PacifiCorp's water operations and the quality of larval habitat in Upper Klamath Lake. These data will be further addressed during the Upper Klamath Lake water elevations consultation in spring 1997.

Larval sucker utilization of offshore habitats has not been investigated thoroughly, due to sampling problems created by blue-green algae abundances. However, Klamath Tribes (1995) determined that larval suckers were several times more abundant in vegetated habitats than immediately adjacent open water, non-vegetated habitats of similar depth.

Temporal and spatial larval sucker distribution in Upper Klamath and Agency Lakes has been documented by OSU (Markle and Simon 1993, 1994; Simon et al. 1995). Lower Williamson River contained the most larvae (emigration densities), with larvae found distributed along shoreline areas throughout Upper Klamath Lake during 1994 and 1995 (post-emigration densities). Higher numbers of sucker larvae were captured on the east shore of Upper Klamath Lake; west shore and Agency Lake sampling locations had few larvae. Most larvae were collected in May and June. Klamath Tribes (1995) determined that the majority of larvae had developed into juvenile life stage by mid to late July.

Juvenile Ecology

Preliminary investigations between 1990 and 1993 indicated frequent trematode infestation in young suckers from Upper Klamath Lake. Simon et al. (1995) reported on an infestation of

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

juvenile suckers in 1994 by trematodes, possibly of the genus *Neascus*. Further review, described in Reclamation's Assessment, indicates infestation rates of 12.5-14% for juveniles < 49 mm and 2.2 % for juveniles 50-125 mm. Of concern is the life cycle of the trematode, which may spend several years in a fish. Based on the infestation rates provided above, researchers expect infestation rates to be similar between sucker size classes or greater as fish mature. Because of infestation rate differences, negative effects might be experienced by young suckers from trematode infestation. Other stressors, such as annual chronic and lethal water quality conditions, may reduce suckers' ability to resist trematode infestations (Reclamation 1996a). Additional research is necessary to address these concerns.

Shortnose and Lost River suckers transform from larvae to juveniles between 17 and 25 mm (Buettner and Scopettone 1990). In 1993, OSU determined larval suckers were present during early June, whereas, by mid-July, small juvenile suckers were collected (Reclamation 1996a). Additional data from Klamath Tribes (1995) indicates the majority of suckers collected in late July were juveniles. Inter-annual differences in transformation from larval to juvenile stage are possible, however, a conservative approach would indicate mid-July as the period when larval transformation is complete.

Markle and Simon (1993) determined that larval and juvenile sucker otoliths could potentially be used to distinguish between cohorts, determine date of birth, and document growth. Additionally, preliminary research indicates these techniques can be used to distinguish between lake and river-spawned individuals. Additional verification of these techniques has been completed recently, including validation experiments that determined otolith rings were deposited daily and depositional patterns were constant (Hoff, OSU, pers. comm., cited in Reclamation 1996a). Interesting application of these otolith techniques has led to further experimentation and review, including determination of larval and juvenile sucker ages, date of birth, and growth (Logan pers. comm., cited in Reclamation 1996a). One important discovery, utilizing otolith techniques developed at OSU, was documentation that age 0 juvenile suckers collected in fall 1994 were all late-spawned fish. These late-spawned fish were most likely river-spawned, but without additional information, such as otolith microchemistry, there is less certainty of natal origin.

Juvenile Habitat

During the summer, juvenile suckers are most commonly collected in shoreline habitats (Simon et al. 1995). Greatest density occurred at the mouth of and within a few miles (east shore of Upper Klamath Lake) of the Williamson River. Juvenile distribution is patchy elsewhere, including Agency Lake. Juvenile suckers are generally less surface-oriented during the summer period than larval forms, however, both are mainly found associated with aquatic vegetation habitat features (D. Simon, OSU, pers. comm.). Klamath Tribes (1995) found juvenile suckers associated with emergent vegetation through late July, when sampling techniques and vegetative conditions precluded further efforts in emergent zone. However, researchers continued to capture juveniles with dip nets in emergent vegetation after late July. Juvenile suckers appear to

gradually occupy deeper, off-shore habitats as they grow larger (approximately 80 mm for shortnose suckers and 90 mm for Lost River suckers). Simon et al. (1995) noted that juveniles collected during fall sampling in offshore trawls were larger than those juveniles collected in inshore cast nets. In 1991, offshore sampling began in early September and continued through mid-October. During these fall trawling efforts, juvenile suckers were first collected in late September, and increased in density through the October sampling period (Simon et al. 1995).

Juvenile suckers exhibit a relationship between density and substrate type. Excluding emergent vegetation, where high numbers of juveniles occur, juveniles in open water areas were most associated with gravel or muck (unconsolidated organic material, silt, etc.) substrates (Markle and Simon 1994). In 1995, highest densities of age 0 suckers were found on small-sized mixture of substrates, gravels, and cobbles (Simon et al. 1996).

Age 0 juvenile sucker survival has been monitored by OSU since 1991 (Simon et al. 1995). Both cast nets (shoreline occupation) and trawls (offshore, deepwater) have been used in the monitoring effort. Cast nets have been more consistent and successful in capturing juvenile suckers. Cast net data indicate year class survival during 1991, 1993, and 1995 for both Lost River and shortnose suckers, while no juveniles were collected in 1992 and very few were collected in 1994. Trawl data correlate poorly with cast net data, with trawl data only corresponding to cast net data during 1991. Trawl and cast net data, when combined, indicate year class survival through fall during 1991, 1993, 1994, and 1995 (Lost River suckers) and 1991, 1993, and 1995 (shortnose suckers). These data, however, do not reflect sucker recruitment to a reproductive age.

Adult Habitat and Ecology

Reclamation's Assessment is the first document to describe the following radiotelemetry and trammel netting data. All information, except for personal communication, was described in the Assessment.

Reclamation has implanted radiotags into shortnose and Lost River suckers, captured mainly in pre-spawning aggregations from Sucker Springs and mouth of Williamson River, between 1993 and 1996. Radiotracking methodology varied by season, with more intensive efforts occurring between June and October. Fish locations were initially determined by plane with boats used to establish more exact locations. Geographic coordinates, water quality, depth, and substrate were determined for each instantaneous fish location. Preliminary data analysis has occurred to establish spatial and temporal distribution and associated water quality parameters in Upper Klamath and Agency lakes and their tributaries (Reclamation 1996a). Further analysis of water quality data and fish location relationships throughout Upper Klamath Lake is ongoing and will be reported in the Upper Klamath Lake water elevations consultation. The radiotracking data have not been analyzed in reference to sucker movements based on water surface elevation changes. A trammel net survey was conducted throughout Upper Klamath Lake in fall, 1994. Water elevations during this trammel net survey were at a historic low (4,136.8 ft).

Trammel net data revealed suckers occupying the northern 2/3 of Upper Klamath Lake; only one adult sucker was collected in the southern end of the lake. Ball Bay had the highest capture rates. Sucker catch rates were similar between near-shore and open water sites, and suckers were captured in a wide range of total water column depths, from 1 m to 12 m. Suckers were captured at and above the lake bottom, indicating a water column orientation that is variable; these data may be reflective of sucker avoidance of poor water quality conditions near the bottom. Unfortunately, lake-wide trammel net surveys have not been conducted during different periods of the year, specifically during spring run-off, when juvenile and adult sucker movement and migration is believed to be at its greatest activity level (G. Scopettone, NBS, pers. comm.). Further investigations may reveal a greater movement of suckers in the lower 1/3 of Upper Klamath Lake.

Similar to trammel net data, telemetry data also indicated adult sucker occupation of the northern 2/3 of Upper Klamath Lake (north of Howard Bay). No fish were radiotracked from Agency Lake, freshwater inflow areas, Pelican Bay, or the Williamson River (except for spawning migrations up the Williamson River). During 1996, Reclamation captured and implanted radiotags in seven shortnose suckers and one Lost River sucker from Agency Lake and Wood River (M. Green, Reclamation, pers. comm.). Data collected from these fish should expand knowledge of suckers occupying Agency Lake and its tributaries.

Post-spawning suckers displayed movements to Shoalwater Bay (45%) and near the Williamson River mouth (27%). In June, Shoalwater Bay continued to exhibit the greatest use by radiotagged suckers (34%). By July, suckers later moved from Shoalwater Bay and other areas to locations associated with the mouth of Pelican Bay and Fish Banks. This is believed to be a result of *Aphanizomenon* blooms and associated poor water quality during summer and early fall months. The low-visibility interface areas of Pelican Bay and Fish Banks contained the most radiotagged suckers during August as well. Shoalwater Bay was not used between July and October, whereas Ball Bay was occasionally used between July and August. By September, radiotagged suckers began to occupy a wider area, and by October, radiotagged suckers were distributed throughout the northern 2/3 of Upper Klamath Lake. Wood et al. (1996) believe that frequent degraded water quality conditions in Agency Lake and the southern portion of Upper Klamath Lake might be related to limited fish occurrences in these locations.

Reclamation (1996a) provided a brief summary of water quality parameters associated with radiotagged suckers. Results indicated adult radiotagged suckers generally occupied habitats with dissolved oxygen > 4.0 mg/l and pH < 10.0. Thirteen of 39 radiotagged suckers died two to six months after implantation. Reclamation (1996a) believes this mortality is due to infection developed during or after exposure to poor water quality or from poor water quality conditions. Water quality data in relation to sucker distribution will be further analyzed during the Upper Klamath Lake water elevations consultation.

Unlike trammel net data, telemetry data indicated adult suckers occupying more open water habitats. Total water column depths ranged from 1-9 m, with most fish occupying areas with

depths of 2-3 m. Reclamation (1996a) indicated that areas with depths < 1 m and > 5 m are generally avoided by suckers. This may be due, in part to bird predation in shallow depths and generally poorer water quality in deeper areas.

Telemetry validated occurrence of Williamson River spawning areas where previously identified in Bienz and Ziller (1987) and Buettner and Scopettone (1990). No radiotagged fish were tracked above Sprague River Dam. Telemetry also revealed that individual suckers often repeat spawning on an annual basis. Fidelity to initial tagging location was exhibited by all fish.

Fish Passage

PacifiCorp currently operates fish ladders on the following facilities: Link River Dam, Keno Dam, and J.C. Boyle Dam. Suckers have been observed utilizing both the Link River and Keno ladders. The Link River ladder is a pool and weir type structure, approximately 105 feet long, gaining 13 feet in elevation, with 11 pools. Flow through the ladder is approximately 15 cfs. The weir exits into Upper Klamath Lake at elevation 4,138.5 ft. When lake elevations are below 4,138.5 ft, passage is unavailable.

Between 1988 and 1991, fish passage through the ladders at Link River, Keno, and J.C. Boyle dams were monitored (F. Shrier, PacifiCorp, pers. comm.). During the study period, only four adult shortnose suckers and two adult Lost River suckers were collected at Link River ladder. All six were collected in April and May, 1989. Seven adult Lost River suckers and five adult shortnose suckers were collected at the Keno Dam ladder during the study period. Olson (PacifiCorp, pers. comm.) noted one adult shortnose sucker and several other large, unidentified suckers in the Link River Dam ladder on June 4, 1996.

Effects of Action

Reclamation's Assessment identified entrainment, spill termination at Link River Dam, peaking power operations at J.C. Boyle, fish passage, instream flow, reservoir fluctuations, Klamath River water quality, exotic fish, and habitat modification as PacifiCorp's endangered sucker effects. Reclamation's Assessment identified entrainment as The New Earth Company's endangered sucker effect. The following includes a summary of direct, including interrelated and interdependent effects, and indirect effects of the proposed action. Reclamation's effects analysis for this consultation is supplemented herein with additional analysis including effects of Reclamation and PacifiCorp's Upper Klamath Lake water operations and impacts to specific endangered sucker life stages. The effects addressed in the Assessment are incorporated by reference, with additional citations from other sources provided to complement the Assessment's information.

The Service summarizes PacifiCorp and The New Earth Company's effects under the following seven categories: entrainment; Upper Klamath Lake water elevations, Klamath River reservoir

OCT 11 1996

RESOURCES DEPT.
SALEM, OREGON

operations; sucker population segregation; other effects to the species; proposed critical habitat; and jeopardy avoidance measures.

Entrainment

Entrainment at PacifiCorp and The New Earth Company's facilities has the potential to significantly impact all life stages of endangered suckers. Currently, only PacifiCorp's J.C. Boyle facility has effective fish screening devices; this location has lower abundance of endangered suckers than upstream, especially Upper Klamath Lake. Other PacifiCorp facilities have few records of endangered suckers, therefore, the Service believes minor chance of entrainment exists at Keno, PacifiCorp ranchlands, Copco, and Iron Gate facilities. Link River Dam and its associated powerhouses have not been outfitted with entrainment reduction devices. Neither has Reclamation's A-Canal diversion.

In this proposed action, The New Earth Company will construct and operate entrainment reduction devices, comparable to the debris reduction devices used on the B- and C-Canals, during algae harvest season at PacifiCorp's Eastside and Westside diversions. Operations for all New Earth Company facilities would commence, depending upon length of annual harvest season, on or before June 1 each year, with full deployment until or after October 15, and, for Link River Eastside and Westside diversions, occur for 10 years or the life of the FERC license. Under the current proposal, no additional entrainment reduction activities would occur during non-algae harvest periods at PacifiCorp's Eastside and Westside facilities. Reclamation is responsible to implement entrainment reduction methodology at the A-Canal under the 1992 LTBO.

All life stages have been collected in both Reclamation's canal system and in association with PacifiCorp's Link River Dam and powerhouse facilities. These data are summarized in Reclamation's Assessment and incorporated by reference herein. Of note are the 40 juvenile suckers collected May 11, 1995, and 78 juvenile suckers collected December 11, 1995, during dewatering events at the Eastside facility (barrier net in place to reduce entrainment during salvage). Both these dates are outside the period (June 1-October 15) when The New Earth Company is proposing to operate its entrainment reduction devices. In contrast, the only dewatering salvage activity occurring during the proposed entrainment reduction period (June 1-October 15) took place in September, 1989. Four different Eastside forebay dewatering events occurred in September, 1989, with a total of 87 juvenile and one adult sucker collected (no barrier net in place during salvage).

The East- and Westside powerhouses utilize Francis-type turbines. According to Reclamation's entrainment mortality analysis, based on Eicher Associates (1987), between 10 and 26 percent of entrained fish at Eastside and 20 to 26 percent of entrained fish at Westside will perish. Mortality is related to size, with larger fish generally suffering higher rates of turbine mortality. Entrainment injury rates and delayed mortality are unknown. Later mortality is likely for most fish entrained at PacifiCorp's facility and passing downstream due to poor downstream water

quality and habitat conditions in Link River and Lake Ewauna. Relatively better water quality (Campbell 1995) and habitat condition occur in the Klamath River and its reservoirs than in the Link River and Lake Ewauna (T. Olson, PacifiCorp, pers. comm.). Upstream passage, while provided at Link River Dam, is rarely used by suckers and other fish species (Reclamation 1996a). Immediate turbine mortality, poor downstream conditions immediately downstream of Link River Dam, and almost-complete lack of passage activity by fish upstream into Upper Klamath Lake, indicates an almost complete loss of suckers entrained in the East- and Westside facilities from the Upper Klamath Lake populations. Entrainment and associated direct or later mortality at these facilities can cause near-term effects, such as loss of a certain percentage of a cohort, and have the potential to create more indirect, long-term effects from loss of individuals, such as inbreeding and hybridization.

In 1989, approximately 70 million larval suckers were estimated to migrate past river mile 6 on the Williamson River and 5 million larval suckers were estimated to survive and enter Upper Klamath Lake (Klamath Tribes 1993). Markle and Simon (1993) estimated approximately 800,000 larvae and early juvenile suckers entrained into the A-Canal, equating to approximately 16% of the 5 million larvae entering Upper Klamath Lake. Link River Dam diverts a greater volume of water than A-Canal (approximately 1,000 cfs in Eastside and 200 cfs in Westside diversions vs. 750 cfs for A-Canal), and thus may entrain more larvae. Reclamation's Assessment estimates larval entrainment for Link River Dam at these average flows to equal approximately 1,300,000 larvae annually. Total entrainment at these two features is estimated at approximately 2,100,000 larvae, or approximately 40% of larvae that were estimated to migrate into Upper Klamath Lake from the Williamson River during 1989. Under the proposed action, no operational or physical measures would be taken to reduce larval and early juvenile sucker entrainment at the Link River Dam diversions.

Larval suckers can appear as early in the year as March (M. Buettner, Reclamation, pers. comm.), indicating larval entrainment occurs at Reclamation's A-Canal and PacifiCorp's Eastside and Westside facilities during non-algae harvest periods (March through May). Both PacifiCorp and The New Earth Company's operations will entrain larval and early juvenile suckers during algae harvest season. Larval and early juvenile suckers will be entrained during algae harvest operations (approximately June 1 - October 15, depending on the quality and quantity of available algae) by The New Earth Company's pumps located on the B-Canal, pumps at the Eastside and Westside hydrofacilities, and at the C-Canal. Total entrainment of all larvae and early juveniles entering the C-Canal during this time period is anticipated. However, based on harvest facility configuration, larvae and early juveniles may successfully avoid pumps at the B-Canal, and Eastside and Westside facilities. Those avoiding The New Earth Company's pumping plant entrainment at Eastside and Westside facilities will be entrained in PacifiCorp's hydroelectric facilities. Individuals avoiding entrainment at B-Canal most likely perish in agricultural diversions, however, a few may be transported to the Lost River, be salvaged at the end of irrigation season in the B-Canal, or eventually be transported to Tule Lake or the Klamath River (M. Buettner, Reclamation, pers. comm.). Prior to full installation of The New Earth Company's algae harvest screens at B- and C-Canals, all A-Canal larval and early juvenile

mortality occurred downstream in Reclamation's canal system. The New Earth Company's proposed activities simply isolate a portion of the mortality at one quantifiable location. In the sense that larval and early juvenile entrainment into the A-Canal likely leads to eventual mortality, regardless of the cause of mortality, Reclamation is still ultimately responsible for addressing larval and early juvenile sucker take in the A-Canal not resulting from The New Earth Company's operations (including those individuals entrained in the A-Canal prior to annual algae harvest, and those that avoid entrainment in The New Earth Company's B-Canal facility during harvest activities).

Juvenile and adult suckers may be entrained into the Link River Dam diversion throughout the year, whereas, entrainment of these life stages into the A-Canal occurs only during A-Canal operations (approximately April 1-October 15). The employment of Debris Reduction Devices across the C-Canal drop, pumps at the B-Canal, and Entrainment Reduction Devices at the Eastside and Westside hydrofacilities by The New Earth Company, from June 1-October 15, may incidentally reduce the entry of these life stages into the C-Canal and the Link River powerhouses during that operating period. Similar to larval and early juvenile forms addressed above, B-Canal harvest facility configuration may allow some older suckers to avoid entrainment. However, impingement of age 1 and older sucker life stages on screens may still occur at all facilities. During a large portion of the period representing highest sucker movement (generally spring run-off event and post-spawning)(G. Scopettone, NBS, pers. comm.), no entrainment reduction activities will occur at Link River diversions or the B- and C-Canals. As noted elsewhere in these opinions, The New Earth Company's debris reduction devices at B- and C-Canals may not function to eliminate fish entrainment, further, their location downstream of the initial diversion point from Upper Klamath Lake is not effective to promote maximum entrainment reduction goals to retain these sucker life stages in Upper Klamath Lake. The location for entrainment reduction must occur at the source of entrainment, the A-Canal headworks, to maximize entrainment reduction activity benefits. Reclamation is still ultimately responsible for addressing juvenile and adult sucker take in the A-Canal.

The New Earth Company's proposed debris and entrainment reduction devices may or may not be of an effective mesh size or configuration to be effective fish entrainment reduction devices. Preliminary investigations by The New Earth Company in 1995 did not collect any fish greater than 75 mm downstream of the debris reduction devices installed at the C-Canal. However, no observations were made of the timing or magnitude of impingement by juvenile and adult suckers on the 3/8" mesh debris reduction devices. Reclamation is currently working with the Klamath Irrigation District to develop plans for reducing entrainment at the A-Canal headworks. The plans will utilize sucker life history and swimming speed data and site specific physical information from Upper Klamath Lake and the A-Canal to define effective entrainment reduction and impingement avoidance methods for the A-Canal. These data and plans were requested by The New Earth Company prior to development of proposed entrainment reduction plans, however the analysis and final report was not complete and no preliminary findings were provided. The Service therefore anticipates, as per the New Earth Company's proposed action, that The New Earth Company shall use the Klamath Irrigation District's A-Canal entrainment

reduction planning document, when it becomes available, to modify its existing proposed action to effectively exclude fish greater than 75 mm.

Proposed entrainment research activities will involve intentional take of individual suckers. Because the PacifiCorp entrainment study and The New Earth Company entrainment monitoring efforts occur in areas where entrainment has already or will likely ultimately occur (ie, B- and C-Canals, and the Eastside and Westside hydrofacilities), intentional take of suckers related to proposed research activities is not expected to increase the effect to shortnose and Lost River suckers above those impacts identified above.

The entrainment effect of greatest concern to the Service is loss of age 1 and older suckers. These fish have survived the age 0 mortality "bottleneck" and are critical to future reproduction and population stability of Upper Klamath Lake suckers. This entrainment impact is of immediate concern due to recent data indicating a substantial loss of older sucker age classes (Reclamation 1996a) and almost-complete loss of 1992 and 1994 cohorts (Simon et al. 1996). Larval and early juvenile entrainment, while greater in magnitude than that for age 1 and older suckers and therefore of significant concern to the Service, is more readily offset through mitigative actions, as proposed by PacifiCorp and The New Earth Company. In the interim between reestablishment of historic larval habitat features in areas such as the Lower Williamson River and associated reduction of annual lethal water quality events, the Service believes preservation of age 1 and older suckers is critical to the continued survival and future recovery of these two species.

Upper Klamath Lake Water Elevations

Operation of Link River Dam has the ability to effect Upper Klamath Lake water elevations, thereby having the ability to both negatively and positively effect endangered suckers and their habitats. Direct, indirect, positive, and negative effects from Link River Dam operations may include, but is not limited to, the following: availability and quality of in-lake habitat (emergent, littoral, riverine or other freshwater inflow, spawning, etc), water quality and quantity, winter kill, predation, sucker distribution; and sucker passage. As noted in prior chapters, Reclamation will reinitiate and complete consultation on Upper Klamath Lake water elevations by spring 1997. These and other Upper Klamath Lake water management effects will be fully analyzed and jeopardy avoidance measures determined within the Upper Klamath Lake water elevations consultation.

Interrelated with PacifiCorp's Upper Klamath Lake operations are PacifiCorp's contractual agreements with certain landowners around Upper Klamath Lake. These agreements delegate responsibility for certain dike maintenance activities and require PacifiCorp to compensate for flood damage events. PacifiCorp's current flood control plan is designed to minimize flooding events and resultant compensation. These effects will be fully analyzed within the Upper Klamath Lake water elevations consultation.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Klamath River and Reservoir Operations

PacifiCorp operates its Klamath River reservoirs to generate hydropower; this action requires fluctuations in both reservoir water elevations and river discharges. Fluctuation in reservoir water elevations may affect early sucker life stages by increasing or reducing available emergent habitat. Reservoir fluctuation at J.C. Boyle averages 1-2.5 ft per day. The Assessment did not indicate similar daily fluctuations at any other Klamath River reservoir. These elevation fluctuations may effect the amount of emergent vegetation available to larval and juvenile suckers. As determined by the Klamath Tribes (1995), emergent habitat serves to reduce non-native fish predation on larval suckers. Aquatic habitat in J.C. Boyle Reservoir experiences large daily fluctuations, with associated impacts to sucker larvae (Reclamation 1996a). Impacts include increased predation by numerous non-native fish, loss of sucker food organisms, loss of cover, and stranding.

J.C. Boyle is a power peaking facility. Shortnose sucker spawning has been documented below J.C. Boyle powerhouse, in the vicinity of Copco Reservoir (M. Buettner, pers. obs., as cited in Assessment). Daily power peaking activities (restricted to a 9 inch per hour ramp rate) would be most detrimental to suckers during spring spawning activity. Reclamation identified potential and observed effects including desiccation of eggs, movement of eggs by high flows, fish predation on eggs and larvae, and stranding of suckers. Stranding of larvae has been observed in this reach, with Beak Consultants (1987) estimating that less than 10% of the Klamath River from the Oregon-California state line to Copco Reservoir was subject to stranding events during peaking. Beak Consultants (1987) concluded that stranding was a minor impact.

Instream flows, as required by FERC license, are identified in the Assessment. Minimum flows, including accretions, in known sucker spawning areas below J.C. Boyle average approximately 400 cfs. No research has been conducted in the Klamath River to determine the relationship between flow and fish habitat. Low flows in the Klamath River were experienced during the drought of 1992. No dead or dying fish were observed, however, as with salvage operations, bird predation in shallow water can be extensive, biasing these observations.

Introduced non-native fish occupy the Klamath River and its reservoirs. Reclamation (1996a) reported high percentages of predaceous non-native fishes, including yellow perch, largemouth bass, and pumpkinseed, occupying mainstem reservoirs; of specific concern is the similar timing of sucker larvae emigration and yellow perch spawning migrations upstream from Copco Reservoir into the Klamath River. Reclamation (1992) suspected high predation on larval suckers by yellow perch. Non-native fish introductions are a major cause of native fish endangerment throughout the western United States (Williams et al. 1989).

PacifiCorp's operational impacts to Klamath River and reservoirs' water quality is poorly understood. The Klamath River Basin Fisheries Task Force (1991) indicated that impoundment of nutrient-rich waters in Klamath River reservoirs is known to contribute to algal blooms and associated poor water quality conditions in the reservoirs. Little data, other than temperature and

flow, has been recorded near hydrofacilities. Water surface temperature in Klamath River reservoirs is similar to Upper Klamath Lake; these temperatures are not considered problematic to endangered suckers. Water quality conditions of concern to sucker survival in the Klamath River include dissolved oxygen, pH, ammonia, and high levels of ortho-phosphorus, an algal growth stimulant (Campbell 1995). Overall Klamath River water quality conditions appear to be most affected by Upper Klamath Lake conditions (Bartholow 1995). Reservoir water quality conditions were not discussed in detail within the Assessment. Depth of water withdrawal inlets in reservoirs might have influence on downstream water quality in both river and reservoirs.

Proposed reservoir research activities may involve intentional take of individual suckers. The Service estimates the amount of intentional take related to the proposed lower Klamath River reservoirs study to be 5,000 larval, 1,000 juvenile, and 500 adult shortnose and Lost River suckers combined. Juvenile and adult sucker take will occur in the form of handling. All larval forms are considered taken from direct sampling mortality, due to their fragile nature. The Service believes that intentional take of these various life stages, though either direct mortality or handling stress, is necessary to the long-term management of these species in the lower Klamath River reservoirs. Additionally, because intentional take of adults and juveniles is anticipated to occur in a non-lethal fashion, the Service anticipates the overall effect of this research action to the continued survival and eventual recovery of these species will be negligible.

Sucker Population Segregation

Fish population segregation has been identified as a causative factor in endangerment of western fish faunas (Williams et al. 1989). PacifiCorp's construction and operation of facilities on the Link and Klamath rivers has created sucker population segregation for Lost River and shortnose suckers (Reclamation 1996a). Limited definitive data are available to quantify the impact of sucker population segregation from construction and operation of the Link and Klamath River facilities, however, Reclamation (1996a) identified reduced passage opportunities and potential for long-term population impacts from genetic isolation as impacts. Under the Act, and as addressed in the Recovery Plan (Service 1993), the Service strives to maintain a well distributed population; sucker population segregation effects Lost River and shortnose sucker distribution.

As noted in Reclamation (1996a), PacifiCorp's sucker population segregation may be one cause of genetic isolation within the Lost River and shortnose sucker populations. Location of PacifiCorp's features and lack of effective passage may isolate portions of the population, increasing the probability of hybridization, introgression, and inbreeding (Klamath Tribes 1996). Finally, operations may effect genetic makeup of Upper Klamath Lake populations of shortnose and Lost River suckers via water level manipulations during spawning, and entrainment of various life stages into downstream locations.

New information provided in Reclamation (1996a) and in the Baseline, Species Account section of these opinions, indicates endangered sucker passage at PacifiCorp's facilities may be limited. While sucker population numbers are believed to be low at Keno and J.C. Boyle facilities,

perhaps explaining low numbers of suckers observed utilizing these two passage features, the Link River ladder is adjacent to the main endangered sucker populations in the Klamath River drainage. Passage is unavailable at the Link River ladder during periods when Upper Klamath Lake elevations are below 4,138.5 ft. Water levels were below this elevation in 1992 (August - October) and 1994 (August - December) (Reclamation 1996a). Review of Reclamation (1992) end of month water elevation data for Upper Klamath Lake indicates lake elevations were below 4,138.5 ft for at least one period of the year in 1926, 1928-1931, 1934, 1939-1940, 1942, 1944-1947, 1949, 1979, 1981, and 1991. Combined, these data indicate lack of passage for a period each year during 18 years between construction of the ladder in 1926 and present. Using end of month elevation calculations probably underestimates the number of times Upper Klamath Lake elevations were below 4,138.5 ft each year. Nine years additionally exhibited end of month elevations between 4,138.5 and 4,139.0 (1927, 1936, 1941, 1959-1961, 1968, 1988, and 1990), indicating less than ½ ft of water for fish passage from the ladder during that period. Using 4,139.0 ft as an elevation that also precludes ladder use, Link river Dam fish passage has been restricted or precluded for a period of time in 27 of 70 years.

Based on past research, successful Link River ladder use appears minimal (only 6 suckers were observed using the Link River ladder during 1988-1991 study). However, PacifiCorp biologists observed an adult shortnose sucker and several other large, unidentified suckers in the Link River Dam ladder on June 4, 1996. No information is currently available to identify cause of lack of Link River ladder use by endangered suckers. Lack of use could be caused by inadequate design, steep gradient, sucker avoidance, low sucker numbers in the Link River, lack of upstream migratory behavior (Reclamation 1996a), or natural Link River migration barriers below the Link River ladder. Cui-ui passage experts indicate suitable slope for cui-ui passage is at least 1 on 20, with a pool and orifice or slotted weir design (M. Buettner, Reclamation, pers. comm.); Link River ladder has an approximately 1 on 8 slope with a pool and weir design, suggesting potential design problems for sucker passage.

Future collection and potential sacrifice of shortnose and Lost River suckers is proposed for genetic studies. These studies will be, in part, funded by PacifiCorp. A total of 200 shortnose suckers (9 different locations) and 135 Lost River suckers (8 different locations) are needed for these studies to augment existing specimens. All these individuals will be sacrificed. An additional total of 100 shortnose suckers (7 locations) and 135 Lost River suckers (7 locations) will have tissue samples removed using non-lethal techniques. The Service anticipates, due to the small number of specimens collected at a large number sample locations across the range of these species, that the overall effect of this research action to the continued survival and eventual recovery of these species will be discountable.

Other Effects to Species

PacifiCorp and The New Earth Company will construct proposed features and conduct routine and unplanned maintenance on their facilities. These activities often necessitate dewatering of occupied canals or diversion features. Currently, PacifiCorp salvages endangered suckers during

dewatering and spill cessation events. Reclamation is responsible for end-of-irrigation salvage efforts at the B- and C-Canals. PacifiCorp's salvage efforts have regularly captured suckers at the Link River facilities, however, only two small suckers have been observed in the diversion canal at the J.C. Boyle facility. Dewatering activities affect suckers through increased incidence of bird predation, stranding, and entrainment (however, as of 1995, a block net is placed over the intake structure to reduce entrainment of larger fish prior to forebay closure and dewatering). Impacts associated with salvage operations include injury or death from collection gear, especially electro-fishing equipment, and other handling impacts.

Ramp rates to avoid fish stranding during flow reduction and dewatering events are provided at all PacifiCorp facilities. Reclamation's Assessment reported that the incidence of Link River stranding became greater as length of spill increased. However, these data do not justify increased incidence of shorter-duration spills.

Hydrofacility operations may experience spills of hazardous chemicals or liquids. No information was provided in the Assessment that addressed spill avoidance or spill response methods.

Reclamation's Assessment addressed potential benefits of The New Earth Company's algae harvest operations on water quality below harvest facilities. Removal of algae during harvest season from the majority or all flows leaving Upper Klamath Lake should result in beneficial effects to aquatic habitat and its inhabitants in the Link River, Lake Ewauna, the Klamath River and its reservoirs, the Lost River, and Tule Lake.

Proposed Critical Habitat

On December 1, 1994, the Service published a proposed rule for Lost River and shortnose suckers critical habitat (59 FR 61744). The proposed action has effects within or adjacent to three of the proposed critical habitat units: Unit #3 (Klamath River); Unit #4 (Upper Klamath Lake and Watershed); and Unit #5 (Williamson and Sprague Rivers). Primary constituent elements associated directly and indirectly with the proposed action for these units are as follows:

Klamath River: Unit #3's primary constituent elements might be affected by PacifiCorp's operations through alterations in flow timing, magnitude, and duration; establishment of non-native fish species; and water quality degradation (temperatures, pH, dissolved oxygen). Additionally, peaking releases from downstream reservoirs might impact sucker spawning and subsequent larval/juvenile life stage activities. These impacts were specifically addressed elsewhere in this consultation.

Upper Klamath Lake and Watershed: PacifiCorp and Reclamation's management of Upper Klamath Lake's water surface elevations has numerous potential direct and indirect affects to Unit #4's primary constituent elements. Of greatest concern are potential impacts to spawning

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

areas near in-lake spring sources, water quality degradation (pH, dissolved oxygen), fish kills, loss of water quality refugial areas, impacts to young-of-the-year rearing areas, fragmentation of habitats, and impacts (predation, competition) from non-native fish species. These impacts will be addressed in detail within the Upper Klamath Lake water elevations consultation.

Williamson and Sprague Rivers: The proposed action's relationship to Unit #5's primary constituent elements would be water level management and its associated impacts on the lower Williamson River restoration efforts, and the mainly beneficial activities surrounding PacifiCorp's and The New Earth Company's proposed habitat restoration effort. Beneficial effects should include increased habitat availability, increased food availability, and improved water quality.

Jeopardy Avoidance Measures

Implementation of these jeopardy avoidance measures should have an overall positive effect, especially the long-term habitat restoration, to endangered suckers. However, implementation of jeopardy avoidance measures may lead to additional effects to suckers from handling stress or direct mortality during research or restoration activities, habitat impacts during restoration activities, effects to suckers and/or habitat during agricultural activities, or impingement of suckers during Entrainment Reduction Device operation.

Impacts anticipated from restoration activities include short-term increases in sedimentation and turbidity from earth-moving activities, nutrient loading from draining fields, stranding of various life stages during water manipulation, colonization of restoration features by non-native fishes, increased predation in the restoration area, and direct mortality during restoration activities. PacifiCorp, The New Earth Company, and TNC, or some combination of these parties, may hold an interest in the agricultural inholdings within Tulana Farms. Agricultural activities could impact the suckers from nutrient loading during draining of agricultural fields, application of chemicals (fertilizers and pesticides), and entrainment of suckers into the irrigation system.

Cumulative Effects

Cumulative effects include the effects of future State, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of ESA.

The 1992 LTBO reviewed cumulative effects throughout the Klamath Project area, including those identified in the current action area. Those action area cumulative effects are still reasonably certain to occur in the future, and are incorporated herein by reference.

As new data are generated and analyzed, further concern is placed upon cumulative effects as key impacts to the continued survival and recovery of endangered suckers. Of specific concern are high levels of nutrient loading to Agency and Upper Klamath lakes. New information is currently available (for instance, Gearhart et al. 1995; Wood et al. 1996) that document sources and amount of nutrients from various geographic locations and land use practices. These data validate concerns listed in the 1992 LTBO regarding nutrient loading, hydrologic cycle, and loss of habitat in the action area. Nutrient loading is comprised of external loading (land use impacts and naturally-high nutrient loads in water) and internal loading (nutrients released due to high pH and wind-induced suspension of bed materials). Cumulative effects which increase external loading, and past external loads that exist as bed materials or in suspension in Upper Klamath and Agency lakes, add to the annual magnitude, duration, and initial timing of blue-green algae blooms and associated poor water quality events in Upper Klamath and Agency lakes. These poor water quality events have been closely tied to chronic and lethal effects including loss of individual suckers and/or complete mortality of young-of-the-year cohorts (Reclamation 1996a; D. Markle, OSU, pers. comm.).

CONCLUSION

Lost River and shortnose sucker are highly fecund, long-lived species. The current sucker populations are distributed throughout the Upper Klamath and Lost River basins, but are generally isolated by upstream and downstream impediments to migration. While some populations (ie, Clear Lake and Gerber Reservoir) appear to have multiple age classes indicating regular, successful recruitment, these populations are isolated, occupying habitats altered from historic conditions, and are vulnerable to stochastic events. Additionally, Gerber Reservoir and Clear Lake populations of shortnose suckers are of questionable taxonomic status, and are currently considered shortnose due to conservative taxonomic classifications of the past. While it is comforting to know these populations exist, indicating the overall extinction probability for these species is reduced, the stability of these species across their range is still highly endangered by, at a minimum, existing degraded habitat conditions, restricted spawning distribution, chance events, inbreeding depression from low population numbers, and additional environmental disturbance. Any one of these broad impact categories could irreversibly lower these species' population sizes to a point where it can no longer recover. The Service therefore desires, in the short-term, to protect the wide diversity of shortnose and Lost River suckers' characteristics and behaviors as well as maintain a well distributed population across species range, while, in the long-term, restoring as much connectivity and historic form, function, and composition to important sucker habitat features as possible.

Within Upper Klamath Lake, the Service is concerned that adult sucker age class distribution is greatly diminished since listing in 1988. Early loss of multiple adult suckers cohorts can have significant impacts to the long-term viability and persistence of these species. Additionally, based on new data, bottlenecks to sucker recruitment occur at the larval life stage. Annual poor water quality events and reduced habitat complexity probably have a great influence on both

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALMON, OREGON

adult age class stability and larval survival. Long-term habitat restoration and short-term water level management are two key actions that must be implemented to ensure the survival of Upper Klamath Lake populations. Additionally, until adult populations are reestablished and stabilized, and larval survival is increased through amelioration of water quality and habitat issues, all suckers that have successfully survived their first year in the wild must be protected from other impacts to allow them to recruit and spawn multiple times.

PacifiCorp and The New Earth Company operations have specific impacts on specific life stages of endangered suckers. The Service has worked with PacifiCorp, The New Earth Company, and Reclamation to progressively identify specific jeopardy avoidance measures to attempt to offset operational impacts. These jeopardy avoidance measures address the need for increased larval survival via long-term habitat restoration, and preservation of age 1 and older suckers via entrainment reduction devices. Additionally, research will be conducted to determine if operational impacts are greater than currently identified. It is believed by participants in this consultation that restoration of important lower Williamson River wetland habitat will benefit all sucker life stages, and may provide, in the long-term, benefits that equal or exceed current impacts.

After reviewing the current status of the Lost River and shortnose suckers, the environmental baseline for the action area, the effects of PacifiCorp and The New Earth Company's proposed actions and jeopardy-avoidance activities, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Lost River and shortnose suckers, and is not likely to adversely modify or destroy proposed critical habitat.

INCIDENTAL TAKE STATEMENT

Sections 4(d) and 9 of ESA, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or the applicant. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be implemented by Reclamation so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. Reclamation has a continuing duty to regulate the activity covered by this incidental take statement. If Reclamation (1) fails to require the applicants to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to The New Earth Company's permit or PacifiCorp's contract, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. Additionally, this incidental take statement applies to the applicants' actions and does not negate or reduce Reclamation's existing responsibilities to implement existing terms and conditions provided in Reclamation's previous consultations (identified in the Consultation History section).

Amount or Extent of Take:

Under the proposed action, a Lower Williamson River habitat restoration project will be accomplished that is believed to be beneficial to all life stages of the endangered suckers. At some point in the future, as defined by monitoring of habitat and larval sucker production goals developed by the LWRRT, and approved by the Service, this restoration project is believed to be able to greatly offset PacifiCorp's and The New Earth Company's impacts. In the short-term, until these production goals are met, actions beneficial to endangered suckers must be accomplished. Such actions include protective water levels in Upper Klamath Lake (such as those identified in Reclamation 1996b), and initiation of studies and reviews as proposed in this consultation. Additionally, as required by the Act, incidental take levels from this proposed action must be identified and Reasonable and Prudent Measures provided to minimize the incidental take.

Endangered sucker incidental take due to entrainment from PacifiCorp's Link River hydrofacility and New Earth Company's harvest operations, based on movement and migration data, larval

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

and early juvenile drift and entrainment studies, and sucker salvage records, can be reasonably estimated, however, incidental take due to PacifiCorp's Upper Klamath Lake water elevation management, habitat segregation, and Klamath River and reservoirs operations, is more difficult to quantify. Because of the inherent biological characteristics of these aquatic species, the likelihood of discovering an individual death or other taking attributable to habitat segregation and operations of Upper Klamath Lake, Klamath River, and Klamath River reservoirs is small. For example, small size of younger sucker life stages, abundance of piscivorous birds, rapid rates of decomposition, presence of algae and aquatic vegetation, and remote locations make finding an incidentally taken sucker extremely unlikely. Furthermore, some effects of water project operations are largely unquantifiable in the short-term, and may only be measurable in the long-term as effects on species' habitat, genetic integrity, and age structure. Therefore, even though the Service expects incidental take to occur for Upper Klamath Lake water elevation management, habitat fragmentation, and Klamath River and reservoirs operations, the best scientific and commercial data available are not sufficient to allow the Service to estimate a specific amount of incidental take to the species themselves. In instances such as this, incidental take may be quantified in terms other than numbers of individuals.

Entrainment

Reclamation (1996a) estimated entrainment of larval and early juvenile suckers into the Eastside diversion to be 1,012,200 individuals and Westside diversion to be 202,400 individuals. Larval and early juvenile sucker incidental take from entrainment may occur at Link River hydrofacility from March through mid-July. Entrainment is defined as those fish that are passed through the respective powerhouses. The Service therefore anticipates an annual total of 1,214,600 larval and early juvenile suckers may be entrained by the Eastside and Westside hydrofacilities.

Entrainment of larvae and early juveniles attributable to The New Earth Company's proposed operations on the B- and C- Canals is based on harvest period and percentage of A-Canal flow harvested. Larval entrainment in the A-Canal may occur as early as annual operations commencement (approximately April 1)(Reclamation 1992). The New Earth Company's algae harvest operations commence approximately June 1. The New Earth Company's entrainment of larvae and early juveniles is therefore anticipated to occur between June 1 and mid-July. Under the proposed action, some larvae and early juveniles may escape entrainment at the B-Canal. Therefore, based on harvest period, timing of entrainment described in Markle and Simon (1993), and percent of canal volume harvested, a large percentage of the overall annual larval and early juvenile entrainment into the A-Canal will be attributable to The New Earth Company's operations. Markle and Simon (1993) estimated, from May 13 to July 15, a total of 759,150 larvae and early juveniles were entrained, with an initial peak from late May through mid-June (majority of larvae were Lost River suckers) and a second peak in early July (shortnose suckers). Researchers did not collect larvae between mid-April and early May, however, larvae are present in Upper Klamath Lake during this period. Additional sampling will be necessary to refine early season entrainment rates. Reclamation's Assessment attributed all larval take to The New Earth Company and estimated between 400,000 and 800,000 larvae and early juveniles annually

entrained into the A-Canal. Using the Markle and Simon (1993) estimate of 759,150 larvae and early juveniles, the Service believes approximately 600,000 of the entrained larvae and early juveniles are attributable to The New Earth Company's operations, with the remainder attributable to Reclamations' A-Canal operations.

Entrainment of adult and juvenile (post-July 15 and older) suckers into the Eastside and Westside hydrofacilities may occur year round. Reclamation (1996a) believes high mortality to entrained suckers occurs based on turbine impacts, poor downstream water quality, lack of habitat, and upstream passage impediments. Entrainment is expected to be greater during spring run-off events, when older juvenile and adult suckers appear to be more active. Limited salvage data in Reclamation's Assessment cannot be related to actual entrainment, therefore the Service must estimate take of juvenile and adult suckers based on relative abundance during salvage operations, and inferences from juvenile and adult sucker movement and migration data. The Service believes minimal adult sucker entrainment occurs, based on radiotelemetry and trammel nets surveys that indicate a northern distribution for adults in Upper Klamath Lake, and a total of one adult Lost River sucker collected in seven different forebay salvage operations. The Service therefore anticipates a combined annual total of 100 adult Lost River and shortnose suckers may be entrained by the Eastside and Westside hydrofacilities. Older juvenile suckers are more widespread, occurring relatively more frequently in the lower portions of Upper Klamath Lake (Markle and Simon 1994; Simon et al. 1995, 1996) and were captured in higher relative numbers during forebay dewatering activities. The Service therefore anticipates a combined annual total of 5,000 juvenile (post-July 15 and older) Lost River and shortnose suckers may be entrained by the Eastside and Westside hydrofacilities.

Juvenile and adult entrainment into the A-Canal is currently addressed under the 1992 LTBO, with a requirement for Reclamation to reduce entrainment at the A-Canal within five years of 1992. The debris reduction devices at the B- and C-Canals are not located to effectively reduce juvenile and adult entrainment from Upper Klamath Lake, and therefore do not serve to reduce the need for entrainment reduction at the A-Canal headworks. The Service does not anticipate any older juvenile or adult take from The New Earth Company's operations at the B- and C-Canal harvest facilities, therefore all age 1 and older juvenile and adult sucker take is still attributable to Reclamation's A-Canal operations.

Upper Klamath Lake Water Elevations

The Service assumed, for purposes of analysis of effects for these opinions, Reclamation and PacifiCorp would cooperatively implement Reclamation's "low range elevations" proposal (Reclamation 1996b), and, after completion of the Upper Klamath Lake water elevation consultation, Reclamation and PacifiCorp would cooperatively implement the new protective lake elevation requirements. Therefore the Service will assume that any Upper Klamath Lake water operation that fulfills the above Service water operations assumptions shall have resulted in incidental take allowed under the Act's section 7(o)(2) exception to the section 9 prohibition against take of a listed species. This amount of take will apply to PacifiCorp's operations until

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

the Upper Klamath Lake water elevation consultation is completed in spring 1997, wherein a new Upper Klamath Lake water elevation incidental take analysis will be provided to Reclamation that amends PacifiCorp's authorization on this requirement. The Service understands that Reclamation will be involved in future consultations and that Reclamation and PacifiCorp will address operational limitations at those times.

Klamath River and Reservoir Operations

Klamath River and reservoir data pertaining to endangered suckers is limited, however, small populations are known to occur, especially in Copco and J.C. Boyle reservoirs, with limited spawning occurring in the Klamath River above Copco Reservoir and possibly elsewhere. Larval suckers and their emergent habitats that occur in these facilities may be affected by daily reservoir elevation fluctuations and, during spawning, adult fish and their progeny may be affected by peaking flows. Due to low adult population numbers, the Service anticipates low levels of take in the Klamath River and reservoirs due to changes in reservoir elevations, stranding, egg desiccation, flushing of larvae during peaking flows, water quality impacts, and predaceous fish impacts due to non-native fish occupation in PacifiCorp's facilities. The Service anticipates an unquantifiable level of take from Klamath River and reservoir operations.

Sucker Population Segregation

Construction and operation of facilities on the Link and Klamath rivers has resulted in sucker population segregation for Lost River and shortnose suckers. The Service believes take occurs at the structures that inhibit sucker movement and migration. Additionally, the Service believes take occurs at the Link River, Keno, and J.C. Boyle fish ladders. Passage under current conditions is limited at Link River during periods when Upper Klamath Lake elevations are below approximately 4,139.0 ft. Based on past research, Link River ladder use appears minimal (only 6 suckers were observed using the Link River ladder during a three year study, and several suckers were observed in the fish ladder in 1996), possibly indicating passage restrictions. Greater take could be occurring from reduced passage opportunities at these ladders. The Service anticipates an unquantifiable level of take due to inhibited sucker movement and passage impacts.

Incidental take in the form of genetic isolation may occur due to PacifiCorp's project sucker population segregation, passage, and operations. Passage at these ladders, described above, may isolate populations, increasing the probability of hybridization, introgression, and inbreeding (Klamath Tribes 1996). Buth and Haglund (1994) determined that populations of shortnose suckers above Link River Dam were genetically separate from lower Klamath River reservoir and Lost River reservoir populations. Finally, operations may effect Upper Klamath Lake populations via water level manipulations during spawning, and entrainment of various life stages into downstream locations. The Service anticipates an unquantifiable level of take due to genetic isolation impacts.

Jeopardy Avoidance Measures

Restoration of property on the lower Williamson River, while beneficial to endangered suckers in the long-term, will have specific, short-term impacts. The Service anticipates, based on Reclamation's Assessment and communication with the LWRRT, incidental take during restoration and operations on the property to include short-term increases in sedimentation and turbidity from earth-moving activities, nutrient loading from draining fields, stranding of various life stages during water manipulation, colonization of restoration features by non-native fishes, increased predation in the restoration area, and direct mortality during restoration activities. The above types of incidental take from restoration and operation activities would occur under the direction of the Long Range or Annual Restoration Plans. These types of incidental take would occur from the LWRRT, PacifiCorp, The New Earth Company, TNC, NRCS, or their contractors' restoration activities. PacifiCorp, The New Earth Company, and TNC, or some combination of these parties, may hold an interest in the agricultural inholdings within the proposed property. Incidental take from agricultural activities could occur in the form of nutrient loading from draining agricultural fields, application of chemicals (fertilizers and pesticides), and entrainment of suckers into the irrigation system. The Service anticipates an unquantifiable level of take from lower Williamson River restoration activities.

Operations and Maintenance

Down ramping flows below PacifiCorp's facilities has the ability to incidentally take suckers through stranding. Ramp rates for PacifiCorp's hydroproject operations were described in Reclamation's Assessment. These rates were designed to minimize fish stranding events during flow-reduction activities. The Service anticipates an unquantifiable level of incidental take from ramping activities. Fish salvage during normal and unscheduled operations and maintenance activities has the ability to incidentally take suckers through handling. A salvage plan is in place that directs salvage operations and disposition of salvaged fish. Past salvage efforts have collected minor numbers of adult and juvenile suckers, therefore the Service anticipates 1,000 adult and juvenile shortnose and Lost River suckers combined will be taken during annual salvage activities.

Effect of the Take:

In the accompanying biological and conference opinions, the Service determined that these levels of anticipated take are not likely to result in jeopardy to the species or destruction or adverse modification to proposed critical habitat.

Reasonable and Prudent Measures

As noted above, the proposed action includes project operations, habitat restoration (long-term timescale), and short-term research and review activities. The Service believes that the proposed habitat restoration will ultimately offset a a major portion of PacifiCorp and The New Earth

43
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

Company's impacts. Take of individual fish, as identified above, is not believed to result in jeopardy to the species as a whole. However, in the short-term, effective minimization of incidental take, as required by the Act, must be implemented within the ITS. These measures are consistent with the proposed action and its' associated impacts, and are based on current Service concerns regarding recent loss of numerous, older sucker age classes and ongoing annual poor water quality events, including stressful dissolved oxygen, pH, and ammonia levels, leading to loss of young sucker age classes in Upper Klamath Lake.

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of Lost River and shortnose suckers.

1. Monitor incidence of sucker entrainment and review effectiveness of Entrainment Reduction Devices at PacifiCorp and The New Earth Company facilities.
2. Develop methods for PacifiCorp and Reclamation to cooperatively implement Upper Klamath Lake water operations for the benefit of endangered suckers.
3. Cooperatively develop methods to reduce sucker population segregation impacts from the Link River and Klamath River facilities.
4. Determine status of endangered suckers in PacifiCorp's Klamath River reservoirs.
5. Restore Lower Williamson River property to benefit larval suckers and Upper Klamath Lake water quality with an emphasis on historic habitat form (habitat configuration), function (habitat benefits), and composition (community structure), within unalterable constraints, using the best science and adequate protective measures.
6. Implement PacifiCorp and The New Earth Company operation and maintenance activities in a fashion that protects endangered species.

Terms and Conditions

To be exempt from the prohibitions of section 9 of the Act, PacifiCorp and The New Earth Company must comply with the following Terms and Conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary. Numbers correspond to Reasonable and Prudent Measures listed above.

- 1.1. **PacifiCorp** shall develop the Link River Dam entrainment study plan, using Service-approved methodology, by August 31, 1996. This completion date will allow, if possible, an October 16, 1996, initiation of studies. The study plan shall identify methodology that quantifies entrainment of larval (March 1-May 31 only), juvenile, and adult fish (October 16 to May 31). Larval sampling will be conducted at locations immediately above hydrofacilities in the Eastside and Westside Canals, whereas juvenile

and adult sampling will occur at locations immediately below the hydrofacilities. Additional study design will be developed to identify "pulses" of fish or other migratory behavior that wouldn't be identified through standard random sampling schemes.

1.2. To ensure the Service can continually review effectiveness of Entrainment Reduction Devices at the Link River diversions, **The New Earth Company** shall implement Service-approved entrainment and impingement monitoring for all age classes of suckers at both B- and C- Canals and Link River diversions. Monitoring activities shall be conducted during the algae harvest period (June 1-October 15). These monitoring efforts will supplement and compliment monitoring studies already proposed by The New Earth Company at their facilities. The New Earth Company shall strive to coordinate Link River entrainment and impingement studies with PacifiCorp's Term and Condition 1.1 studies above.

1.3. **PacifiCorp** shall provide annual entrainment study reports by October 15 for each year's activities. A final report shall be submitted six months after completion of the two season study. **The New Earth Company** shall annually submit, by February 28, a report of larval, juvenile, and adult entrainment and impingement occurrences for the previous year at B- and C-Canals and the Link River diversions.

2.1. **PacifiCorp** shall re-evaluate its flood operations plan by October 31, 1996. **PacifiCorp** shall request input from the Service and Reclamation on analysis methodologies. Copies of the updated flood operations plan shall be provided to the Service and Reclamation for use in the Upper Klamath Lake water elevation consultation.

2.2. During the Upper Klamath Lake water elevation consultation, **PacifiCorp** shall cooperate with the Service and Reclamation to analyze the relationships between the new flood operations plan, various project operational constraints, hydropower, and habitat and water quality benefits to endangered species.

2.3. **PacifiCorp** will assist Reclamation to implement, in 1996, water levels as defined by Reclamation's "low range elevations" proposal (Reclamation 1996b). In the future, after Reclamation's consultation on Upper Klamath Lake water levels is complete, **PacifiCorp** shall assist Reclamation to implement new protective water elevations. The Service understands that Reclamation will be involved in future consultations and that Reclamation and PacifiCorp will address operational limitations at those times.

3.1. **PacifiCorp** and Reclamation shall determine ownership of the Link River fish ladder by December 31, 1996 and report ownership responsibility to the Service. The responsible entity shall implement a Service-approved study to identify reasons for lack of use of Link River fish ladder by endangered suckers. ODFW shall be involved in

study design and implementation. The study should take into account current ladder and entry/exit configurations, gradient, velocities, and juvenile and adult sucker behavior, including swimming attributes, and any other measures determined to contribute to lack of use by endangered suckers.

3.2. The responsible entity, as determined in 3.1 above, shall submit a final report documenting results of the study (3.1 above), and identifying alternatives to increase passage, to the Service by December 31, 1998.

4.1. **PacifiCorp** shall submit a final report on lower Klamath River reservoirs study by December 31, 1999. The report shall document distribution and abundance, age class structure, recruitment success, and habitat use by different life stages of shortnose and Lost River suckers in J.C. Boyle, Copco, and Iron Gate reservoirs. Data collected shall be related to actual water elevations and discharges at the time of study. The report also shall qualitatively identify alternative operations or enhancements that would reduce incidental take in Klamath River and reservoirs' sucker populations.

5.1. **PacifiCorp and The New Earth Company** shall participate in the LWRRT, with membership as defined in the Description of Proposed Action section. LWRRT's main purpose is to develop a Long Range Restoration Plan, to be recommended to the Management Committee. The goal of the plan is restoration of the property with a focus on historic form (habitat configuration), function (habitat benefits), and composition (community structure), within unalterable constraints, for the specific objective of increasing larval endangered sucker survival via habitat creation and water quality enhancement.

5.2. The Management Team shall identify and communicate all "unalterable constraints" to the LWRRT. The **LWRRT** shall subsequently complete a draft Long Range Restoration Plan by December 31, 1996, and submit a final recommended Long Range Restoration Plan to the Management Committee by April, 1997. The **LWRRT** shall use outside experts to assist in development of Restoration Plan. The Restoration Plan shall include specific information on endangered fish needs, historic form, function, and composition, of the lower Williamson River and surrounding area, constraints to return to historic conditions, phased plans and timelines for restoration, specific incidental take reduction activities during restoration activities, research needs, monitoring plans, and specific production targets for larval survival and habitat features (emergent and submerged habitat; woody features; riverine habitat). **LWRRT** decisions shall be made by consensus, with abstaining opinions provided in an appendix to the Restoration Plan. The Restoration Plan will be reviewed by the Service to assure it meets the intent of these biological and conference opinions and ITS.

5.3. The **LWRRT** shall develop annual restoration work/research/monitoring plans for submission to property managers and the Management Committee. Annual restoration plans must have Service review and concurrence to assure they meet the intent of these biological and conference opinions and ITS.

5.4. If restoration funds become available and must be spent prior to completion of the Long Range Restoration Plan, proposed activities shall be reviewed by the LWRRT and the Service prior to implementation. Review shall ensure that unplanned activities do not preclude long range activities.

5.5. If PacifiCorp, The New Earth Company, and TNC, or some combination of these parties, hold an interest in the agricultural inholdings, this entity(s) shall develop, in cooperation with the Service, annual operating plans designed to reduce impacts to endangered species and surrounding restoration activities. Plans should specifically address pesticide/herbicide use, entrainment reduction, and draining/pumping plans, and seek to minimize the impacts of such actions on endangered suckers and their ecosystem. Annual operating plans shall be developed prior to annual activities on agricultural lands.

5.6. The **LWRRT** shall provide the Management Committee and Service with an annual activity report by December 31.

6.1. **PacifiCorp** shall develop a Service-approved endangered species operations and maintenance plan for PacifiCorp's Klamath hydrofacilities' activities, including handling and storage of hazardous materials, hydrofacility ramp rates, and fish salvage operations. This plan shall be developed and implemented by September 30, 1996.

6.2. **PacifiCorp** shall document its annual operations, as related to endangered species decisions, in a report due by December 31 of each water year. The report shall identify actions taken to benefit endangered suckers (coordination points with the Service and/or Reclamation, lake and reservoir elevations, discharges, and key operational decisions), for the following life history periods (as defined in Reclamation 1996b): 1) spring spawning period (Feb 15-April 15); 2) larval habitat occupation (April 16-July 15); 3) juvenile and adult habitat occupation (July 16-September 30); and winter period (October 1-February 14). The report also shall report annual actions taken under Term and Condition 6.1, including number of suckers collected and their disposition during salvage, identify date and magnitude of spill and ramping activities, and any hazardous spills, and remedial actions taken.

6.3. In the event that The New Earth Company is required to dewater algae harvest facilities on the Eastside or Westside canals, **The New Earth Company** shall salvage canal facilities under the guidelines of the PacifiCorp salvage plan identified in 6.1 above.

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

A report shall be completed by December 31 following each dewatering event that documents the date(s) of the event, number of fish salvaged, and disposition of fish.

Review Requirement

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. With implementation of these measures the Service believes that no more than the above-described amounts will be incidentally taken. If, during the course of the action, this minimized level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for reinitiation and possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of ESA directs Federal agencies to utilize their authorities to further the purposes of ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Reduction of nutrient loading is an important tool in minimizing water quality-induced impacts to native aquatic species, including suckers, in Upper Klamath Lake. Nutrient loading reduction is identified in the Recovery Plan for Lost River and shortnose suckers as a critical recovery need. One method of implementing the Recovery Plan's priority of reducing nutrient loading is through creation of "wetland cells" (Gearhart et al. 1995). The **New Earth Company and PacifiCorp** should retain qualified researchers to help develop wetland cell pilot projects in high priority nutrient loading source areas. Results of these efforts will be important in reducing the long-term need for strict protective measures for endangered species.
2. Restoration of habitat at the lower Williamson River for native species, including suckers, could be enhanced in the future by purchase and eventual conversion of additional historic wetland areas. Wetland restoration is identified in the Recovery Plan for Lost River and shortnose suckers as a critical need. **PacifiCorp and The New Earth Company** should investigate opportunities to cooperate in acquisition and restoration of other important properties along the lower Williamson River for the benefits of the Klamath Basin's native wildlife populations.
3. Protection of the greatest genetic diversity within the endangered suckers is of paramount importance to the continued survival of the species as a whole. The Recovery Plan for Lost River and shortnose suckers defines the need for studies involving genetic structuring of Klamath

Basin suckers. Given The New Earth Company's plans for expansion of algae harvest to other areas within Upper Klamath Lake, and associated increased potential of wider impact to these species, it is important to understand the relative impacts to sucker populations between harvest locations. The Service recommends **The New Earth Company** should actively assist in funding genetic studies to increase the overall knowledge and future operational sensitivity.

4. Entrainment of various sucker life stages may, in part, be a result of lack of suitable water quality and vegetated habitat in lower portions of Upper Klamath Lake. **PacifiCorp and The New Earth Company** should investigate methods to enhance larval and juvenile habitat in the Link River Dam area to benefit suckers. These actions would supplement The New Earth Company's Fremont Bridge wetland site. Methods may include artificial floating habitat structures (see Reclamation's review of artificial structures), submerged shoreline woody structure, and shoreline emergent habitat creation. Water quality enhancement should be investigated; aeration or other enhancements may be beneficial at certain periods of the year for maintaining water quality attributes, thereby reducing entrainment incidents.

5. Larval suckers may annually occupy Klamath River reservoirs from March to July. These vulnerable life stages require, especially in environments densely populated with predaceous non-native fishes, vegetated nursery habitat, such as emergent shoreline marsh areas. Stabilization of reservoir elevations, especially in Keno, J.C. Boyle, and Copco reservoirs, would benefit colonization of emergent vegetation habitats, and increase larval survival. The Recovery Plan for Lost River and shortnose suckers identifies offsetting lack of recruitment in Klamath River reservoirs as a high recovery priority. **PacifiCorp** should investigate operational opportunities to enhance emergent vegetation habitats in Klamath River reservoirs via water level management or other actions.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests **PacifiCorp** and/or **The New Earth Company** notification of the implementation of any conservation recommendations.

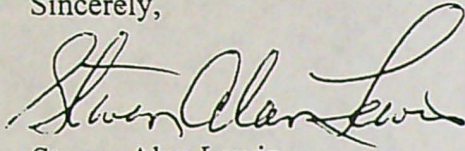
REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the action outlined in Reclamation's Assessment. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. Additionally, if assumptions presented in the

Introduction section should prove to not be valid, the analyses for these biological and conference opinions also are invalid, and consultation should therefore be reinitiated by Reclamation, on the behalf of the applicants, PacifiCorp and The New Earth Company.

We appreciate your efforts to conserve Federally listed species and proposed critical habitat. If you have any questions regarding this biological opinion, please contact Doug Young, Marcus Horton, or Steve Lewis at (541) 885-8481.

Sincerely,

A handwritten signature in cursive script, reading "Steven Alan Lewis". The signature is written in dark ink and is positioned above the printed name and title.

Steven Alan Lewis
Project Leader

RECEIVED
OCT 11 1996
WATER RESOURCES DEPT.
SALEM, OREGON

LITERATURE CITED

- Banner, C. 1995. Upper Klamath Lake sucker pathological report. Oregon Department of Fish and Wildlife, Corvallis, Oregon.
- Bartholow, J.M. 1995. Review and Analysis of Klamath River Basin Water Temperatures as a Factor in the Decline of Anadromous Salmonids with Recommendations for Mitigation. River Systems Management Section, Midcontinent Ecological Science Center, U. S. National Biological Service, Fort Collins, Colorado. Final Draft.
- Beak Consultants, Inc. 1987. Shortnose and Lost River Sucker Studies Copco Reservoir and the Klamath River. Prepared for City of Klamath Falls, Klamath Falls, Oregon.
- Bellerud, B., and M.K. Saiki. 1995. Tolerance of larval and juvenile Lost River and shortnose suckers to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration. Final Report. National Biological Survey, California Pacific Science Center, Dixon Field Station.
- Bienz, C.S. and J.S. Ziller. 1987. Status of three lacustrine sucker species (Catostomidae). Report to the U.S. Fish and Wildlife Service, Sacramento. 39 pp.
- Bortelson, G.C. and M.O. Fretwell. 1993. A review of possible causes of nutrient enrichment and decline of endangered sucker populations in Upper Klamath Lake, Oregon. U.S. Geological Survey, Portland, Oregon. 31 pp.
- Buettner, M., and G. Scopettone. 1990. Life history and status of catostomids in Upper Klamath Lake, Oregon. Completion Report. U.S. Fish and Wildlife Service, National Fisheries Research Center, Reno Field Station, Nevada.
- Buth, D. and T. Haglund. 1994. Genetic analysis of endangered Klamath basin suckers. Preliminary report submitted to California Department of Fish and Game. 9 pp.
- Buth, D.G., T.R. Haglund, and S.L. Drill. 1996. Abstract - Geographic patterns of allozyme divergence in the endangered Klamath Basin Catostomid fishes *Chasmistes brevirostris* and *Deltistes luxatus*.
- Campbell, S.G. 1995. Klamath River Basin Flow-Related Scoping Study - Phase I Water Quality. River Systems Management Section, Midcontinent Ecological Science Center, U. S. National Biological Service, Denver, Colorado.
- Dunsmoor, L.K. 1993. Laboratory studies of fathead minnow predation on Catostomid larvae. Klamath Tribes Research Report: KT-93-01.

- Eicher Associates. 1987. Turbine-Related Fish Mortality: Review and Evaluation of Studies. Prepared for Electric Power Research Institute, Palo Alto, California.
- Harris, P. M. 1991. Biochemistry and morphology of Upper Klamath Lake suckers. Final Report to Oregon Department of Fish and Wildlife. Oregon State University, Corvallis.
- Gearhart, R.A., J.K. Anderson, M.G. Forbes, M. Osburn, and D. Oros. 1995. Watershed strategies for improving water quality in Upper Klamath Lake, Oregon. Volume I. Humboldt State University, Arcata, California.
- Jassby, A.D. and C.R. Goldman. 1995. Klamath Lake preliminary assessment of water elevation and water quality. Ecological Research Associates, Davis, California.
- Kann, J. 1993a. Agency Lake limnology, 1990-91. In: S. Campbell (ed.) Environmental Research in the Klamath Basin. 1991 Annual Report. Bureau of Reclamation, Denver, Colorado.
- Kann, J. 1993b. Agency Lake limnology, 1992. In: S. Campbell (ed.) Environmental Research in the Klamath Basin. 1992 Annual Report. Bureau of Reclamation, Denver, Colorado.
- Kann, J. 1995. Effect of lake level management on water quality and native fish species in Upper Klamath Lake, Oregon. 19 pp.
- Kann, J. and V.H. Smith. 1993. Chlorophyll as a predictor of elevated pH in a hypertrophic lake: estimating the probability of exceeding critical values for fish success. Klamath Tribes Natural Resources Department research report: KT-93-02. Chiloquin, Oregon. 22 pp.
- Klamath River Basin Fisheries Taskforce. 1991. Long range plan for the Klamath River Basin Conservation Area Fishery Restoration Program. Fish and Wildlife Service, Yreka, California.
- Klamath Tribes. 1991. Effects of water management in Upper Klamath Lake on habitats important to endangered Catostomids. Natural Resources Department, Chiloquin, Oregon. 7 pp.
- Klamath Tribes. 1993. Comments on the Draft Lost River and Shortnose Sucker Recovery Plan and the Initial Ecosystem Restoration Plan for the Upper Klamath River Basin. Natural Resources Department, Chiloquin, Oregon.

- Klamath Tribes. 1995. Upper Klamath and Agency lakes water quality assessment and inflow nutrient budget and endangered species restoration program support. Progress report. Natural Resources Department, Chiloquin, Oregon.
- Klamath Tribes. 1996. Catostomid population management objectives, Upper Klamath Lake. Natural Resources Department, Chiloquin, Oregon. 4 pp.
- Laenen, A. and A.P. LeTourneau. 1995. Upper Klamath Basin nutrient loading study - estimates of wind induced resuspension of bed sediment during periods of low lake elevations. U.S. Geological Survey, Portland, Oregon.
- Logan, D.J. and D.F. Markle. 1993. Fish faunal survey of Agency Lake and Northern Upper Klamath Lake, Oregon in Environmental Research in the Klamath Basin, Oregon. 1992 Annual Report. S.G. Campbell ed. U.S. Bureau of Reclamation, Denver CO, R-93-16
- Markle, D.F., and D.C. Simon. 1993. Preliminary studies of systematics and juvenile ecology of Upper Klamath Lake sucker. Final Report. Oregon State University, Corvallis, Oregon. 128 pp.
- Markle, D.F. and D.C. Simon. 1994. Larval and juvenile ecology of Upper Klamath Lake suckers. Annual report. Oregon State University, Department of Fisheries and Wildlife. Corvallis.
- Monda D., and M.K. Saiki. 1993. Tolerance of juvenile Lost River and Shortnose suckers to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration in Environmental Research in the Klamath Basin, Oregon. 1992 Annual Report. S.G. Campbell ed. U.S. Bureau of Reclamation, Denver, CO, R-93-16.
- Monda, D. and M.K. Saiki. 1994. Tolerance of larval Lost River sucker to high pH, ammonia concentration, and temperature, and to low dissolved oxygen concentration. Final Report. National Biological Survey-National Fisheries Contaminant Research Center, Dixon, CA.
- Moyle, P.B., and W.J. Berg. 1991. Population genetics of endangered Catostomid fishes of northern California. Draft final report, California Fish and Game Contract FG-8143.
- PacifiCorp. 1996. Lower Williamson River restoration project - Tulana Farms initial biological justification. Portland, Oregon. 22 pp.
- Scoppettone, G.G., S. Shea, and Mark E. Buettner. 1995. Information on population dynamics and life history of shortnose (*Chasmistes brevirostris*) and Lost River sucker (*Deltistes luxatus*) in Tule and Clear Lakes. National Biological Service, Reno, Nevada. 79 pp.

- Scoppettone G.G. 1988. Growth and longevity of the cui-ui and longevity of other catostomids and cyprinids in western North America. Transactions of the American Fisheries Society 117:301-307.
- Simon, D.C., G.R. Hoff, D.J. Logan, and D.F. Markle. 1995. Larval and juvenile ecology of Upper Klamath Lake suckers. Annual Report. Oregon State University, Department of Fisheries and Wildlife, Corvallis. 49 pp.
- Simon, D.C., G.R. Hoff, D.J. Logan, and D.F. Markle. 1996. Larval and juvenile ecology of Upper Klamath Lake suckers. Annual Report. Oregon State University, Department of Fisheries and Wildlife, Corvallis. 60 pp.
- Stewart, N.E., D.L. Shumway, and P. Doudoroff. 1967. Influence of oxygen concentration on the growth of juvenile largemouth bass. Journal of the Fisheries Research Board of Canada. 24:475-494.
- U.S. Bureau of Reclamation. 1992. Klamath Project. Biological Assessment on Long-Term Project Operations. Klamath Falls, Oregon.
- U.S. Bureau of Reclamation. 1996a. Biological Assessment of PacifiCorp and The New Earth Company operations associated with the Klamath Project. Klamath Falls, Oregon.
- U.S. Bureau of Reclamation. 1996b. Upper Klamath Lake elevations for endangered suckers. Letter to Files, dated June 25, 1996. Klamath Falls, Oregon.
- U.S. Fish and Wildlife Service. 1988. Determination of endangered status for the shortnose sucker and Lost River sucker. 53(137): 27130-27134.
- U.S. Fish and Wildlife Service. 1992. Biological Opinion on effects of Long-Term Operation of the Klamath Project. Sacramento, California.
- U.S. Fish and Wildlife Service. 1993. Lost River and shortnose sucker Recovery Plan. Portland, Oregon.
- U.S. Fish and Wildlife Service. 1994. Proposed determination of critical habitat for Lost River and shortnose sucker. 59(230): 61744-61759.
- U.S. Fish and Wildlife Service. 1994. Biological Opinion on effects of Long-Term Operation of the Klamath Project, with special emphasis on Clear Lake operations. Portland, Oregon.
- Williams et al. 1989. Fishes of North America, endangered, threatened, or of special concern. Fisheries 14:2-20.

Wood, T.M., G.J. Fuhrer, and J.L. Morace. 1996. Relation between selected water-quality variables and lake level in Upper Klamath and Agency Lakes, Oregon. U.S. Geological Survey, Portland, Oregon. 57 pp.

Personal Communication

Mark Buettner, Fisheries Biologist, Reclamation, Klamath Falls, Oregon.

Larry Dunsmoor, Fisheries Biologist, The Klamath Tribes, Chiloquin, Oregon.

Ron Goede, Fish Health Specialist, Utah Division of Wildlife Resources, Logan, Utah.

Mike Green, Fisheries Biologist, Reclamation, Klamath Falls, Oregon.

Jacob Kann, Aquatic Ecologist, The Klamath Tribes, Chiloquin, Oregon.

Douglas Markle, Professor, Oregon State University, Corvallis, Oregon.

Dave Mauser, Fish and Wildlife Biologist, Klamath Basin National Wildlife Refuges, Tulelake, California.

Todd Olson, Biologist, PacifiCorp, Portland, Oregon.

Gary Scopettone, Lead Scientist, National Biological Survey, Reno, Nevada.

Frank Shrier, Biologist, PacifiCorp, Portland, Oregon.

David Simon, Research Associate, Oregon State University, Corvallis, Oregon.

CERTIFICATE OF SERVICE AND FILING

I certify that I served a true and correct copy of the foregoing Protest by mailing it in a sealed envelope, with first class postage prepaid, on October 11, 1996, to the following person:

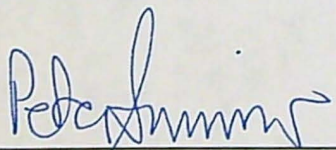
Mr. Al Mirati
Oregon Department of Fish & Wildlife
2501 SW First Avenue
Portland, OR 97207

Robert Meinen
Director
Oregon Department of Parks and Recreation
1115 Commercial Street, NE
Salem, OR 97310-1001

I also certify that I filed the original of the foregoing Protest by hand delivering it in a sealed envelope on October 11, 1996, to:

Dwight French
Administrator, Water Rights and Adjudications Division
Oregon Water Resources Department
158 12th Street, N.E.
Salem, OR 97310-0210

STOEL RIVES LLP

By: 

Peter L. Serrurier, OSB No. 90150
Of Attorneys for Protestants
PacifiCorp

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

BEFORE THE WATER RESOURCES DEPARTMENT OF OREGON
WATER RIGHTS DIVISION

In The Matter Of Surface Water Application	)	
IS 70094 in the Name of Oregon Department	)	PROTEST TO
of Fish and Wildlife for Water Use,	)	PROPOSED FINAL
Klamath County	)	ORDER

Protestant Klamath Drainage District, a drainage district formed according to the laws of the state of Oregon, hereby in accordance with ORS 537.153 (6) and OAR 690-77-043, submits the following Protest to Proposed Final Order for Application IS 70094.

1. INTRODUCTION

Protestant's address for purposes of this Protest is 280 Main Street, Klamath Falls, Oregon, 97601; phone number for purposes of this application is (541)882-4436. Protestant's landowners are provided water for irrigation from the Klamath River and from Upper Klamath Lake. Reference is made to Oregon Permit #43334, Application #55748.

Protestant asserts that the Proposed Final Order by the Water Resources Department ("WRD" or "Department") is defective and in error and that there are elements of the water right as approved that will impair or be detrimental to the public interest, based on the facts and issues set forth below.

II. PROPOSED ORDER DETRIMENTAL TO PROTESTANTS

If flow rates of the amounts proposed were required, then the ability of the Protestant to receive and divert water to support irrigation could be interfered with.

III. PROPOSED ORDER IS IN CONFLICT WITH THE KLAMATH RIVER COMPACT

The Proposed Order fails to recognize the provisions of the Klamath River Basin Compact (Compact). ORS 542.620. The Compact was enacted by the states of Oregon and California and approved by the United States. Compact terms apply directly to the waters in question, as Compact jurisdiction includes the waters in the Proposed Order. See official map of the Upper Klamath River Basin approved on September 6, 1956, by the commissions negotiating the Compact and filed with the Secretaries of the states of Oregon and California and the General Services Administration of the United States, and incorporated into the Compact. ORS 542.620, Art. II. B. The terms of the Compact include priorities for the appropriation of water which the Proposed Order fails to enumerate or recognize. ORS 542.620, Art. III. B. and C. Compact priorities place domestic and irrigation uses ahead of the proposed use of fish and wildlife. Any final order for the proposed use must

RECEIVED

Protest P. 1.

OCT 11 1996

WATER RESOURCES DEPT.
SALEM OREGON

recognize that such proposed right is inferior to present and future rights for domestic and irrigation purposes, as well as other provisions of the Compact.

IV. PROPOSED ORDER FAILS TO CONSIDER TEMPERATURE TOXICITY,
RETURN FLOWS OF HYDROELECTRIC PROJECTS, KLAMATH PROJECT AND
WILDLIFE REFUGES

Along the stretch of the river mentioned, the flows of the river are supplemented and influenced by several flows, including hydroelectric projects, the Klamath Project (U.S. Bureau of Reclamation), national wildlife refuges (U.S. Fish and Wildlife Service), and private users. These factors likely have a considerable impact on the flow requirements of fish. In addition, water quality factors, including temperature, are likely to have a considerable impact. It is understood that water temperatures in the Upper Klamath Lake may adversely affect fish populations. Straight flow requirements, as contained in the Proposed Order, could prove to be toxic, rather than beneficial as is implied by the application and Proposed Order. Determination of these factors should be pursued and completed prior to issuance of any order regarding flows, and the OWRD should therefore withhold any order pending information regarding this.

V. PROPOSED ORDER MAY CONTAINED RECREATION REQUESTS,
UNRELATED TO FISH AND WILDLIFE

Although it is not apparent in the documents reviewed by this District, we have been informed that portion of the flows proposed are for a different use than what is enumerated. There is no legal or factual justification for this proposed flow, and therefore should be eliminated.

VI. PROPOSED FLOW RATES ARE IN EXCESS OF MINIMUM QUANTITY NECESSARY

The instream water right flow rates proposed are excessive and unnecessary for the use applied for. The flow rates proposed are higher than the minimum quantity necessary for the public use of the instream water right, and are, therefore, contrary to the definition of "In-stream flow" of ORS 537.332(2) and OAR 690-77-010 (14). Water use of the instream right, if approved, would adversely affect the Protestant and other potential water users from the stream by appropriating excess quantities of water and preventing any other new appropriations of water.

VII. INADEQUATE TECHNICAL DATA OR INFORMATION SUBMITTED BY
ODFW

The above referred to application, as submitted by the Oregon Department of Fish & Wildlife to the Water Resources Department, failed to include sufficient technical data or information to support the flow rates requested by said agency, as required by OAR 690-77-020 and ORS 537.336.

RECEIVED

Protest P. 2.

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

OAR 690-770-020 (3)(g) requires an application to include at a minimum "a description of the technical data and methods used to determine the requested amounts;" (emphasis added). The only information submitted in support of the application is a flow rate conclusion included in an appendix in the Basin Investigation or Environmental Investigation for the river basin; no "technical data" nor any of the factual data used to arrive at the flow rate conclusions was submitted with the application.

No analysis of supporting data, or the lack thereof, appears in the WRD file for this application. The Proposed Final Order is defective in that the WRD did not evaluate whether the level of instream flow requested was "based on methods of determining instream flow needs that have been approved by administrative rule of the agencies submitting the applications." (OAR 690-77-020 (3)).

Apparently the flow levels applied for are based on an appendix in the Basin Investigation or Environmental Investigation for recommended flows. It is impossible to tell, however, what factual data said recommendation was based on. No data has been submitted to support the flows requested and the application should therefore be rejected.

ODFW does not have specific files for their instream water right applications. The original data supporting the Basin Investigation and Environmental Investigation has apparently been lost or misplaced. No other supporting data or "technical data" was submitted by the applicant as required by OAR 690-77-020 (4)(g). Since no technical data was included with ODFW's application, the application should be returned to the applicant for curing of defects or resubmittal.

VIII. WRD FAILED TO ANALYZE FLOW NEEDS

The flow levels approved by the Proposed Final Order are not based on any analysis of the need for the flows requested. ORS 537.332(2) sets out the definition of "in-stream flow" which the Department is supposed to follow when determining instream water rights: the "minimum quantity of water necessary to support the public use requested by an agency." The Proposed Final Order does not address the minimum quantity of water or flow levels necessary to support the uses applied for. A review of the WRD file shows that no such analysis has occurred. The only review undertaken by the WRD was a check to see if the requested flows are less than the average estimate natural flow ("EANF"; OAR 690-77-015 (4)).

IX. OREGON METHOD IS INHERENTLY FLAWED

The methodology used for this application, the "Oregon Method", is inherently flawed in that it is based on a methodology that has been superseded and is not reliable, and is based on outdated or insufficient information (testimony is cited by Al Mirati of the Oregon Department of Fish and Wildlife regarding the "Oregon Method", to the Oregon Water Resources Commission, on December 6,

RECEIVED

Protest P. 3.

OCT 11 1996

WATER RESOURCES DEPT.

1990). The determinations made from the Oregon Method are not reliable and should therefore be rejected by the WRD or the Commission as the final authority in determining the level of instream flows necessary to protect the public use (ORS 537.343 (2)).

X. OREGON METHOD IS INHERENTLY FLAWED - WRD SHOULD REJECT APPLICATION

One of the requirements of the Department's application review is contained in OAR 690-77-020 (3): "...all applications for instream water rights shall be based on the methods of determining instream flow needs that have been approved by administrative rule of the agencies submitting the applications." (See also part V. above). This requirement does not mean that the Department can simply accept ODFW's assertion that the "Oregon Method" is the basis for the requested flows. The Department must actively review the application to see if the Oregon Method and ODFW's instream rules are being followed. Where applicable, ODFW must also submit supporting data to show that the standards and criteria contained in their rules have been followed.

The actual measurements used by ODFW to set requested flow levels are totally inadequate to validate those amounts; these measurements were made by ODFW's predecessor, the Oregon State Game Commission, as shown in the Appendices to the Basin Investigations and the Environmental Investigations. Actual measurements of streamflow were not made at times when key life stages occurred and, in fact, the severe limitations of the data available show that they are inadequate to validate the requested flows: "Actual measurement of streamflow made at or near recommended instream flow requirements and made at times when key life stages occur are important to validate the methodology used, and to validate that the recommended instream flow requirements provide desirable habitat conditions." Instream Flow Methodologies. Louis C. Fredd, Oregon Department of Fish and Wildlife (1989), page 12.

XI. 'EANF' CALCULATIONS ARE DEFECTIVE OR INCOMPLETE

There are no calculations for information in the WRD file to show what "ratios" were used or how adjustments were made to any gauged flows to determine the 50% exceedance flows, and there is also no information in the technical review to show the type of statistics used (see "Methods for Determining Streamflows and Water Availability in Oregon", Robison, P22 and 23) The EANF calculations are defective resulting in high EANF levels and thus allowing excessive recommended flows by the WRD.

CONCLUSION

This protest is filed in accordance with OAR 690-77-043. The issues raised should be considered as part of a contested case hearing. The WRD's Proposed

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

Final Order is inadequate and defective and has failed to follow applicable rules. A thorough review of the Application is necessary to determine the minimum quantity of water necessary to support the public uses applied for.

The Proposed Final Order fails to consider and note the superiority of priorities as enumerated in the Klamath River Compact, and other provisions contained therein.

For the reasons set forth above, the Protestant asserts that the application is defective and should be returned to the applicants. The flow levels requested are excessive and are not necessary to support the public uses proposed. Flow levels set at the rates proposed will interfere with future maximum economic development of the waters of the State of Oregon. Excessive flow rates for instream water rights represent a wasteful and unreasonable use of the water involved. (ORS 537.170 (8)(e)). If approved, an exception for stockwater use should be added as a condition of the right.

Based on the points discussed above, the Proposed Final Order should deny the application for a permit or modify the Proposed Final Order accordingly

Respectfully submitted this 9th day of October, 1996.

KLAMATH DRAINAGE DISTRICT, by:

Luther Hensley, Vice President

CERTIFICATE OF SERVICE

I hereby certify that on the 10 day of October, 1996, I served a true and accurate copy of the foregoing Protest to the Proposed Final Order on the applicant by mailing said copy by first class mail, postage prepaid, by depositing said copy in the United States Post Office in Klamath Falls, Oregon addressed as set forth below:

Oregon Department of Fish & Wildlife
2501 SW First Avenue
P.O. Box 59
Portland Oregon 97207

By: [Signature]

For Protestants

RECEIVED

Protest P. 5.

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

Oregon State Bar
Number 78213

WILLIAM M. GANONG
ATTORNEY AT LAW
635 MAIN STREET
KLAMATH FALLS, OREGON 97601

(541) 884-1721
Fax: (541) 883-1923

October 10, 1996

UPS OVERNIGHT MAIL

Oregon Water Resources Department
Water Rights and Adjudication Division
Steven P. Applegate, Administrator
158 12th Street NE
Salem OR 97310

RECEIVED

OCT 11 1996

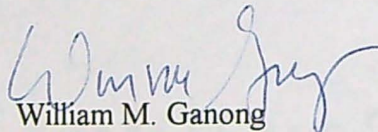
WATER RESOURCES DEPT.
SALEM, OREGON

Re: Protests to Water Rights Applications
70813, 70812, and 70094

Dear Mr. Applegate:

Please find enclosed the Protests of Klamath Water Users Association, Tulelake Irrigation District, and Klamath Irrigation District to each of the above-referenced applications of the Oregon Department of Fish & Wildlife for instream water rights. Also enclosed are three checks for \$200 each for the protest fees.

Yours very truly,


William M. Ganong

WMG:wy

Enclosures

Copy: Paul S. Simmons

LS

1 De CUIR & SOMACH
A Professional Corporation
2 PAUL S. SIMMONS, ESQ. (CA Bar #127920)
DONALD B. MOONEY, ESQ. (OR Bar #90030; CA Bar #153721)
3 400 Capitol Mall, Suite 1900
Sacramento, California 95814
4 Telephone: (916) 446-7979

5 Attorneys for Protestants
Klamath Water Users Association
6 and Tulelake Irrigation District

7 WILLIAM M. GANONG, ESQ. (OR Bar #78213)
635 Main Street
8 Klamath Falls, Oregon 97601
Telephone: (541) 884-1721
9

10 Attorney for Protestant
Klamath Irrigation District
11

RECEIVED

OCT 11 1996

**WATER RESOURCES DEPT.
SALEM, OREGON**

12 BEFORE THE WATER RESOURCES DEPARTMENT
13 OF THE STATE OF OREGON
14

15 In the Matter of Surface Water Application IS 70094.)
16 _____)

PROTEST TO PROPOSED
FINAL ORDER

17 I.

18 *SUMMARY OF PROTEST*

19 Protestants Klamath Water Users Association (KWUA), Tulelake Irrigation District (TID),
20 and Klamath Irrigation District (KID) assert that the Proposed Final Order is defective and in
21 error, and contrary to the public interest, as follows:

22 A. The proposed order is inconsistent with the provisions of the Klamath River Basin
23 Compact and other laws.

24 B. The flow rates in the proposed order are arbitrary and unsupported by technical
25 data.

26 C. The proposed order would breach the Director's obligation *to determine* the level of
27 flow *actually necessary* to support uses.
28

AS

1 D. The proposed order would promote an unequal and inequitable treatment of water
2 users.

3 E. The proposed order is insensitive to adverse precedential effects of decisions related
4 to in-stream flows.

5 These points and others are discussed further below.

6 II.

7 *PROTESTANTS AND INTERESTS*

8 Protestants Klamath Water Users Association, Tulelake Irrigation District, and Klamath
9 Irrigation District, in accordance with Oregon Revised Statutes section 537.153(6) and Oregon
10 Administrative Rule 690-77-043, and other applicable laws, submit the following protest to
11 Proposed Final Order IS 70094. Protestant KWUA is a non-profit organization formed and
12 existing under the laws of the United States and the State of Oregon. Its purposes include the
13 protection of the present and future beneficial use of water for domestic and irrigation use in the
14 Klamath Project and other areas of the Klamath River basin. Most or all of the members of
15 KWUA have vested rights to the use of water in the Klamath River system. All have direct and
16 indirect interests in future use and development of water resources within the Klamath River
17 system. KWUA represents, directly and indirectly, approximately 20 irrigation districts and over
18 12,000 persons whose livelihood and well-being are affected by the uses of water in the
19 Klamath River system. Protestant KWUA's address is 2455 Patterson Street, Suite 3, Klamath
20 Falls, OR 97603, and its telephone number is (541) 883-6100.

21 Protestant TID is a political subdivision of the State of California, formed and existing
22 under the California Irrigation District Law, California Water Code section 20500 *et seq.*
23 Protestant TID delivers water to approximately 60,000 acres for irrigation under vested rights,
24 including rights in the Klamath River from diversions at Link River, Upper Klamath Lake, the
25 Lost River Division Channel and the Lost River. TID is interested in the continued and expanded
26 use of water for irrigation beneficial use. TID is a member of the KWUA. TID's address is
27 P.O. Box 699, Tulelake, CA 96134, and its telephone number is (916) 667-2249.

28 **RECEIVED**

OCT 11 1996

-2-

1 Protestant KID is a political subdivision of the State of Oregon, formed and existing under
2 Oregon Revised Statutes chapter 545. Protestant KID delivers irrigation water to approximately
3 45,000 acres of land within the boundaries of KID and for an additional 25,000 acres located
4 within the Klamath Reclamation Project but outside the boundaries of KID, all under vested
5 rights. KID diverts water from Link River, a tributary of the Klamath River, Upper Klamath
6 Lake and the Lost River. KID supplements the flows in the Lost River with water diverted from
7 Link River and Upper Klamath Lake. KID is interested in the continued and expanded use of
8 water for irrigation and other beneficial uses within and without KID. KID and its water user
9 members are members of KWUA. KID's address is 6640 KID Lane, Klamath Falls, OR
10 97603, and its telephone number is (541) 882-6661.

11 III.

12 *INCONSISTENCY WITH KLAMATH RIVER BASIN COMPACT*

13 The States of Oregon and California, and the United States, have approved the Klamath
14 River Basin Compact. Or. Rev. Stat. § 542.620. The Compact's purposes include, among
15 other things, providing preferential rights to irrigation uses in the Upper Klamath River Basin.
16 *Id.* at Art. I. The Compact recognizes vested rights established by 1957 within the Klamath
17 Project and rights for future uses within the Klamath Project as defined in the Compact. *Id.* at
18 Art. III.A. Further, certain additional domestic and irrigation use have a superior right over all
19 other uses, regardless of priority in time of other uses. *Id.* at Art. III.B., C.

20 The proposed order is inconsistent with these rights and priorities. In fact, these and other
21 provisions of the Compact are not acknowledged or discussed at all in the proposed order. Aside
22 from all other bases for the protests discussed below, protestants urge that the requirements and
23 limitations of the Compact be addressed.

24 Other legal issues are identified in the discussion that follows.¹

25 ///

26 ¹ Maintenance of the proposed flow rates would also, to the extent they could ever be achieved,
27 require the release of water from storage. There is no agreement for the use of stored water. *See* Or. Rev.
28 Stat. § 537.336(4) (requiring documentary evidence of agreement for any flow to be supplied from stored
water)

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

IV.

*PROPOSED FLOW RATES ARE IN EXCESS OF
MINIMUM QUANTITY NECESSARY*

The proposed flow rates are inconsistent with statutory and regulatory standards. Oregon Revised Statutes section 537.332 defines "in-stream flow" as the "*minimum quantity* of water *necessary* to support the public use requested by an agency." The high flow rates in the proposed order are greater than the minimum quantity necessary for the public use and are, therefore, contrary to the statutory definition of "in-stream flow."

The flow rates proposed are excessive and unnecessary for the use applied for. Water use under the in-stream right, if approved, would adversely affect the protestants and other potential water users from the stream by appropriating excess quantities of water and preventing any other new appropriations of water.

V.

*THE APPLICATIONS ARE NOT SUPPORTED BY
COMPETENT TECHNICAL DATA*

Application IS 70094, as submitted by the Oregon Department of Fish & Wildlife (ODF&W) to the Water Resources Department (WRD), failed to include technical data or information to support the flow rates requested by said agency, as required by Oregon Administrative Rule 690-77-020 and Oregon Revised Statute section 537.336.

Protestants requested and received all "material" cited in the proposed order as being provided by the applicant. None of this material meets the requirements of Oregon Administrative Rule 690-77-020 that an application include "a description of the *technical data and methods* used to determine the requested amounts." The only record in support of the application consists of extremely general publications that may or may not have any relevance to the specific stream, conditions, and species in issue. Ultimately, it appears that the applicant proposes to offer one conclusory paragraph in a letter as a substitute for the data required by law.

To the extent that it can be argued that the application is supported by either data or an approved method, the data and method are inadequate to establish the need for the proposed

RECEIVED

OCT 11 1996

-4-

1 flows. In addition, the requested flows are inconsistent with prior statements by ODF&W and
2 other agencies respecting flow needs in the affected stream segments. See Attachments 1 and 2.

3 Further, neither the application nor materials in support of the application take into account
4 potential adverse effects of high flows at certain times of year. For example, water in the system
5 may be too warm for fishes in the stretches affected by the proposed order and in downstream
6 reaches. Requesting high volumes of water at this time thus may amount to a "futile call" or,
7 more precisely, a *detrimental* call. These factors should be analyzed and considered.

8 VI.

9 *THE PROPOSED ORDER IS INCONSISTENT WITH*
10 *WRD'S OBLIGATIONS TO DETERMINE INSTREAM FLOW NEEDS*

11 Oregon Revised Statute section 537.343 provides that the *Director* determines the
12 in-stream flow necessary to protect the uses. Protestants respectfully submit that the proposed
13 order represents an acceptance at face value of the amounts requested in the application. There is
14 no critical analysis. There is no discernible effort even to review the basis on which the request
15 was made. To proceed in this manner would abdicate the statutory obligations of the Director. It
16 would also diminish substantially the confidence of water users in the quality of water rights
17 administration in the state.

18 To the extent that the proposed order is based on an applied methodology, the methodology
19 is flawed.

20 In addition, the hydrologic assumptions (estimated average natural flow) are inaccurate.
21 The record does not reveal the specific methods by which the EANF was derived. To the extent
22 average natural flow is relevant, estimates must be improved.

23 VII.

24 *THE APPLICATIONS UNDERLYING THE*
25 *PROPOSED ORDER IS UNLAWFUL*

26 Protestants are informed that certain flows requested by the applicant are recreation flows.
27 Such requests are unlawful and must be summarily rejected.

28 ODF&W has authority to request in-stream flows for fish, wildlife and aquatic habitat. The
State Parks and Recreation Department, not ODF&W, has authority to request in-stream flows

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

1 for recreation. Or. Rev. Stat. § 537.336. Protestants are informed that certain flows requested
2 by ODF&W in the Klamath River system relate to recreation, and, in turn, that certain proposed
3 orders may include such flows. Protestants understand, for example, that one of the two sets of
4 flows in Application IS 70094 is a recreation flow. The proposed order on IS 70094 includes
5 only one of the two flows in the application. It is the higher flow, which protestants believe to
6 be the recreation flow. It is unclear from the proposed final order whether WRD understands
7 this to be the case, and thus the extent to which this legal defect may affect all of the orders is
8 unknown. In any event, there is no record or technical data that supports these flows for any
9 purpose.

10 VIII.

11 *THE PROPOSED ORDER DISCRIMINATES AGAINST*
12 *CONSUMPTIVE USES OF WATER*

13 The proposed order would dedicate water to one use, at the expense of others. Yet, it is
14 not based on any careful analysis of need. This situation contrasts with the standards to which
15 other uses are held. For example, WRD would not likely grant a permit for new consumptive
16 use based exclusively on a conclusory statement that the applicant needs the amount of water
17 requested. As WRD is aware, irrigation use is subject to careful and ever-increasing scrutiny, to
18 ensure that no more water is devoted to the use than is reasonably needed. The proposed order
19 would apply a different standard to in-stream use, basing the right on a request rather than on a
20 need. To ensure equity and to prevent against the overallocation of water to one use at the
21 expense of others, WRD should not create a lesser standard for in-stream use. WRD must apply
22 the same standards to all uses of water.

23 IX.

24 *THE PROPOSED ORDER FAILS TO TAKE INTO ACCOUNT*
25 *THE PRECEDENTIAL AND OTHER CONSEQUENCES OF*
26 *ANY DETERMINATION REGARDING IN-STREAM FLOWS*

27 The proposed order would have adverse precedential effects. For example, the applicant's
28 April 5, 1996, letter suggests that approving the flows will help prevent species from becoming
listed under the Endangered Species Act. If the order is issued, as proposed, and if some species

RECEIVED

OCT 11 1996

1 is some day listed, it is certain that it will be argued that irrigators must give up water to meet the
2 in-stream flows, irrespective of priority.² This is especially a concern for irrigators who receive
3 water through federal facilities.

4 There already exists a specific example to demonstrate this point. The FERC license for the
5 hydroelectricity facilities at Iron Gate Dam on the Klamath River in California specifies minimum
6 flow releases. These flows are subordinate to use of water in the Klamath Project. They were
7 not based on science. Yet, political and regulatory pressure is applied, with considerable
8 success, to force the Klamath Project to supply water to meet these flows. As of the date of this
9 Protest, the adherence to those arbitrary flows is depleting available supplies.

10 In short, numbers take on a life of their own. Actions have consequences. Uncritical and
11 unthinking adoption of flows proposed by the applicant is unacceptable.

12 X.

13 *CONCLUSION*

14 The Director should deny the application and return it to the applicant. In the alternative,
15 the issues raised here should be considered part of a contested case hearing.

16 Respectfully submitted,

17 De CUIR & SOMACH
18 A Professional Corporation

19 DATED: 10/9/96.

20 By Donald B. Mooney
Donald B. Mooney

21 Attorneys for Klamath Water Users Association
22 and Tulelake Irrigation District

23 DATED: 10/10/96.

24 William M. Ganong
William M. Ganong

25 Attorney for Klamath Irrigation District

26
27 ² The flows could have implications for other statutes such as significance determinations under the
28 National Environmental Policy Act, or similar statutes.

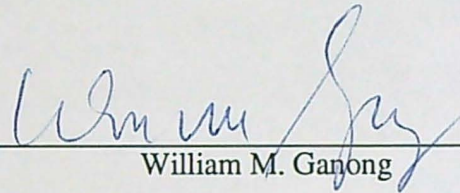
OCT 11 1996

CERTIFICATE OF SERVICE

I hereby certify that on the 10th day of October, 1996, I served a true and accurate copy of the foregoing Protest to the Proposed Final Order on the applicant by mailing said copy by first class mail, postage prepaid, by depositing said copy in the United States Post Office in Klamath Falls, Oregon, addressed as set forth below:

Oregon Department of Fish & Wildlife
2501 SW First Avenue
P.O. Box 59
Portland, Oregon 97207

By


William M. Ganong

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

Oregon

BUREAU OF
RECLAMATION
RECEIVED

DEPARTMENT OF

FISH AND

WILDLIFE

Klamath District Office

1-23-92

JAN 27 1992

KLAMATH FALLS, OREGON



Mr. Jim Bryant
Klamath Project
Bureau of Reclamation
6600 Washburn Way
Klamath Falls, OR 97603

Dear Jim:

With the ongoing drought conditions, I understand your problem in trying to achieve the lake level objective on Upper Klamath Lake to meet the needs of spawning Lost River suckers in March. I have considered your inquiry on whether the flow could be further reduced in the Keno reach of Klamath River. As you know, the Department's recommendation has been for a minimum of 250 cfs. In last year's deliberations, we did suggest that 200 cfs was probably acceptable during the "cool spring months". Our main concern has been for the effects of the low flows during the warmer months. We haven't had experience with such low flows in the winter when there could be concerns with low temperatures, habitat impacts and trout migration.

In the interest of the trade-off to meet the objectives for sucker spawning, I agree to temporary reduction of flow in the Keno reach of Klamath River to as low as 200 cfs from the present through the month of March of this year. I would like to reserve the option to reconsider that position should we detect a problem with the wild trout population as a result of that lower flow.

I appreciate your effort to meet objectives for fish resources. I hope these adjustments get the job done. Please keep me posted on the flows and operations as the season goes on.

Sincerely,

John Fortune
District Fish Biologist
Klamath District

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

EXHIBIT 9

1400 Miller Island Rd
Klamath Falls, OR 97
(503) 883-5732

STATE OF CALIFORNIA—THE RESOURCES AGENCY

GEORGE DEUKMEJIAN, Governor

DEPARTMENT OF FISH AND GAME

601 LOCUST STREET
 REDDING, CA 96001
 (916) 225-2300



BUREAU OF RECLAMATION

May 9, 1988

RECEIVED

MAY 11 1988

Mr. Kirk C. Rodgers
 Klamath Project Manager
 U. S. Bureau of Reclamation
 6600 Washburn Way
 Klamath Falls, OR 97603-9365

KLAMATH FALLS, OREGON

Dear Mr. Rodgers:

This is in response to your request for Department of Fish and Game recommendations with regard to your proposal to reduce flows in the Klamath River below Iron Gate Dam below that required by the California water rights permit and the Federal Energy Regulatory Commission. This request was conveyed to staff biologists Phil Baker and David Hoopaugh at the meeting held in your office on April 27, 1988.

According to your April 8, 1988 letter to Stan deSousa of Pacific Power, it is your objective to "...conserve up to 100,000 acre-feet in the Upper Klamath Lake..." during the remainder of this irrigation season. It is my understanding that you proposed on April 27, four alternatives which would save from 110,000 to 170,200 acre-feet of water. We have reviewed these proposals and developed the following recommendations based on your stated objective of conserving 100,000 acre-feet and your "Case 1" proposal which is closest to this objective.

Unfortunately, there is virtually no data available regarding the relationship between streamflow and various fishery habitat conditions in the Klamath River downstream from Iron Gate. After discussing your proposed 30% reduction with several state and federal biologists, we have developed the following recommended flow schedule which, we hope, will best facilitate downstream migration of juvenile salmon in May and upstream migration and spawning of adults in August, September and October:

May	June	July	Aug	Sep	Oct
700	400	300	1000	1000	1000

October release flows may be reduced to 800 cfs if drought conditions continue at that time.

We also recommend that release flows be returned to normal if water storage in Upper Klamath Lake reenters your acceptable storage "envelope" at any time after August 1.

While we recognize the Bureau's responsibilities under the provisions of the Klamath River Basin Compact to serve domestic and irrigation uses as the highest priority, we emphasize that recreational use, including fish and wildlife, is third priority. In the future, it would seem that such drastic reductions in flow releases would be more palatable if higher uses also shared whatever shortages in water may occur. A 30% reduction in flows, for example,

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
 SALEM, OREGON

-2-

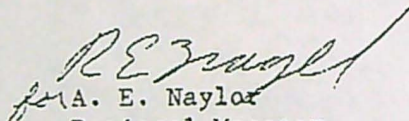
would be far more acceptable if it were accompanied by a reduction of 15% in irrigation deliveries.

We have one other thought with respect to dealing with future water shortages that may occur. That would be for the Bureau to require the reservation of the 25,400 acre-feet of water (between elevations 4143.0 and 4143.3) that is normally provided to Pacific Power for its purposes. Since power generation is fifth in priority under the Compact, it seems prudent to us to save that block of water in dry years for higher uses.

Finally, as I noted above, there is a serious shortage of information with respect to streamflow in the Klamath River and fish habitat conditions. With the recent development of instream flow assessment methodologies, it seems the time is ripe to conduct such a study to evaluate all biological aspects of stream flow releases from the Upper Klamath Basin. Could we interest you in beginning discussions of such a study?

Thank you, Mr. Rodgers, for the opportunity to review your proposal and to make these recommendations. If you have any questions regarding our comments, please feel free to contact Mr. Hoopaugh at (916) 225-2373. In the meantime, I hope you will give our recommendations every consideration. Hopefully, we can get through this year without catastrophic consequences and perhaps even gain some information that can be used to more intelligently make future decisions regarding streamflow releases. We look forward to hearing from you about the possibility of undertaking a Klamath River instream flow study.

Sincerely,


for A. E. Naylor
Regional Manager

cc: U. S. Fish and Wildlife Service
Portland, Sacramento

National Marine Fisheries Service
Santa Rosa

Pacific Power
Portland

State Water Resources Control Board
Division of Water Rights
Sacramento

Federal Energy Regulatory Commission
Portland

R. Iverson - U. S. Fish and Wildlife Service
Yreka

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON



United States Department of the Interior

BUREAU OF RECLAMATION

Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603
(541) 883-6935

OCT 09 1996

RECEIVED

OCT 11 1996

WATER RESOURCES DEPT.
SALEM, OREGON

IN REPLY REFER TO:

KO-400
WTR 4.10

CERTIFIED RETURN RECEIPT REQUESTED

Oregon Water Resources Department
Water Rights and Adjudications Branch
Steven P. Applegate, Administrator
158 12th Street NE
Salem, OR 97310

Subject: Protest of Proposed Final Order - Water Right Application 70094

Dear Mr Applegate:

As you are aware, the Klamath River Adjudication is well underway. Reclamation fully intends to file for both a storage and a use right for waters of the Klamath River and Upper Klamath Lake. Granting the subject right to the State for instream flow at this time would be premature and should be held until after the present adjudication is completed. We are concerned that sufficient study of the proposed action has not been completed.

Flows below John C. Boyle Power Plant are dependant upon upstream releases and downstream requirements at Iron Gate Dam. Meeting the flow schedule in the proposed certificate would, or could, place increased demands on Upper Klamath Lake. During a low water year we understand that upstream needs may dictate a lower flow below Boyle. However, during normal operations, Reclamation does not directly dictate to PacifiCorp operational decisions. We are concerned that PacifiCorp would be directed to comply with the instream flow, and that would result in flows below Iron Gate in excess of Federal Energy Regulatory Commission requirements.

Bob Main indicated that the flows shown in the proposed Certificate are minimum instantaneous flows. The present operation of John C. Boyle does not have the flexibility to make that sustained release.

We suggest that a meeting be held in the near future to discuss the instream flow right being requested. PacifiCorp and Reclamation should be included in this meeting, along with appropriate State agencies.

Enclosed is a money order for \$200 to cover fees associated with this protest action.

Sincerely,

James K. Bryant
Chief, Water & Lands Division

Enclosure

cc: (w/o enc.) MP-105, MP-440, Solicitor (S. Palmer)

KB

BUREAU OF RECLAMATION
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603
(541) 883-6935
FAX No. (541) 884-9053



To: Mike
M. +
Adam

Please note that our Area Code changed effective November, 1995 to 541. Thanks.

FACSIMILE TRANSMISSION COVER SHEET

DATE: October 9, 1996 FAX NO. (503) 378-2496
TO: Steve Applegate

FROM: Trena Baker KO- 440
Note: Letter and \$200 being Fed Ex'd to you
regarding the BOR Protest to this proposed
Final Order.



This transmission contains 2 pages
including this cover sheet. If any portion of
this facsimile needs to be retransmitted, please
call:

(541) 883-6935



United States Department of the Interior

BUREAU OF RECLAMATION

Klamath Basin Area Office
6600 Washington Way
Klamath Falls, Oregon 97603
(541) 883-6935

OCT 09 1996

IN REPLY REFER TO:

KO-400
WTR 4.10

CERTIFIED RETURN RECEIPT REQUESTED

Oregon Water Resources Department
Water Rights and Adjudications Branch
Steven P. Applegate, Administrator
158 12th Street NE
Salem, OR 97310

Subject: Protest of Proposed Final Order - Water Right Application 70094

Dear Mr Applegate:

As you are aware, the Klamath River Adjudication is well underway. Reclamation fully intends to file for both a storage and a use right for waters of the Klamath River and Upper Klamath Lake. Granting the subject right to the State for instream flow at this time would be premature and should be held until after the present adjudication is completed. We are concerned that sufficient study of the proposed action has not been completed.

Flows below John C. Boyle Power Plant are dependant upon upstream releases and downstream requirements at Iron Gate Dam. Meeting the flow schedule in the proposed certificate would, or could, place increased demands on Upper Klamath Lake. During a low water year we understand that upstream needs may dictate a lower flow below Boyle. However, during normal operations, Reclamation does not directly dictate to PacifiCorp operational decisions. We are concerned that PacifiCorp would be directed to comply with the instream flow, and that would result in flows below Iron Gate in excess of Federal Energy Regulatory Commission requirements.

Bob Main indicated that the flows shown in the proposed Certificate are minimum instantaneous flows. The present operation of John C. Boyle does not have the flexibility to make that sustained release.

We suggest that a meeting be held in the near future to discuss the instream flow right being requested. PacifiCorp and Reclamation should be included in this meeting, along with appropriate State agencies.

Enclosed is a money order for \$200 to cover fees associated with this protest action.

Sincerely,

James K. Bryant
Chief, Water & Lands Division

Enclosure

cc: (w/o enc.) MP-105, MP-440, Solicitor (S. Palmer)

70094
BUREAU OF RECLAMATION
Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603
(541) 883-6935
FAX No. (541) 884-9053



To: Mike
M. +
Adam

Please note that our Area Code changed effective November, 1995 to 541. Thanks.

FACSIMILE TRANSMISSION COVER SHEET

DATE: October 9, 1996 FAX NO. (503) 378-2496
TO: Steve Applegate

FROM: Trena Baker KO- 440

Note: Letter and \$200 being Fed Ex'd to you
regarding the BOR Protest to this proposed
Final Order.



This transmission contains 2 pages
including this cover sheet. If any portion of
this facsimile needs to be retransmitted, please
call:

(541) 883-6935



IN REPLY REFER TO:

KO-400
WTR 4.10

United States Department of the Interior

BUREAU OF RECLAMATION

Klamath Basin Area Office
6600 Washburn Way
Klamath Falls, Oregon 97603
(541) 883-6935

OCT 09 1996

CERTIFIED RETURN RECEIPT REQUESTED

Oregon Water Resources Department
Water Rights and Adjudications Branch
Steven P. Applegate, Administrator
158 12th Street NE
Salem, OR 97310

Subject: Protest of Proposed Final Order - Water Right Application 70094

Dear Mr Applegate:

As you are aware, the Klamath River Adjudication is well underway. Reclamation fully intends to file for both a storage and a use right for waters of the Klamath River and Upper Klamath Lake. Granting the subject right to the State for instream flow at this time would be premature and should be held until after the present adjudication is completed. We are concerned that sufficient study of the proposed action has not been completed.

Flows below John C. Boyle Power Plant are dependant upon upstream releases and downstream requirements at Iron Gate Dam. Meeting the flow schedule in the proposed certificate would, or could, place increased demands on Upper Klamath Lake. During a low water year we understand that upstream needs may dictate a lower flow below Boyle. However, during normal operations, Reclamation does not directly dictate to PacifiCorp operational decisions. We are concerned that PacifiCorp would be directed to comply with the instream flow, and that would result in flows below Iron Gate in excess of Federal Energy Regulatory Commission requirements.

Bob Main indicated that the flows shown in the proposed Certificate are minimum instantaneous flows. The present operation of John C. Boyle does not have the flexibility to make that sustained release.

We suggest that a meeting be held in the near future to discuss the instream flow right being requested. PacifiCorp and Reclamation should be included in this meeting, along with appropriate State agencies.

Enclosed is a money order for \$200 to cover fees associated with this protest action.

Sincerely,

James K. Bryant
Chief, Water & Lands Division

Enclosure

cc: (w/o enc.) MP-105, MP-440, Solicitor (S. Palmer)

Bailey; IWR PFO Comments; Klamath and Lake Basins

Page 2

October 4, 1996

ODFW COMMENTS AND RECOMMENDATIONS
INSTREAM WATER RIGHT PROPOSED FINAL ORDERS

WRD BASIN: Klamath and Lake

ODFW FISH DISTRICT: Klamath

Note: unless otherwise specified, all comments/changes apply to both the Proposed Final Order (PFO) and the draft Certificate.

1) 70094

Two requested flow regimes are listed in the PFO, one for recreation and one for fish. Only one proposed flow regime is listed in the PFO, the higher one, for recreational use. On the draft Certificate, only fish use is specified, but the flow regime for recreational use is proposed. It seems both flow regimes and uses should be listed in the Certificate. It is unclear how WRD would regulated these rights, but it does seems necessary to have them clearly spelled out in the Certificate.

Further, in the case of requested flows for fish, EANF and unappropriated flows are greater in all months, and therefore, the statutory presumption is established for fish uses. There is are some months where requested recreation flows exceed EANF and this is where the presumption is not established, but it is only for one of the uses.

2) 70486

The source name and reach descriptions are incorrect. The source name should be:

DREWS CREEK TRIB GOOSE LAKE.

The reach description should be:

DREWS CREEK FROM HEADWATERS RIVER MILE 0.0 (SECTION 34, T37S, R17E); TO QUARTZ CREEK (NESW, SECTION 18, T38S, R17E).

3) 70661

The Range number in the upstream end of the reach description should be:

... (SENE, SECTION 8, T36S, R18E); ...

4) 70805

Requested flow in June and the Proposed flow in June on the draft Certificate should be: 120 cfs.

5) 70813

COPY CHECK-OFF SHEET FOR PROPOSED FINAL ORDERS

CC: FILE # IS 70094

WATERMASTER # DEL SPARKS

REGIONAL MANAGER: BOB MAIN

ODF&W - County: Klamath

DEQ

PARKS

OTHER STATE AGENCY IF NECESSARY:

DIVISION 33 LIST: COLUMBIA RIVER INTERTRIBAL FISH COMMISSION; U.S. FISH & WILDLIFE;
(CHECK ONLY IF APPLICABLE) NORTHWEST POWER PLANNING COUNCIL & NATIONAL MARINE FISHERIES

POWER BUILDER UPDATER;

WATER FOR LIFE (TODD HEIDGERKEN)

OTHER ADDRESSES OF PEOPLE WHO PAID THE \$10 FEE:

PEOPLE WITH OBJECTIONS, COMMENTS OR REQUESTED COPY W/O \$10 (SEND THE \$10 LETTER):

CASEWORKER : CINDY SMITH

Michael Mattick, 01:38 PM 10/1/96 , No Subject

Date: Tue, 1 Oct 1996 13:38:27 -0700 (PDT)
X-Sender: matticmj@mailhub.wrd.state.or.us
To: Cindy.S.SMITH@wrdd.state.or.us
From: Michael Mattick <Michael.J.MATTICK@wrdd.state.or.us>

feh

>From: Michael Mattick <Michael.J.MATTICK@wrdd.state.or.us>
>Subject: IS70094 Joint IWR app with ODPR

>
>>Date: Tue, 1 Oct 1996 10:10:29 -0700
>>X-Sender: krugerr@eagle.dfw.state.or.us
>>To: matticmj@chetco.wrdd.state.or.us
>>From: Rick Kruger <rick.kruger@state.or.us>
>>Subject: IS70094 Joint IWR app with ODPR
>>Cc: Dwight.W.FRENCH@wrdd.state.or.us, Marc.LIVERMAN@state.or.us

>>This is follow up clarification about one of the IWR apps on the list I just
>>sent today about the unappropriated flows and the presumption.

>>
>>Application **IS70094** was a joint application for the mainstem Klamath River
>>from Boyle PH to the CA stateline. ODFW's interest is primarily fish &
>>flows were listed for that use. ODPR's interest is recreational boating and
>>fishing and flows were listed for that use.

>>
>>PFO IS70094 lists both flow regimes as REQUESTED but only proposes to issue
>>a right for the recreational flow regime. This may not seem like a problem,
>>but the draft Certificate is confusing because:

>>
>>1) it only lists the fish use - no mention is made of the
>>recreational use, and

>>
>>2) it only lists the recreational flows - no mention is made of
>>flows for fish.

>>
>>In the case of the recreational flows, the REQUESTED exceeds EANF and
>>therefore the presumption does not apply. However, the REQUESTED fish flows
>>DO NOT exceed EANF or unappropriated flows and therefore the presumption
>>DOES APPLY to this flow regime.

>>
>>Seems like some other method of handling this application is needed.

>>
>>Is it possible to list both uses and flow regimes on the same Certificate,
>>or should they be split into separate certificates, one for fish, one for
>>recreation? Handling them both in the same Certificate is complicated by
>>the fact that the presumption applies to one but not the other.

>>
>>I'd like to hear your thoughts on this one too.

>>

yes, they can be listed
on one certifi.

Printed for Cindy S Smith <Cindy.S.SMITH@wrdd.state.or.us>

April 29, 1996

Director
Oregon Department of Fish and Wildlife
2501 SW First Ave
PO Box 59
Portland OR 97207

WATER
RESOURCES
DEPARTMENT

Reference: Instream water rights in the Klamath Basin,
Files 70094, 70799, 70800, 70808, 70809, 70813-
70815, 70817, 70819, 70820, 70830-70832

Dear Oregon Department of Fish and Wildlife:

This document, called an "Initial Review", is to inform you of the potential limitations to your proposed instream water right and to describe some of your options. Based on the information you have supplied, the Water Resources Department has made several determinations:

The referenced applications are complete and not defective.

The proposed use is not prohibited by law;

The instream use is allowed under ORS 542.620, the Klamath River Compact;

1. Application 70094 Priority date: 10/13/89
JOINT APPLICATION FROM ODFW AND OREGON PARKS AND RECREATION DEPT.
KLAMATH R TRIB PACIFIC OCEAN
KLAMATH COUNTY

KLAMATH R FM THE CONFLUENCE OF JC BOYLE POWERHOUSE TAILRACE &
THE NATURAL CHANNEL AT R.M. 220.4 (NWNW, S 13, T40S, R6E WM);
TO THE OREGON/CALIFORNIA BORDER R.M. 209.3 (NWNE, S13, T41S, R5E WM)

a. The amount of water requested for instream use:

Recreation

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500

Fish life and fish habitat

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
550	550	550	550	550	550	550	550	550	550	550	550

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2170	2290	2840	3390	3230	2780	1900	1330	1160	1260	1500	1890



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

c. Allowable water use

Recreation

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1330	1160	1260	1500	1500

Fish life and fish habitat

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
550	550	550	550	550	550	550	550	550	550	550	550

2. Application 70799

Priority date: 10/26/90

S FK SPRAGUE R TRIB SPRAGUE R
LAKE COUNTY

SOUTH FORK SPRAGUE RIVER FROM CAMP CREEK AT RIVER MILE 28.7 (SESW, SECTION 14, TOWNSHIP 36S, RANGE 16E WM); CREEK RIVER MILE 21.6 (NWSW, SECTION 10, TOWNSHIP 37S, RANGE 16E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
40	40	40	40	40	20	10	10	10	40	40	40

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
11.9	12.9	17.6	54.4	92	37.1	9.61	6.58	7.68	9.72	11.5	12.5

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
11.9	12.9	17.6	40	40	20	9.61	6.58	7.68	9.72	11.5	12.5

3. Application 70800

Priority date: 10/26/90

S FK SPRAGUE R TRIB SPRAGUE R
LAKE COUNTY

SOUTH FORK SPRAGUE RIVER FROM THE HEADWATERS AT RIVER MILE 32.0 (NENE, SECTION 2, TOWNSHIP 36S, RANGE 16E WM); TO CAMP CREEK AT RIVER MILE 28.7 (SESW, SECTION 14, TOWNSHIP 36S, RANGE 16E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
6	6	10	10	10	7	4	4	4	10	6	6

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.52	3.66	4.91	15.7	29.3	12.3	3.22	2.16	2.51	3.11	3.58	3.78

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.52	3.66	4.91	10	10	7	3.22	2.16	2.51	3.11	3.58	3.78

4. Application 70808

Priority date: 10/26/90

DEMING CR TRIB S FK SPRAGUE R
KLAMATH COUNTY

DEMING CREEK FROM THE HEADWATERS (SECTION 1, TOWNSHIP 36S, RANGE 15E WM); TO ROCKY FLAT CREEK (DRAINING CAMPBELL RESERVOIR) (SENE, SECTION 24, TOWNSHIP 36S, RANGE 14E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	10	10	10	5	1	1	5	10	10	10

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7.72	10.1	18	66.4	75.2	18.4	3.18	2.34	2.89	4.05	5.92	7.48

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
7.72	10	10	10	10	5	1	1	2.89	4.05	5.92	7.48

5. Application 70809

Priority date: 10/26/90

FISHHOLE CR TRIB S FK SPRAGUE R
KLAMATH COUNTY

FISHHOLE CREEK FROM BRIGGS SPRINGS (NENW, SECTION 35, TOWNSHIP 38S, RANGE 15E WM); TO THE MOUTH AT RIVER MILE 0.0 (NWSE, SECTION 27, TOWNSHIP 36S, RANGE 14E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	10	10	10	7	4	4	4	10	6	6

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
11.5	25.6	48.2	55.1	33.3	23.5	10.9	5.02	4.81	5.43	5.35	8.08

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	10	10	10	7	4	4	4	5.43	5.35	6

6. Application 70813

Priority date: 10/26/90

UPPER KLAMATH L TRIB KLAMATH R
KLAMATH COUNTY

LINK RIVER FROM LINK RIVER DAM (SECTION 30, TOWNSHIP 38S, RANGE 9E WM); TO LAKE EWAUNA AT RIVER MILE 0.0 (SECTION 32, TOWNSHIP 38S, RANGE 9E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
60	60	80	80	80	30	20	40	30	30	30	50

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2120	2210	2680	3210	3120	2740	1880	1310	1140	1240	1470	1760

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
60	60	80	80	80	30	20	40	30	30	30	50

7. Application 70814

Priority date: 10/26/90

LONG CR TRIB SYCAN R
KLAMATH COUNTY

LONG CREEK FROM UNNAMED TRIBUTARY (SW1/4, SECTION 1, TOWNSHIP 33S, RANGE 15E WM); TO THE MOUTH AT RIVER MILE 0.0 (SENE, SECTION 36, TOWNSHIP 32S, RANGE 14E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	6	6	6	3	1	1	1	6	3	3

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4	4.83	8.5	28.5	58.4	21.1	3.83	2.28	2.45	2.89	3.59	4.22

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	6	6	6	3	1	1	1	2.89	3	3

8. Application 70815

Priority date: 10/26/90

N FK SPRAGUE R TRIB SPRAGUE R
LAKE COUNTY

NORTH FORK SPRAGUE RIVER FROM HEAD OF RIVER SPRING AT RIVER MILE 34.0 (SWSW, SECTION 15, TOWNSHIP 35S, RANGE 16E WM) TO SHEEPY CREEK AT RIVER MILE 17.5 (SENW, SECTION 15, TOWNSHIP 35S, RANGE 15E WM)

- a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
30	30	30	30	30	20	10	10	10	30	30	30

- b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
71.2	62.7	52.5	97.8	199	143	79	66.2	76.8	88.9	86.3	79.2

- c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
30	30	30	30	30	20	10	10	10	30	30	30

9. Application 70817

Priority date: 10/26/90

PARADISE CR TRIB SKULL CR
KLAMATH COUNTY

PARADISE CREEK FROM HEADWATER SPRINGS (NENE, SECTION 21, TOWNSHIP 34S, RANGE 15E WM) TO THE MOUTH AT RIVER MILE 0.0 (SWNE, SECTION 22, TOWNSHIP 33S, RANGE 15E WM)

- a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	6	6	6	3	1	1	1	6	3	3

- b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3.15	3.82	6.91	24.3	49.2	17	2.94	1.75	1.89	2.23	2.81	3.32

- c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	6	6	6	3	1	1	1	2.23	2.81	3

10. Application 70819

Priority date: 10/26/90

SUN CR TRIB ANNIE CR
KLAMATH COUNTY

SUN CREEK FROM CRATER LAKE NATIONAL PARK BOUNDARY (SENW, SECTION 17, TOWNSHIP 32S, RANGE 7.50E WM); TO THE MOUTH AT RIVER MILE 0.0 (SECTION 4, TOWNSHIP 33S, RANGE 7.50E WM)

- a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	10	10	10	10	8	8	8/15	15	15/10	10

- b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10.3	9.49	9.86	14.9	26.6	32.8	27	16.9	13.4	16	12.7	13.8

- c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	9.49	9.86	10	10	10	8	8	8/13.4	15	12.7/10	10

11. Application 70820

Priority date: 10/26/90

SYCAN R TRIB SPRAGUE R
LAKE COUNTY

SYCAN RIVER FROM SOUTH FORK SYCAN RIVER AT RIVER MILE 68.2 (SECTION 35, TOWNSHIP 33S, RANGE 16E WM); TO PARADISE CREEK AT RIVER MILE 58.2 (SWNE, SECTION 22, TOWNSHIP 33S, RANGE 15E WM)

- a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
15	15	20	20	20	15	12	10	10	20	15	15

- b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10.5	12	18.2	50.9	116	54.8	13	7.42	7.95	8.99	10.2	11.3

- c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10.5	12	18.2	20	20	15	12	7.42	7.95	8.99	10.2	11.3

12. Application 70830

Priority date: 10/26/90

SEVENMILE CR TRIB UPPER KLAMATH L
KLAMATH COUNTY

SEVENMILE CREEK FROM DRY CREEK AT RIVER MILE 17.9 (NWSW, SECTION 11, TOWNSHIP 33S, RANGE 6E WM); TO THE MOUTH AT RIVER MILE 0.0 (SWNE, SECTION 9, TOWNSHIP 35S, RANGE 7.50E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
15	15	15	15	15	12	10	10	8	15	15	15

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
90.3	93	97.3	102	106	105	71.1	59.9	64	73.2	88.7	90.5

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
15	15	15	15	15	12	10	10	8	15	15	15

13. Application 70831

Priority date: 10/26/90

ANNIE CR TRIB WOOD R
KLAMATH COUNTY

ANNIE CREEK FROM EAST FORK ANNIE CREEK AT RIVER MILE 13.0 (SECTION 18, TOWNSHIP 31S, RANGE 6E WM); TO THE MOUTH AT RIVER MILE 0.0 (SESW, SECTION 10, TOWNSHIP 33S, RANGE 7.50E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
40	40	40	40	40	30	20	20	20	40	40	40

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
44.4	41.1	42.7	64.3	115	142	117	73	57.9	69.4	54.8	59.7

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
40	40	40	40	40	30	20	20	20	40	40	40

14. Application 70832

Priority date: 10/26/90

BROWNSWORTH CR TRIB S FK SPRAGUE R
KLAMATH COUNTY

BROWNSWORTH CREEK FROM HAMMOND CREEK AT RIVER MILE 3.0 (NWNE, SECTION 31, TOWNSHIP 36S, RANGE 16E WM); TO THE MOUTH AT RIVER MILE 0.0 (SENW, SECTION 2, TOWNSHIP 37S, RANGE 15E WM)

a. The amount of water requested for instream use:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
10	10	10	10	10	6	3	1	1	3	10	10

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
8.36	9.64	14.2	45.1	66.5	23.2	5.39	3.81	4.52	5.91	7.46	8.55

c. Allowable water use

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
8.36	9.64	10	10	10	6	3	1	1	3	7.46	8.55

NOTE: Exceptions to the instream water right flows are likely to appear on the certificate if one is issued. The Department is working on the exact wording of the conditions. The conditions are likely to allow some amount of additional appropriations for human and livestock consumption.

Your applications can be moved to the next phase of the water rights application review process.

Please reference the application number when sending any correspondence regarding the conclusions of this initial review. Comments received within the comment period, will be evaluated at the next phase of the process.

At this time, you must decide whether to proceed or to withdraw your applications as described below.

Withdrawal:

If you choose not to proceed, you may withdraw your application. To accomplish this you must notify the Department in writing by May 13, 1996. For your convenience you may use the enclosed "STOP PROCESSING" form.

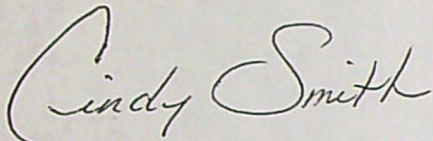
To Proceed With Your Application:

If you choose to proceed with an application, you do not have to notify the Department. Your applications will automatically be placed on the Department's Public Notice to allow others the opportunity to comment. After the comment period the Department will complete a public interest review and issue a proposed final order.

If you have any questions:

Feel free to call Michael Mattick at (503) 378-8455 ext. 276 or 1 (800) 624-3199 if you have any questions. Please have your application number(s) available if you call.

Sincerely,

A handwritten signature in cursive script that reads "Cindy Smith". The signature is written in dark ink and is positioned above the printed name and title.

Cindy Smith
Initial Review Team

cc: Regional Manager, Watermaster, Water Availability
Section
enclosures: Stop Processing Form

April 29, 1996

Director
Oregon Department of Parks and Recreation
1115 Commercial Street NE
Salem OR 97310-1001

WATER
RESOURCES
DEPARTMENT

Reference: Instream water rights in the Klamath Basin,
File 70094

Dear Oregon Department of Parks and Recreation:

This document, called an "Initial Review", is to inform you of the potential limitations to your proposed instream water right and to describe some of your options. Based on the information you have supplied, the Water Resources Department has made several determinations:

The referenced applications are complete and not defective.

The proposed use is not prohibited by law;

The instream use is allowed under ORS 542.620, the Klamath River Compact;

1. Application 70094 Priority date: 10/13/89
JOINT APPLICATION FROM ODFW AND OREGON PARKS AND RECREATION DEPT.
KLAMATH R TRIB PACIFIC OCEAN
KLAMATH COUNTY

KLAMATH R FM THE CONFLUENCE OF JC BOYLE POWERHOUSE TAILRACE &
THE NATURAL CHANNEL AT R.M. 220.4 (NWNW, S 13, T40S, R6E WM);
TO THE OREGON/CALIFORNIA BORDER R.M. 209.3 (NWNE, S13, T41S, R5E WM)

a. The amount of water requested for instream use:

Recreation

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500

Fish life and fish habitat

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
550	550	550	550	550	550	550	550	550	550	550	550

b. The estimated average natural flow:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2170	2290	2840	3390	3230	2780	1900	1330	1160	1260	1500	1810



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

c. Allowable water use

Recreation

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1330	1160	1260	1500	1500

Fish life and fish habitat

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
550	550	550	550	550	550	550	550	550	550	550	550

NOTE: Exceptions to the instream water right flows are likely to appear on the certificate if one is issued. The Department is working on the exact wording of the conditions. The conditions are likely to allow some amount of additional appropriations for human and livestock consumption.

Your applications can be moved to the next phase of the water rights application review process.

Please reference the application number when sending any correspondence regarding the conclusions of this initial review. Comments received within the comment period, will be evaluated at the next phase of the process.

At this time, you must decide whether to proceed or to withdraw your applications as described below.

Withdrawal:

If you choose not to proceed, you may withdraw your application. To accomplish this you must notify the Department in writing by **May 13, 1996**. For your convenience you may use the enclosed "STOP PROCESSING" form.

To Proceed With Your Application:

If you choose to proceed with an application, you do not have to notify the Department. Your applications will automatically be placed on the Department's Public Notice to allow others the opportunity to comment. After the comment period the Department will complete a public interest review and issue a proposed final order.

If you have any questions:

Feel free to call Michael Mattick at (503) 378-8455 ext. 276 or 1 (800) 624-3199 if you have any questions. Please have your application number(s) available if you call.

Sincerely,

Cindy Smith
Initial Review Team

cc: Regional Manager, Watermaster, Water Availability
Section

enclosures: Stop Processing Form

March 8, 1995

Karl G. Anuta, Esq.
Larry N. Sokol & Associates
735 SW First Avenue
Portland, OR 97204

RE: Application IS 70094

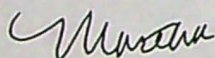
Dear Karl:

I am sorry that you did not receive previous updates regarding the status of the above-referenced application. It is one of 36 instream water right applications in the Klamath Basin that have not yet had a technical review issued. We expect we will begin issuing technical reviews by late Summer, 1995, upon completion of water availability data for the basin.

The file has copies of your letters of November 29, 1990, August 16, 1991, and January 11, 1995. You will receive a copy of the appropriate correspondence when it is issued.

If you have any questions, please give me a call.

Sincerely,



Martha O. Pagel
Director

MOP:DF/dpc.272
cc: Water Rights Division



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

RECEIVED

JAN 12 1995

JOLLES, SOKOL & BERNSTEIN, P.C.

ATTORNEYS AT LAW

721 SOUTHWEST OAK STREET
PORTLAND, OREGON 97205-3791



BERNARD JOLLES
LARRY N. SOKOL
HARLAN BERNSTEIN
MICHAEL T. GARONE
EVELYN CONROY SPARKS *
KARL G. ANUTA

* ALSO MEMBER OF
WASHINGTON STATE BAR

WATER RES. RES. DEPT.
SALEM, OREGON
TELEPHONE
(503) 228-6474
FACSIMILE
(503) 228-0836

August 16, 1991

Mike Mattick
Oregon Water Resources Dept.
3850 Portland Road, NE
Salem, OR 97303

Re: Klamath River Instream Water Right Application No. 70094

Dear Mike:

I represent a number of conservation groups who are concerned with the above-referenced instream water right. Attached is a copy of a November 29, 1990 letter that I wrote to Jake Szramek on this matter.

To-date, I have not received a response. Moreover, I have not even heard from the Department on this matter, although I requested that I be placed on the mailing list. Please advise me immediately of the status of this instream water right and the reason, if any, why it has not been issued yet.

As you know, this right was applied for in October of 1989. Do you think most private irrigation interests would wait for almost three full years for a right without any action being taken - not even a contest case scheduled? We both know the answer to that question. It is incredible to me that this type of important public right would be allowed to languish for so long.

I look forward to your written response in the very near future. The matter has been back-burnered for way too long. As far as I am aware, the Department has provided no rational reason for not moving forward.¹ We both know that the mere

¹ I am independently aware of a federal court action by the U. S. Government on the Klamath adjudication. However, that involves federal reserve rights and an adjudication, not state instream rights. Such rights can only help, not harm the federal reserve rights.

FILE COPY

Mike Mattick, OWRD
Re: App. 70094
August 16, 1991
Page 2

existence of a controversy is not a rationale for delaying a decision. If anything, existence of controversy is a basis for resolving the dispute more quickly, so that all involved know how to proceed.

Sincerely,

Karl G. Anuta

KGA:pl

cc: Liz Frenkel, The Sierra Club
Bill Bakke, Oregon Trout
Jim Garvey, Save Our Klamath River
David Paul, NEDC
Bob Doppelt, Oregon Rivers Council
Andy Kerr, Oregon Natural Resources Council
Karen Russell, WaterWatch
Ed Goodman, Oregon Legal Services
Adam Berger, SCLDF
Harold Sawyer, DEQ
Al Cook, Parks Department
Al Mirati, ODF&W
Martha Pagel, Natural Resources Assist., Governor's Office
Bill Young, Director, Water Resources Dept.
Lorna Stickel, Water Resources Commission
Paul Koberstein, The Oregonian

LARRY N. SOKOL & ASSOCIATES, P.C.
LAWYERS

LARRY N. SOKOL
KARL G. ANUTA*

RECEIVED

JAN 12 1995

WATER RESOURCES DEPT.
SALEM, OREGON

STROWBRIDGE BUILDING
735 S.W. FIRST AVENUE
PORTLAND, OREGON 97204
(503) 228-6469
FAX (503) 228-6551

*ALSO ADMITTED IN WASHINGTON

January 11, 1995

Martha Pagel, Director
Oregon Water Resources Department
3850 Portland Road NE
Salem, OR 97303

Re: Klamath River Instream Water Right
Application No. 70094

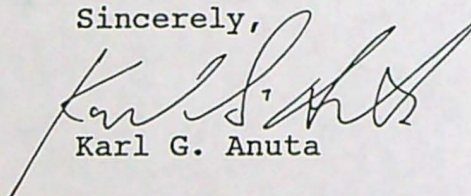
Dear Martha:

I represent the Sierra Club, Oregon Trout, Save Our Klamath River, The Northwest Environmental Defense Center, Pacific Rivers Council, Oregon Natural Resources Council, and American Rivers. As you may know, all of these groups are strongly opposed to the Salt Caves hydroelectric project.

Enclosed are copies of a November 29, 1990 and August 16, 1991 letter that I wrote to the Water Resources Department trying to determine what was going on with the Klamath River Instream water right. To date, I still do not know what the status of the application is.

I look forward to hearing from you.

Sincerely,



Karl G. Anuta

KGA:pm

cc: Clients, w/enc.
Karen Russell, WaterWatch, w/enc.
Adam Berger, SCLDF, w/enc.
Stephanie Burchfield, ODFW, w/enc.

LARRY N. SOKOL & ASSOCIATES, P.C.
LAWYERS

LARRY N. SOKOL
KARL G. ANUTA*

RECEIVED

JAN 12 1995

WATER RESOURCES DEPT.
SALEM, OREGON

STROWBRIDGE BUILDING
735 S.W. FIRST AVENUE
PORTLAND, OREGON 97204
(503) 228-6469
FAX (503) 228-6551

*ALSO ADMITTED IN WASHINGTON

January 11, 1995

Martha Pagel, Director
Oregon Water Resources Department
3850 Portland Road NE
Salem, OR 97303

Re: Klamath River Instream Water Right
Application No. 70094

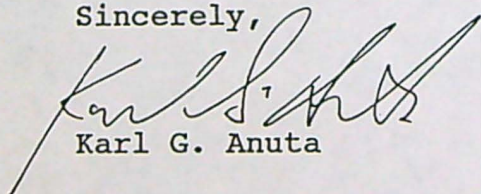
Dear Martha:

I represent the Sierra Club, Oregon Trout, Save Our Klamath River, The Northwest Environmental Defense Center, Pacific Rivers Council, Oregon Natural Resources Council, and American Rivers. As you may know, all of these groups are strongly opposed to the Salt Caves hydroelectric project.

Enclosed are copies of a November 29, 1990 and August 16, 1991 letter that I wrote to the Water Resources Department trying to determine what was going on with the Klamath River Instream water right. To date, I still do not know what the status of the application is.

I look forward to hearing from you.

Sincerely,


Karl G. Anuta

KGA:pm

cc: Clients, w/enc.
Karen Russell, WaterWatch, w/enc.
Adam Berger, SCLDF, w/enc.
Stephanie Burchfield, ODFW, w/enc.

August 18, 1994

WATER
RESOURCES
DEPARTMENT

Bernard L. Simonsen
Rocking AC Ranch
9390 Highway #140 East
Klamath Falls, OR 97498

Reference: File G-12868 - Rocking AC Ranch
File G-13712 - Robert and Helen Cheyne
Instream water right applications - IS-70094,
IS-70799 through IS-70802, IS-70804, IS-70805,
IS-70806, IS-70808, IS-70809, IS-70812 through
IS-70817, IS-70820 through IS-70823 and IS-70832

Dear Mr. Simonsen:

Your letters of February 6, February 16, March 31 and July 21 were recently brought to my attention. I apologize for the delay in responding to your letters in a more timely fashion, however the demands on my time seem to exceed my ability to preform tasks as promptly as I would like.

In regards to Application G-12868, we have received, what we consider two letters of objections to the technical review report. One from WaterWatch of Oregon and your letter of February 6, 1994. Both of these letters will be addressed by staff as soon as time allows.

Application G-13712 in the name of Mr. and Mrs. Cheyne, filed on June 13, 1994, has yet to receive a review by staff and will receive a technical review report in the order it is was received with other requests. Your comment form was received on June 28, 1994 as an interested party and you will be placed on our distribution list to receive a copy of the technical review report when it is completed.

I am enclosing a list of instream water right applications that were submitted by the Oregon Department of Fish and Wildlife for the waters of the Klamath River Basin. I have highlighted the applications in which you expressed an interest in. These applications are referenced above. Please review the list. If there are any other instream water right applications you wish to receive a technical review report and have an opportunity to object, please notify me and I will include you as an interested party.



Commerce Building
158 12th Street NE
Salem, OR 97310-0210
(503) 378-3739
FAX (503) 378-8130

August 18, 1994
Bernard L. Simonsen
Rocking AC Ranch
Page Two

The process for instream water right applications is described by our Division 77 Administrative Rules (copy enclosed), and is similar to our out-of-stream or groundwater application process.

Again I apologize for the delay in responding to your request. Please feel free to contact me if you have any questions and I will be happy to address any concerns you may have.

Respectfully,

Steve Brown
Water Rights Program Analyst
Water Right/Adjudication Division

cc: files

\$RECNO	CERT	PERM	STREAM_CODE	NAME	
18	0	IS	70094	140090	KLAMATH R > PACIFIC OCEAN
183	0	IS	70798	14009000100230030070	CHERRY CR > FOURMILE CR
184	0	IS	70799	14009000200060060440	S FK SPRAGUE R > SPRAGUE R
185	0	IS	70800	14009000200060060440	S FK SPRAGUE R > SPRAGUE R
186	0	IS	70801	14009000200060060440	S FK SPRAGUE R > SPRAGUE R
187	0	IS	70802	14009000200060060440	S FK SPRAGUE R > SPRAGUE R
188	0	IS	70803	1400904160	SPENCER CR > KLAMATH R
189	0	IS	70804	14009000200060060	SPRAGUE R > WILLIAMSON R
190	0	IS	70805	14009000200060060	SPRAGUE R > WILLIAMSON R
191	0	IS	70806	14009000200060060	SPRAGUE R > WILLIAMSON R
192	0	IS	70807	14009000100270020	CROOKED CR > WOOD R
193	0	IS	70808	14009000200060060440010	DEMING CR > S FK SPRAGUE R
194	0	IS	70809	14009000200060060440020	FISHHOLE CR > S FK SPRAGUE R
195	0	IS	70810	14009000100270040	FORT CR > WOOD R
196	0	IS	70811	1400903690	JENNY CR > KLAMATH R
197	0	IS	70812	140090	KLAMATH R > PACIFIC OCEAN
198	0	IS	70813	1400900010	W UPPER KLAMATH R > KLAMATH R
199	0	IS	70814	14009000200060060350170	LONG CR > SYCAN R
200	0	IS	70815	14009000200060060430	N FK SPRAGUE R > SPRAGUE R
201	0	IS	70816	14009000200060060430	N FK SPRAGUE R > SPRAGUE R
202	0	IS	70817	1400900020006006035024040	PARADISE CR > SKULL CR
203	0	IS	70818	14009000200060070	SPRING CR > WILLIAMSON R
204	0	IS	70819	14009000100270050020	SUN CR > ANNIE CR
205	0	IS	70820	14009000200060060350	SYCAN R > SPRAGUE R
206	0	IS	70821	14009000200060060350	SYCAN R > SPRAGUE R
207	0	IS	70822	14009000200060060350	SYCAN R > SPRAGUE R
208	0	IS	70823	14009000200060060350	SYCAN R > SPRAGUE R
209	0	IS	70824	14009000200060	WILLIAMSON R > E UPPER KLAMATH R
210	0	IS	70825	14009000200060	WILLIAMSON R > E UPPER KLAMATH R
211	0	IS	70826	14009000200060	WILLIAMSON R > E UPPER KLAMATH R
212	0	IS	70827	14009000200060	WILLIAMSON R > E UPPER KLAMATH R
213	0	IS	70828	14009000200060	WILLIAMSON R > E UPPER KLAMATH R
214	0	IS	70829	14009000100270	WOOD R > W UPPER KLAMATH R
215	0	IS	70830	14009000100230	SEVENMILE CR > W UPPER KLAMATH R
216	0	IS	70831	14009000100270050	ANNIE CR > WOOD R
217	0	IS	70832	14009000200060060440070	BROWNSWORTH CR > S FK SPRAGUE R

July 12, 1993

Jean Fay Harmon
P.O. Box 762
Neskowin, OR 97149

WATER
RESOURCES
DEPARTMENT

Dear Ms. Harmon:

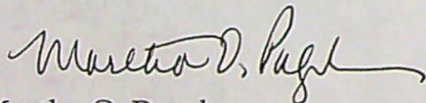
Thank you for your recent letter about the need to protect the Klamath River from the Salt Caves project. As you probably know, the Klamath has been designated a scenic waterway by the people of the state. Accordingly, the State through its various agencies including the Water Resources Department, views the project as prohibited by state law. Although legal struggles continue between the State, the project sponsor and the federal government, the State is strongly committed to this position.

You also urge that an instream water right application for the Klamath River be approved as soon as possible. There are actually two instream water right applications for different stretches of the Klamath River. Unfortunately, these applications like many others, are caught up in an applications backlog brought on by the drought and other factors. The Water Resources Department is working hard to process applications as quickly as possible. A copy of your letter has been placed in the instream application files. This means you will be notified as soon as the applications are "up" for preliminary review and additional public comment.

In the meantime, you may take some comfort from the knowledge that even in the absence of instream water rights, the flows needed for state scenic waterways are already protected from the effects of any additional proposed water uses. That is, state law requires us to assure flows needed for the scenic waterway are met before issuing any new water rights. These flow levels have been identified in close cooperation with other state and federal agencies to protect fish, wildlife and recreation.

Thanks again for your interest in Oregon's water resources. If you have any questions, please feel free to phone Rick Bastasch at 1-800-624-3199, ext. 324.

Sincerely,



Martha O. Pagel
Director

cc: Application File IS 70094
Application File IS 70812

MOP:rab



3850 Portland Rd NE
Salem, OR 97310
(503) 378-3739
FAX (503) 378-8130

RECEIVED

JUN 3 0 1993

WATER RESOURCES DEPT.
SALEM, OREGON

Post Office 762
Neskowin, OR 97149
June 26, 1993

William H. Young, Director
Water Resources Department
3850 Portland Road
Salem, Oregon 97310

Dear Mr. Young:

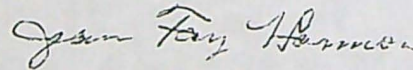
The Upper Klamath River must be saved--for fish, wildlife, and people. Even "civilized" people need the opportunity to enjoy the kind of peace and renewal that only a wilderness environment can provide. Particularly a wilderness beside a mind-boggling rush of free-flowing water. (As you sit in your big city office plowing through all this mail, don't you wish you were in such a place right now? At least there should be comfort in knowing it is still there for you! Just as it should always be, respected and protected.)

We cannot allow continuation of the incredibly disastrous Salt Caves project. The damage caused by implementation of this imbecilic idea is both illogical and immoral. Plus despite the erroneous claims of some short-sighted greedy individuals, the dam isn't even economically sound or practically necessary.

Rivers are not meant to be exploited for the benefit of a few companies or utilities. They are our rivers, our riches--mine and yours.

For the sake of all of us, issue the Scenic Waterway in-stream water right for Oregon's Upper Klamath River now.

Sincerely,



Jean Fay Harmon

IWR 70094

RECEIVED

and TR

JUN 30 1993

WATER RESOURCES DEPT.
SALEM, OREGON

Post Office 762
Neskowin, OR 97149
June 26, 1993

William H. Young, Director
Water Resources Department
3850 Portland Road
Salem, Oregon 97310

Dear Mr. Young:

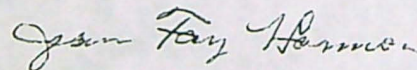
The Upper Klamath River must be saved--for fish, wildlife, and people. Even "civilized" people need the opportunity to enjoy the kind of peace and renewal that only a wilderness environment can provide. Particularly a wilderness beside a mind-boggling rush of free-flowing water. (As you sit in your big city office plowing through all this mail, don't you wish you were in such a place right now? At least there should be comfort in knowing it is still there for you! Just as it should always be, respected and protected.)

We cannot allow continuation of the incredibly disastrous Salt Caves project. The damage caused by implementation of this imbecilic idea is both illogical and immoral. Plus despite the erroneous claims of some short-sighted greedy individuals, the dam isn't even economically sound or practically necessary.

Rivers are not meant to be exploited for the benefit of a few companies or utilities. They are our rivers, our riches--mine and yours.

For the sake of all of us, issue the Scenic Waterway in-stream water right for Oregon's Upper Klamath River now.

Sincerely,



Jean Fay Harmon

Report for station 11509500

KLAMATH RIVER AT KENO, OREG.

MEAN DISCHARGE

Number of years retrieved is 72

1 Station 11509500

0 MEAN DISCHARGE

Statistics on Normal monthly means (All days)

KLAMATH RIVER AT KENO, OREG.

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
By rows (Number, Mean, Variance, Standard Deviation, Skewness, Coefficient of Variation, Percentage of Average Value)												
0Number	71.00	70.00	70.00	69.00	69.00	69.00	69.00	69.00	70.00	70.00	70.00	70.00
0Mean	1459.70	1740.84	1988.46	2029.64	2208.88	2609.03	2344.13	1772.22	1199.72	897.87	999.11	1231.42
0Var	255546.50	651879.88	968968.25	0.148E+07	0.198E+07	0.347E+07	0.273E+07	0.160E+07	0.131E+07	486811.81	200470.94	155413.31
0Std	505.52	807.39	984.36	1217.99	1407.04	1862.39	1650.88	1264.76	1143.93	697.72	447.74	394.22
0Skew	1.06	1.23	0.93	2.24	1.22	0.94	0.63	0.81	2.51	2.04	0.86	0.45
0Cvar	0.35	0.46	0.50	0.60	0.64	0.71	0.70	0.71	0.95	0.78	0.45	0.32
0Pavg	7.13	8.50	9.71	9.91	10.78	12.74	11.45	8.65	5.86	4.38	4.88	6.01

* Indicates a no-value month

1 Station 11509500

KLAMATH RIVER AT KENO, OREG.

0 MEAN DISCHARGE

Quartiles of Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March
0						
			Twenty-Fifth Percentile			
0	1072	1125	1079	1263	1073	1143
0			Fiftieth Percentile			
0	1365	1530	1870	1787	2094	2100
0			Seventy-Fifth Percentile			
0	1660	2250	2613	2555	2873	3702

	April	May	June	July	Aug	Sept
0						
			Twenty-Fifth Percentile			
0	920.3	730.9	461.8	369.6	692.7	970.1
0			Fiftieth Percentile			
0	1934	1203	728.9	686.4	817.7	1166
0			Seventy-Fifth Percentile			
0	3457	2817	1805	1267	1291	1503

* Indicates a no-value year

1 Station 11509500

KLAMATH RIVER AT KENO, OREG.

0 MEAN DISCHARGE

Quartiles of Normal annual means (All days)

0	Twenty-Fifth Percentile
0	1159
0	Fiftieth Percentile
0	1574
0	Seventy-Fifth Percentile
0	2210

NOTE -- PERCENTILES BASED ON AVAILABLE DATA.

1National Water Information System - Automated Data Processing System (NWIS - ADAPS)

Daily Values Monthly and Annual Statistics (Program DVMAS) -- Revision 85.1

Report for station 11510700

KLAMATH R BL JOHN C BOYLE PP NR KENO, OREG.

MEAN DISCHARGE

Number of years retrieved is 30

Station 11510700

KLAMATH R BL JOHN C BOYLE PP NR KENO, OREG.

MEAN DISCHARGE

Statistics on Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
By rows (Number, Mean, Variance, Standard Deviation, Skewness, Coefficient of Variation, Percentage of Average Value)												
0Number	30.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00	29.00
0Mean	1647.71	2153.90	2651.24	2625.03	2699.72	3210.91	2605.69	1740.60	871.61	651.90	908.24	1255.73
0Var	294459.00	859513.13	0.102E+07	0.179E+07	0.230E+07	0.403E+07	0.225E+07	946456.00	176509.00	24228.21	14969.57	64387.71
0Std	542.64	927.10	1012.09	1337.05	1517.98	2006.44	1499.93	972.86	420.13	155.65	122.35	253.75
0Skew	1.09	0.80	0.70	2.36	1.66	1.15	0.61	0.82	2.32	3.34	-1.34	0.13
0Cvar	0.33	0.43	0.38	0.51	0.56	0.62	0.58	0.56	0.48	0.24	0.13	0.20
0Pavg	7.16	9.36	11.52	11.40	11.73	13.95	11.32	7.56	3.79	2.83	3.95	5.45

Station 11510700 KLAMATH R BL JOHN C BOYLE PP NR KENO, OREG.

* Indicates a no-value month

Station 11510700 KLAMATH R BL JOHN C BOYLE PP NR KENO, OREG.

MEAN DISCHARGE

Quartiles of Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March
Twenty-Fifth Percentile						
1263		1384	1910	1708	1476	1702
Fiftieth Percentile						
1560		1996	2721	2478	2420	2347
Seventy-Fifth Percentile						
1757		2733	3368	3263	3065	4734

	April	May	June	July	Aug	Sept
Twenty-Fifth Percentile						
1269		888.3	659.7	576.6	864.8	1136
Fiftieth Percentile						
2188		1352	694.0	633.3	943.9	1253
Seventy-Fifth Percentile						
3977		2479	895.3	668.0	983.9	1420

* Indicates a no-value year

Station 11510700 KLAMATH R BL JOHN C BOYLE PP NR KENO, OREG.

MEAN DISCHARGE

Quartiles of Normal annual means (All days)

Twenty-Fifth Percentile	
1469	
Fiftieth Percentile	
1805	
Seventy-Fifth Percentile	
2419	

NOTE -- PERCENTILES BASED ON AVAILABLE DATA.

National Water Information System - Automated Data Processing System (NWIS - ADAPS)

Daily Values Monthly and Annual Statistics (Program DVMAS) -- Revision 85.1

Report for station 14092500

DESCHUTES RIVER NEAR MADRAS, OREG.

MEAN DISCHARGE

Number of years retrieved is 67

Station 14092500 DESCHUTES RIVER NEAR MADRAS, OREG.

MEAN DISCHARGE

Statistics on Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
By rows (Number, Mean, Variance, Standard Deviation, Skewness, Coefficient of Variation, Percentage of Average Value)												
0Number	66.00	65.00	65.00	66.00	66.00	65.00	65.00	66.00	66.00	65.00	66.00	66.00
0Mean	3960.52	4477.71	4873.52	5043.53	5292.68	5534.25	5373.05	4459.48	4202.71	3885.32	3769.53	3807.18
0Var	222814.50	263912.00	503640.00	831747.88	0.136E+07	0.146E+07	0.146E+07	555630.25	336864.44	168896.00	150496.47	147885.28
0Std	472.03	513.72	709.68	912.00	1168.22	1208.02	1206.95	745.41	580.40	410.97	387.94	384.56
0Skew	0.04	0.39	0.70	0.87	0.92	1.23	0.92	0.93	0.63	0.05	0.02	-0.20
0Cvar	0.12	0.11	0.15	0.18	0.22	0.22	0.22	0.17	0.14	0.11	0.10	0.10
0Pavg	7.24	8.19	8.91	9.22	9.68	10.12	9.83	8.16	7.69	7.11	6.89	6.96

* Indicates a no-value month
 1 Station 14092500 DESCHUTES RIVER NEAR MADRAS, OREG.
 0 MEAN DISCHARGE
 Quartiles of Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March
0	Twenty-Fifth Percentile					
0	3533	4159	4336	4340	4484	4666
0	Fiftieth Percentile					
0	3974	4471	4705	4762	5148	5305
0	Seventy-Fifth Percentile					
0	4261	4811	5223	5807	5760	6116
	April	May	June	July	Aug	Sept
0	Twenty-Fifth Percentile					
0	4367	3941	3848	3638	3457	3435
0	Fiftieth Percentile					
0	5401	4337	4098	3869	3804	3865
0	Seventy-Fifth Percentile					
0	5939	4963	4548	4143	4061	4106

* Indicates a no-value year
 1 Station 14092500 DESCHUTES RIVER NEAR MADRAS, OREG.
 0 MEAN DISCHARGE
 Quartiles of Normal annual means (All days)
 0 Twenty-Fifth Percentile
 4092
 0 Fiftieth Percentile
 4497
 0 Seventy-Fifth Percentile
 5066

NOTE -- PERCENTILES BASED ON AVAILABLE DATA.
 1National Water Information System - Automated Data Processing System (NWIS - ADAPS)
 Daily Values Monthly and Annual Statistics (Program DVMAS) -- Revision 85.1

Report for station 14101500
 WHITE RIVER BELOW TYGH VALLEY, OREG.
 0MEAN DISCHARGE
 0Number of years retrieved is 72
 1 Station 14101500 WHITE RIVER BELOW TYGH VALLEY, OREG.
 0 MEAN DISCHARGE
 Statistics on Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug	Sept
By rows (Number, Mean, Variance, Standard Deviation, Skewness, Coefficient of Variation, Percentage of Average Value)												
0Number	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00	71.00
0Mean	151.10	266.70	498.29	596.76	659.17	593.53	699.64	739.09	455.08	195.90	133.94	126.92

0Var	1920.55	17763.94	140211.31	154701.78	127319.27	62289.07	542.53	110861.41	65818.53	4417.23	656.98	520.83
0Std	43.82	133.28	374.45	393.32	356.82	249.58	252.08	332.96	256.55	66.46	25.63	22.82
0Skew	1.15	1.13	1.62	1.14	0.84	1.19	0.27	0.56	1.06	0.93	0.14	0.29
0Cvar	0.29	0.50	0.75	0.66	0.54	0.42	0.36	0.45	0.56	0.34	0.19	0.18
0Pavg	2.95	5.21	9.74	11.66	12.88	11.60	13.68	14.45	8.90	3.83	2.62	2.48

* Indicates a no-value month

1 Station 14101500 WHITE RIVER BELOW TYGH VALLEY, OREG.

0 MEAN DISCHARGE

Quartiles of Normal monthly means (All days)

	Oct	Nov	Dec	Jan	Feb	March
0			Twenty-Fifth Percentile			
0	119.9	167.4	250.4	259.0	370.3	435.4
0			Fiftieth Percentile			
0	142.1	229.6	365.1	537.0	572.7	552.7
0			Seventy-Fifth Percentile			
0	172.8	343.8	593.8	862.1	828.7	711.7

	April	May	June	July	Aug	Sept
0			Twenty-Fifth Percentile			
0	493.1	501.7	264.6	144.2	113.2	109.7
0			Fiftieth Percentile			
0	695.4	676.9	403.0	180.2	133.7	125.2
0			Seventy-Fifth Percentile			
0	912.5	963.9	611.4	236.4	155.7	141.5

* Indicates a no-value year

1 Station 14101500 WHITE RIVER BELOW TYGH VALLEY, OREG.

0 MEAN DISCHARGE

Quartiles of Normal annual means (All days)

0	Twenty-Fifth Percentile
0	315.1
0	Fiftieth Percentile
0	433.0
0	Seventy-Fifth Percentile
0	514.2

NOTE -- PERCENTILES BASED ON AVAILABLE DATA.

1

B A S I N S U M M A R Y R E P O R T
K L A M A T H R T R I B U T A R Y O F P A C I F I C O C E A N

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
-----	-----	-----	-----	-----	-----	-----	-----	-----
KLAMATH R > PACIFIC OCEAN	1,447.68 CFS 0.00 ACF	608.02 0.00	819.70 0.00	0.00 0.00	0.11 0.00	0.00 0.00	19.84 0.00	0
W UPPER KLAMATH L > KLAMATH R	1,112.88 CFS 0.00 ACF	111.88 0.00	1,000.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0
DENNY CR > W UPPER KLAMATH L	13.50 CFS 0.00 ACF	13.50 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
MOSS CR > W UPPER KLAMATH L	1.50 CFS 0.00 ACF	1.50 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
ODESSA CR > W UPPER KLAMATH L	1.80 CFS 0.00 ACF	1.80 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
VARNEY CR > W UPPER KLAMATH L	3.82 CFS 0.00 ACF	3.75 0.00	0.00 0.00	0.00 0.00	0.07 0.00	0.00 0.00	0.00 0.00	0
FOURMILE CR > W UPPER KLAMATH L	11.50 CFS 5.82 ACF	11.00 1.62	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.50 4.20	0
UNN STR > FOURMILE CR	0.38 CFS 0.00 ACF	0.38 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
LAKE OF THE WOODS > SELDOM CR	0.41 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.41 0.00	0.00 0.00	0.00 0.00	0
UNN STR > LOST CR	0.00 CFS 0.80 ACF	0.00 0.80	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
LONG L > LONG CR	0.00 CFS 320.00 ACF	0.00 320.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
FOURMILE L > FOURMILE CR	20.00 CFS 33,000.00 ACF	0.00 33,000.00	10.00 0.00	10.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
RECREATION CR > W UPPER KLAMATH L	0.02 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.02 0.00	0.00 0.00	0.00 0.00	0
W FK THOMPSON CR > THOMPSON CR	0.51 CFS 0.00 ACF	0.51 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
SEVENMILE CR > W UPPER KLAMATH L	63.01 CFS 0.00 ACF	63.01 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	19
FOURMILE CR > SEVENMILE CR	15.91 CFS 0.00 ACF	15.91 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > FOURMILE CR	0.01 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0

B A S I N S U M M A R Y R E P O R T
K L A M A T H R T R I B U T A R Y O F P A C I F I C O C E A N

Page 2

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
THREEMILE CR > FOURMILE CR	6.90 CFS 0.00 ACF	6.90 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
CRANE CR > THREEMILE CR	5.73 CFS 0.00 ACF	5.73 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
CHERRY CR > FOURMILE CR	12.34 CFS 0.00 ACF	12.34 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
NANNIE CR > CHERRY CR	0.08 CFS 0.00 ACF	0.08 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SEVENMILE CR	0.01 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
SHORT CR > SEVENMILE CR	0.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	3
WOOD R > W UPPER KLAMATH L	379.20 CFS 0.00 ACF	379.20 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	3
CROOKED CR > WOOD R	25.81 CFS 0.00 ACF	4.81 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	21.00 0.00	1
AGENCY CR > CROOKED CR	8.98 CFS 0.00 ACF	8.98 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
FORT CR > WOOD R	77.35 CFS 0.00 ACF	32.65 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	44.70 0.00	4
ANNIE CR > WOOD R	78.48 CFS 3.75 ACF	77.91 0.00	0.01 0.00	0.42 0.00	0.00 0.00	0.00 0.00	0.13 3.75	6
SUN CR > ANNIE CR	0.32 CFS 0.00 ACF	0.00 0.00	0.16 0.00	0.16 0.00	0.00 0.00	0.00 0.00	0.00 0.00	4
VIDAE CR > SUN CR	0.26 CFS 0.00 ACF	0.00 0.00	0.16 0.00	0.10 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
POLE BRIDGE CR > ANNIE CR	0.21 CFS 0.00 ACF	0.00 0.00	0.16 0.00	0.05 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
MUNSON CR > ANNIE CR	0.63 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.63 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
E UPPER KLAMATH L > KLAMATH R	20.91 CFS 15.68 ACF	19.84 12.18	0.01 0.00	0.00 0.00	0.01 0.00	0.04 3.50	1.00 0.00	0
UNN STR > E UPPER KLAMATH L	1.00 CFS 0.00 ACF	0.00 0.00	1.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0

B A S I N S U M M A R Y R E P O R T
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

Page 3

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
WILLIAMSON R > E UPPER KLAMATH L	420.00 CFS 10.23 ACF	410.98 10.23	1.00 0.00	3.00 0.00	0.00 0.00	1.00 0.00	4.01 0.00	0
SPRAGUE R > WILLIAMSON R	191.71 CFS 2.19 ACF	185.63 2.19	0.00 0.00	0.00 0.00	0.03 0.00	3.00 0.00	3.05 0.00	1
UNN STR > SPRAGUE R	0.00 CFS 0.50 ACF	0.00 0.50	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
WHITEHORSE SPR CR > SPRAGUE R	0.00 CFS 0.26 ACF	0.00 0.26	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > WHITEHORSE SPR CR	4.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	4.00 0.00	0.00 0.00	0
COPPERFIELD CR > SPRAGUE R	1.60 CFS 2.58 ACF	0.60 2.58	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0
UNN STR > SPRAGUE R	0.00 CFS 2.10 ACF	0.00 2.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.01 CFS 0.83 ACF	0.01 0.83	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	4.76 CFS 2,874.00 ACF	4.76 84.00	0.00 0.00	0.00 0.00	0.00 5.00	0.00 2,784.00	0.00 1.00	0
UNN STR > SPRAGUE R	0.00 CFS 0.09 ACF	0.00 0.09	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.01 CFS 0.32 ACF	0.01 0.32	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.00 CFS 2.87 ACF	0.00 2.87	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
TROUT CR > SPRAGUE R	1.25 CFS 0.00 ACF	1.25 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
N FK TROUT CR > TROUT CR	0.05 CFS 0.00 ACF	0.04 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
S FK TROUT CR > TROUT CR	1.00 CFS 0.10 ACF	0.00 0.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0
M FK TROUT CR > S FK TROUT CR	0.59 CFS 0.00 ACF	0.49 0.00	0.00 0.00	0.00 0.00	0.10 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.00 CFS 1.30 ACF	0.00 1.30	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0

B A S I N S U M M A R Y R E P O R T
K L A M A T H R T R I B U T A R Y O F P A C I F I C O C E A N

Page 4

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
UNN STR > SPRAGUE R	0.02 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.01 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
ROCK CR > SPRAGUE R	3.56 CFS 0.00 ACF	3.56 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > ROCK CR	0.06 CFS 0.55 ACF	0.06 0.55	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > ROCK CR	0.00 CFS 0.25 ACF	0.00 0.25	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.11 CFS 0.30 ACF	0.11 0.30	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
WHISKY CR > SPRAGUE R	35.81 CFS 0.00 ACF	34.79 0.00	0.00 0.00	0.00 0.00	0.02 0.00	0.00 0.00	1.00 0.00	0
E BR WHISKY CR > WHISKY CR	5.42 CFS 0.07 ACF	5.42 0.07	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > E BR WHISKY CR	0.00 CFS 0.01 ACF	0.00 0.01	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > WHISKY CR	0.00 CFS 0.05 ACF	0.00 0.05	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SPRAGUE R	0.01 CFS 0.17 ACF	0.01 0.17	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
SYCAN R > SPRAGUE R	30.95 CFS 0.00 ACF	30.80 0.00	0.15 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
PONINA CR > SNAKE CR	0.02 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
MILL CR > SNAKE CR	1.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0
BLUE CR > SYCAN R	3.35 CFS 0.00 ACF	3.35 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > SYCAN R	1.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	0
LONG CR > SYCAN R	24.96 CFS 0.00 ACF	24.63 0.00	0.33 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0

BASIN SUMMARY REPORT
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

Page 6

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
BERRY CR > N FK SPRAGUE R	11.00 CFS 0.00 ACF	11.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
WALKER CR > N FK SPRAGUE R	0.00 CFS 0.03 ACF	0.00 0.03	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
GOLD CR > DEAD COW CR	0.00 CFS 0.01 ACF	0.00 0.01	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
S FK SPRAGUE R > SPRAGUE R	1.60 CFS 6.00 ACF	0.60 6.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	30
DEMING CR > S FK SPRAGUE R	25.00 CFS 3,200.00 ACF	25.00 3,200.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	12
FRITZ CR > DEMING CR	3.13 CFS 520.00 ACF	3.13 520.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
FISHHOLE CR > S FK SPRAGUE R	5.38 CFS 1,539.39 ACF	5.37 1,264.39	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 275.00	27
UNN STR > FISHHOLE CR	0.00 CFS 0.28 ACF	0.00 0.28	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
POLE CR > FISHHOLE CR	0.00 CFS 0.84 ACF	0.00 0.84	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	2
UNN STR > FISHHOLE CR	0.00 CFS 0.07 ACF	0.00 0.07	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > FISHHOLE CR	0.00 CFS 0.20 ACF	0.00 0.20	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
ROBINSON SPRING CR > FISHHOLE CR	1.00 CFS 0.00 ACF	0.00 0.00	1.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > FISHHOLE CR	0.00 CFS 230.10 ACF	0.00 230.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > FISHHOLE CR	0.00 CFS 0.12 ACF	0.00 0.12	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
LOST VALLEY CR > FISHHOLE CR	0.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	2
UNN STR > FISHHOLE CR	0.25 CFS 84.60 ACF	0.25 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 84.60	1
BIG SWAMP CR > FISHHOLE CR	0.00 CFS 350.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 350.00	1

BASIN SUMMARY REPORT
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

Page 7

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
UNN STR > FISHHOLE CR	0.00 CFS 0.05 ACF	0.00 0.05	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
PARADISE CR > S FK SPRAGUE R	1.00 CFS 35.50 ACF	0.00 35.50	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1.00 0.00	1
UNN STR > PARADISE CR	0.00 CFS 0.60 ACF	0.00 0.60	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > PARADISE CR	0.00 CFS 15.50 ACF	0.00 15.50	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
BADGER CR > PARADISE CR	0.00 CFS 0.00 ACF	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
UNN STR > PARADISE CR	0.00 CFS 0.02 ACF	0.00 0.02	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
UNN STR > S FK SPRAGUE R	0.00 CFS 2.10 ACF	0.00 2.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
ISH TISH CR > S FK SPRAGUE R	0.63 CFS 0.00 ACF	0.63 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > ISH TISH CR	0.00 CFS 0.11 ACF	0.00 0.11	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	1
UNN STR > ISH TISH CR	0.00 CFS 0.23 ACF	0.00 0.23	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
BROWNSWORTH CR > S FK SPRAGUE R	0.00 CFS 0.26 ACF	0.00 0.26	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
LONG CR > BROWNSWORTH CR	0.45 CFS 0.00 ACF	0.00 0.00	0.45 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
POTHOLE CR > WHITWORTH CR	0.00 CFS 0.03 ACF	0.00 0.03	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
SPRING CR > WILLIAMSON R	4.69 CFS 1.10 ACF	4.63 1.10	0.00 0.00	0.00 0.00	0.06 0.00	0.00 0.00	0.00 0.00	0
LARKIN CR > WILLIAMSON R	12.26 CFS 2.00 ACF	12.24 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 2.00	0.02 0.00	0
HOG CR > WILLIAMSON R	4.38 CFS 0.00 ACF	4.38 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > HOG CR	1.00 CFS 0.21 ACF	1.00 0.21	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0

BASIN SUMMARY REPORT
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

Page 9

SOURCE > TRIBUTARY	TOTAL DIVERTED	AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
DOESKIN CR > DILLON CR	0.00 CFS 0.10 ACF	0.00 0.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > JACK CR	0.00 CFS 0.10 ACF	0.00 0.10	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > JACK CR	0.01 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > JACK CR	0.00 CFS 0.05 ACF	0.00 0.05	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > WILLIAMSON R	13.09 CFS 0.00 ACF	13.09 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
JACKSON CR > WILLIAMSON R	25.78 CFS 0.00 ACF	25.78 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
HOYT CR > JACKSON CR	0.02 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.01 0.00	0.00 0.00	0.00 0.00	0
IRVING CR > WILLIAMSON R	8.20 CFS 0.00 ACF	8.20 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
ASPEN CR > WILLIAMSON R	5.83 CFS 0.00 ACF	5.83 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
DEEP CR > WILLIAMSON R	11.67 CFS 0.00 ACF	11.67 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
SAND CR > WILLIAMSON R	3.26 CFS 0.00 ACF	3.26 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
HAYSTACK DRAW > WILLIAMSON R	0.23 CFS 0.00 ACF	0.23 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > TELEPHONE DRAW	0.00 CFS 0.30 ACF	0.00 0.30	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
BULL PASTURE DRAW > WILLIAMSON R	1.41 CFS 0.00 ACF	1.41 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > BULL PASTURE DRAW	0.01 CFS 0.00 ACF	0.01 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > BULL PASTURE DRAW	0.00 CFS 0.79 ACF	0.00 0.79	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0
UNN STR > WILLIAMSON R	0.00 CFS 0.15 ACF	0.00 0.15	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0

BASIN SUMMARY REPORT
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

Page 10

SOURCE > TRIBUTARY	TOTAL DIVERTED		AGRIC.	INDUST.	MUNIC.	DOMEST.	RECREAT.	MISC.	UNKNOWN
GREEN CR > INDIAN CR	9.00 CFS	0.00 ACF	0.00	9.00	0.00	0.00	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
N HUNGRY CR > HUNGRY CR	0.01 CFS	0.00 ACF	0.00	0.00	0.00	0.01	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
GROUSE CR > BEAVER CR	4.25 CFS	0.00 ACF	0.24	4.00	0.00	0.01	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
UNN STR > GROUSE CR	0.01 CFS	0.00 ACF	0.00	0.00	0.00	0.01	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
COTTONWOOD CR > KLAMATH R	0.64 CFS	0.00 ACF	0.26	0.31	0.00	0.07	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
E FK COTTONWOOD CR > COTTONWOOD CR	2.83 CFS	0.00 ACF	2.74	0.05	0.00	0.05	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
MILL CR > COTTONWOOD CR	4.22 CFS	0.00 ACF	4.22	0.00	0.00	0.00	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
CAMP CR > KLAMATH R	0.01 CFS	0.00 ACF	0.00	0.00	0.00	0.01	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
DUTCH OVEN CR > CAMP CR	0.00 CFS	0.01 ACF	0.00	0.00	0.00	0.00	0.00	0.00	0
			0.01	0.00	0.00	0.00	0.00	0.00	
JENNY CR > KLAMATH R	10.39 CFS	0.80 ACF	10.29	0.00	0.00	0.10	0.00	0.00	0
			0.80	0.00	0.00	0.00	0.00	0.00	
SKOOKUM CR > JENNY CR	0.22 CFS	0.20 ACF	0.22	0.00	0.00	0.01	0.00	0.00	0
			0.20	0.00	0.00	0.00	0.00	0.00	
HARTWELL DRAW > JENNY CR	0.00 CFS	0.33 ACF	0.00	0.00	0.00	0.00	0.00	0.00	0
			0.33	0.00	0.00	0.00	0.00	0.00	
SPRING CR > JENNY CR	9.65 CFS	0.00 ACF	0.75	0.00	0.00	0.00	0.00	8.90	0
			0.00	0.00	0.00	0.00	0.00	0.00	
OREGON G > JENNY CR	0.00 CFS	0.57 ACF	0.00	0.00	0.00	0.00	0.00	0.00	0
			0.57	0.00	0.00	0.00	0.00	0.00	
KEENE CR > JENNY CR	311.97 CFS	19,700.00 ACF	151.12	160.67	0.00	0.18	0.00	0.00	0
			19,700.00	0.00	0.00	0.00	0.00	0.00	
LINCOLN CR > KEENE CR	0.00 CFS	0.00 ACF	0.00	0.00	0.00	0.00	0.00	0.00	0
			0.00	0.00	0.00	0.00	0.00	0.00	
UNN STR > LINCOLN CR	0.00 CFS	0.07 ACF	0.00	0.00	0.00	0.00	0.00	0.00	0
			0.07	0.00	0.00	0.00	0.00	0.00	

Page 11

MILL CR > KEENE CR

BURNT CR > KEENE CR

COTTONWOOD CR > KEENE CR

BEAVER CR > JENNY CR

CORRAL CR > BEAVER CR

E FK CORRAL CR > CORRAL CR

JOHNSON CR > JENNY CR

UNN STR > JOHNSON CR

SHEEPY CR > JOHNSON CR

UNN STR > SHEEPY CR

W FK SHEEPY CR > SHEEPY CR

UNN STR > W FK SHEEPY CR

COLD CR > JOHNSON CR

BLUEJAY CR > JENNY CR

GRIZZLY CR > JENNY CR

SODA CR > GRIZZLY CR

WILLOW CR > GRIZZLY CR

Page 12

SWINNING CR > GRIZZLY CR

UNN STR > GRIZZLY CR

FALL CR > KLAMATH R

SLOAN CR > BEAVER CR

E FK BEAVER CR > BEAVER CR

LONG PRAIRIE CR > KLAMATH R

EDGE CR > KLAMATH R

UNN STR > KLAMATH R

UNN STR > KLAMATH R

SPENCER CR > KLAMATH R

UNN STR > MILLER L BED

UNN STR > MILLER L BED

UNN STR > MILLER L BED

UNN STR > KLAMATH R

UNN STR > KLAMATH R

BASIN SUMMARY REPORT
KLAMATH R TRIBUTARY OF PACIFIC OCEAN

70094

TOTAL DIVERTED
=====

TOTAL CFS: 4,784.63
TOTAL ACF: 126,636.28

TOTALS BY USE
=====

	AGRICULTURE -----	INDUSTRIAL -----	MUNICIPAL -----	DOMESTIC -----	RECREATIONAL -----	MISCELLANEOUS -----
(CFS)	2,632.70	2,009.95	14.51	1.46	8.42	117.59
(ACF)	58,834.60	62,000.00	2,195.00	5.00	2,820.70	780.95

STATE OF OREGON
COUNTY OF KLAMATH
DRAFT CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

STATE OF OREGON
WATER RESOURCES DEPARTMENT
SALEM, OREGON 97310

confirms the right to use the waters of KLAMATH RIVER, a tributary of the PACIFIC OCEAN, in the KLAMATH BASIN to maintain an instream flow for the purpose of PROVIDING FOR RECREATIONAL BOATING, SCENIC ENJOYMENT, STATE SCENIC WATERWAY PROTECTION AND FISH LIFE AND FISH HABITAT.

The right is for flows to be maintained FROM THE CONFLUENCE OF THE J. C. BOYLE POWERHOUSE TAILRACE AND THE NATURAL CHANNEL AT RIVER MILE 220.4 WITHIN THE NW 1/4 NW 1/4 IN SECTION 13, T 40 S, R 7 E, W.M. TO THE OREGON/CALIFORNIA BORDER AT RIVER MILE 209.3 WITHIN THE NW 1/4 NE 1/4 OF SECTION 13, T 41 S, R 5 E, W.M..

The right is established under Oregon Revised Statutes 537.346.

The date of priority is OCTOBER 13, 1989.

The right is limited to not more than 1500 CUBIC FEET PER SECOND FOR RECREATIONAL BOATING AND SCENIC ENJOYMENT AND 550 CUBIC FEET PER SECOND FOR FISH LIFE AND FISH HABITAT.

Witness the signature of the Water Resources Director affixed this XXX day of XXXXXXXXX

Water Resources Director

Recorded in State Record of Water Right Certificates number XXXX.

70094B

KLAMATH RIVER BASIN

7500 KLAMATH RIVER AT KENO, OR

sec.35, T.39 S., R.7 E., Klamath County, Hydrologic Unit 18010206, on left bank Spencer Creek.

ng Lost River or Lower Klamath Lake basins).

- 1929 to September 1982. Monthly discharge only October to December 1929,

ft National Geodetic Vertical Datum of 1929 (from river-profile survey). See 254.

lake. Diversions for irrigation above station.

acre-ft/yr.

,200 ft³/s Feb. 24, 1982, gage height, 12.74 ft, caused by regulation from Keno 256; minimum daily, 60 ft³/s May 19, 1934.

.3 ft, from floodmark (original datum), about May 10, 1904, discharge, 9,250

STATISTICAL SUMMARIES

05-82 MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1906-82

EFFI- ENT OF ARI- TION	PERCENT OF ANNUAL RUNOFF	PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND ANNUAL NON- EXCEEDANCE PROBABILITY, IN PERCENT					
			2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
.33	7.2	1	300	155	110	84	61	50
.41	8.4	3	371	200	144	110	80	65
.45	9.5	7	409	226	165	127	95	78
.62	10.2	14	443	248	182	140	105	86
.66	10.7	30	500	293	221	174	133	111
.72	12.2	60	569	347	266	213	165	139
.73	11.4	90	690	434	332	263	200	165
.72	8.9	120	811	521	399	313	233	189
.81	5.7	183	1050	705	550	437	330	269
.66	4.5							
.42	5.0							
.33	6.2							
.40	100							

PEAK FLOW
2 MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1905-82

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND ANNUAL EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
100 1%						

KLAMATH RIVER BASIN

31

11510700 KLAMATH RIVER BELOW JOHN C. BOYLE POWERPLANT, NEAR KENO, OR

LOCATION.--Lat 42°05'05", long 122°04'20", in SE1/4 sec.14, T.40 S., R.6 E., Klamath County, Hydrologic Unit 18010206, on right bank 0.7 mi downstream from John C. Boyle powerplant, 8 mi downstream from Spencer Creek, and 8.5 mi southwest of Keno.

DRAINAGE AREA.--4,080 mi², approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OF RECORD.-- January 1959 to September 1982. Prior to Oct. 1, 1961, published as "below Big Bend powerplant."

GAGE.--Water-stage recorder. Datum of gage is 3,274.82 ft National Geodetic Vertical Datum of 1929 (levels by Pacific Power & Light Co.).

REMARKS.--Flow regulated by Upper Klamath Lake. Large diurnal fluctuation caused by John C. Boyle powerplant and 2 powerplants below Upper Klamath Lake. Diversions for irrigation above station.

AVERAGE DISCHARGE.--23 years, 1,829 ft³/s, 1,325,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,000 ft³/s Mar. 5, 1972, gage height, 9.33 ft; minimum, 283 ft³/s Feb. 17, 1968; minimum daily, 317 ft³/s July 25, 1968.

STATISTICAL SUMMARIES

MONTHLY AND ANNUAL MEAN DISCHARGES 1961-82

MONTH	MINIMUM (CFS)	MAXIMUM (CFS)	MEAN (CFS)	STAN- DARD DEVI- ATION (CFS)	COEFFI- CIENT OF VARI- ATION	PERCENT OF ANNUAL RUNOFF
OCTOBER	786	2568	1603	467	.29	7.2
NOVEMBER	897	3989	2060	772	.37	9.3
DECEMBER	1112	3895	2573	803	.31	11.6
JANUARY	1174	7905	2786	1454	.52	12.5
FEBRUARY	1091	7780	2631	1590	.60	11.8
MARCH	634	8755	2902	1916	.66	13.0
APRIL	723	5645	2448	1505	.61	11.0
MAY	591	3935	1680	956	.57	7.6
JUNE	550	1742	785	280	.36	3.5
JULY	501	1339	642	175	.27	2.9
AUGUST	590	1054	890	132	.15	4.0
SEPTEMBER	776	1876	1240	271	.22	5.6
ANNUAL	1080	2945	1850	531	.29	100

MAGNITUDE AND PROBABILITY OF INSTANTANEOUS PEAK FLOW
BASED ON PERIOD OF RECORD 1961-82

DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND ANNUAL EXCEEDANCE PROBABILITY, IN PERCENT						
1.25 80%	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
3410	5130	7830	9830	12600	--	--
WEIGHTED SKEW = .163						

MAGNITUDE AND PROBABILITY OF ANNUAL LOW FLOW
BASED ON PERIOD OF RECORD 1962-82

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND ANNUAL NON- EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	20 5%	50 2%	100 1%
1	361	328	320	316	--	--
3	402	353	338	330	--	--
7	477	428	413	404	--	--
14	514	474	463	457	--	--
30	551	512	501	496	--	--
60	601	562	550	543	--	--
90	704	633	601	577	--	--
120	816	717	667	628	--	--
183	1030	855	779	723	--	--

MAGNITUDE AND PROBABILITY OF ANNUAL HIGH FLOW
BASED ON PERIOD OF RECORD 1961-82

PERIOD (CON- SECU- TIVE DAYS)	DISCHARGE, IN CFS, FOR INDICATED RECURRENCE INTERVAL, IN YEARS, AND ANNUAL EXCEEDANCE PROBABILITY, IN PERCENT					
	2 50%	5 20%	10 10%	25 4%	50 2%	100 1%
1	4920	7470	9320	11800	--	--
3	4830	7290	9070	11500	--	--
7	4640	6950	8650	11000	--	--
14	4100	6700	8000	10700	--	--

STATE OF OREGON
COUNTY OF KLAMATH
CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

STATE OF OREGON
WATER RESOURCES DEPARTMENT
SALEM, OREGON 97310

confirms the right to use the waters of KLAMATH RIVER, a tributary of the PACIFIC OCEAN, in the XXXXX to maintain an instream flow for the purpose of RECREATIONAL BOATING, SECNIC ENJOYMENT, STATE SCENIC WATERWAY DESIGNATION AND FISH LIFE AND FISH HABITAT.

The right is for flows to be maintained AT THE UPSTREAM END AT CONFLUENCE OF THE J. C. BOYLE POWERHOUSE RAILRACE AND THE NATURAL CHANNEL AT RIVER MILE 220.4 WITHIN THE NW 1/4 NW 1/4 IN SECTION 13, T 40 S, R 7 E, W.M. TO THE DOWNSTREAM END AT OREGON/CALIFORNIA BORDER AT RIVER MILE 209.3 WITHIN THE NW 1/4 NE 1/4 OF SECTION 13, T 41 S, R 5 E, W.M..

The right is established under Oregon Revised Statutes 537.346.

The date of priority is OCTOBER 13, 1989.

The right is limited to not more than the amounts during the time periods listed below:

<u>Period</u>	<u>Flows (cubic foot per second)</u>
OCTOBER 1 THRU SEPTEMBER 30	1500 CFS

Witness the signature of the Water Resources Director affixed this XXX day of XXXXXXXXXX

Water Resources Director

Recorded in State Record of Water Right Certificates number XXXX.

Klamath Falls, OR
(Klamath Co.)
Herald & News
(Cir. D. 18,637)
(Cir. S. 20,135)

MAR 10 1992

Allen's P. C. B Est. 1888

Change of venue denied as Salt Caves backers win small victory

By NICK GREEN
H&N Staff Writer

Backers of the city of Klamath Falls-sponsored Salt Caves hydroelectric project have won a small victory.

Judge Lane Simpson of Lakeview has denied the state government's request for a change of venue to Portland in a lawsuit filed against it by the city in Klamath County Circuit Court.

"It is my opinion that the cause of action arose in Klamath County Oregon, and not Multnomah County, therefore defendant's motion for change of venue is denied," wrote Simpson in a ruling issued Thursday.

The city filed the lawsuit because it contends the Department of Environmental Quality "waived their authority" to deny the project a water quality permit because the certification process took longer than permitted by law. The permit is necessary for the proposed \$180 million project on the Upper Klamath River to go ahead.

Michael Hartfield, project spokesman, said the city was pleased with the ruling.

"We think that the court should hear the case closest to the area impacted by the decision (to deny the project a permit) and that would be Klamath County," he said. "There will be a

greater understanding of the issues by a judge closer to the geographical location of the issue."

Assistant Attorney General Stephanie Striffler said since the complaint is in regard to activities that took place in Portland it should be heard in the courts there.

It's not known yet when the lawsuit will be heard. Striffler said the city and state were told last week to propose a timetable. She said the lawsuit will likely be decided on motions rather than in court because the issue is "primarily a question of interpretation of law."

According to state and federal law the water quality permit must either be denied or approved within 12 months. While the state denied the permit within that period, subsequent city appeals took the process over the time limit. The city claims that since the entire process must be completed within a year and wasn't, the permit is theirs by default; the state disagrees.

The lawsuit is one of two legal fronts the city is pursuing as it seeks certification for the project. The city has also appealed the state Environmental Quality Commission's denial of the water quality permit to the Oregon Court of Appeals.

That matter is still pending.

Klamath Falls, OR
(Klamath Co.)
Herald & News
(Cir. D. 18,637
Cir. S. 20,135)

DEC 2 1991

Allen's 5064
Project heads for appeals court

By NICK GREEN
H&N Staff Writer

As expected, the Oregon Court of Appeals looks to be the next arena for the on-going fight over the proposed Salt Caves hydroelectric project.

Klamath Falls City Manager Jim Keller said he will recommend to the city council tonight that the city appeal to the court the recent denial of a crucial water quality permit for the controversial project.

A majority of council members have already indicated they support an appeal of the decision made by the state Environmental Quality Commission last month. It was the second time the commission had voted to deny the project a permit.

"The ... decision by the EQC

did not make any technical or practical sense at all," Keller said. "We think the court of appeals, after reviewing the preponderance of the evidence, would rule in our favor. Appeals court judges are not appointed by the governor."

Members of the commission are, Keller pointed out. He believes chances for the project planned for the Upper Klamath River will be improved by removing it from an overtly political setting.

"This is not an issue about water quality, this is not an issue about power generation, this is an issue about politics," he said. "Justice, sooner or later, even in Oregon, must be served."

The commission voted to deny the project a permit,

needed before construction can begin, saying it would cause an increase in the river's water temperature above that permitted by state water quality standards. The commission reached that decision even though the body also said the project would not harm the river's ecosystem, which is the reason for the standards in the first place.

The appeals process could take up to a year. The city has about \$2 million left in its Salt Caves fund, which is "ample" to pay for the court case, Keller said. He conceded though, that the city does not yet have an "accurate estimate" on the amount necessary to fund the appeal.

The city council meeting begins at 7:30 p.m. at city hall, 500 Klamath Ave.

Salt Caves power proposal again denied license

□ The city of Klamath Falls may appeal the second rejection of a water quality permit by the state environmental agency

By PAUL KOBERSTEIN

of The Oregonian staff 11-20-91

The Oregon Environmental Quality Commission reaffirmed on Tuesday its denial of a crucial water quality permit for the proposed Salt Caves hydroelectric project on the Klamath River.

At a special meeting in Portland, the commission voted 3-2 against issuing the permit. The project sponsor, the city of Klamath Falls, has the option of appealing to the Oregon Court of Appeals. Without the state permit, the city cannot get a federal license for construction and operation.

Four of the five commission members said the project would not harm the environment but would violate a state rule that prohibits projects of this type from raising water temperatures.

The Salt Caves project has had several setbacks since the city first proposed construction seven years ago, and Mayor George Flitcraft said an appeal of Tuesday's decision will be considered.

"All we can do is present the facts to the City Council," he said. "It seems a little odd to me that you can develop a project that has no adverse environmental factors

and have it denied on a technicality."

The 96-megawatt Salt Caves project would be built just north of the California border near Keno. Klamath Falls would sell electricity to West Coast utilities and use the profits for economic development in an area hit hard by layoffs in the timber industry. The project is designed without a dam. Instead, the city would collect water below an existing dam and pipe it seven miles to a powerhouse.

Last month, the commission voted 4-1 against the project, but later decided to reconsider. In its vote Tuesday, Commissioner Emery Castle, an Oregon State University economics professor, switched sides and voted in favor of issuing a permit.

Henry Lorenzen, a commission member

from Pendleton and an attorney, also backed the project, saying it would be absurd to deny the project on a technicality.

The project's potential electrical output is particularly important to the region, he said, in light of measures to save Northwest salmon by curbing hydropower production.

Although the Upper Klamath has no salmon, it is important for its wild rainbow trout fishery. The Environmental Quality Commission found that Salt Caves would not harm the trout, despite contentions by the Oregon Department of Fish and Wildlife that it would.

The commission will discuss the standards at a future meeting, possibly in December, said Chairman William Wesinger of Portland.

ROUTE SLIP FOR:
FIELD OPERATIONS DIVISION
WATER RIGHTS SECTION

FEEL FREE TO COPY FOR YOUR RECORDS

STEVE APPLEGATE
STEVE BROWN
~~KEN DOWDEN~~
CAROL LEWIS
MIKE MATTICK

~~DAVE MARCOE~~
~~DALLAS MILLER~~
~~LARRY NUNN~~
~~TOM SHOOK~~
~~JAKE SZRAMEK~~

November 1, 1991

Janet Johnson
2047 Juniper Avenue
Coos Bay OR 97420

Many people have written to me or to the Water Resources Department urging protection of the Salt Caves stretch of the Klamath River from hydropower development. Most have also recommended that the instream water right certificate be issued by the Department.

The canyon and river are resources deserving protection.

The City of Klamath Falls has a pending protest to the issuance of the instream water right. Klamath Falls intends to raise a number of factual issues in its legal proceeding. Other interested parties have also announced their objections. Regardless of the outcome of the protests, the matter likely will be appealed to the Oregon Court of Appeals and possibly to the Oregon Supreme Court.

The City of Klamath Falls cannot build the facility without a Dept. of Environmental Quality (DEQ) 401 water quality permit. DEQ staff have denied this permit. The Environmental Quality Commission upheld a hearings officer's denial of the permit. The city may choose to appeal this decision to the Oregon Court of Appeals.

If Klamath Falls appeals, and is eventually successful in obtaining a DEQ water quality permit, the Water Resources Commission may have to incur substantial court costs at a later time. On the other hand, if the city fails to obtain a DEQ permit and thus is denied a Federal Energy Regulatory Commission hydroelectric license, the city probably would not pursue their protests in the instream flow proceeding. Thus, the likelihood of a contentious proceeding with numerous appeals, at considerable expense to the state, could be reduced if we wait. As such, the state is not currently processing the instream water right application in the hope that an unnecessary expensive legal battle can be avoided.

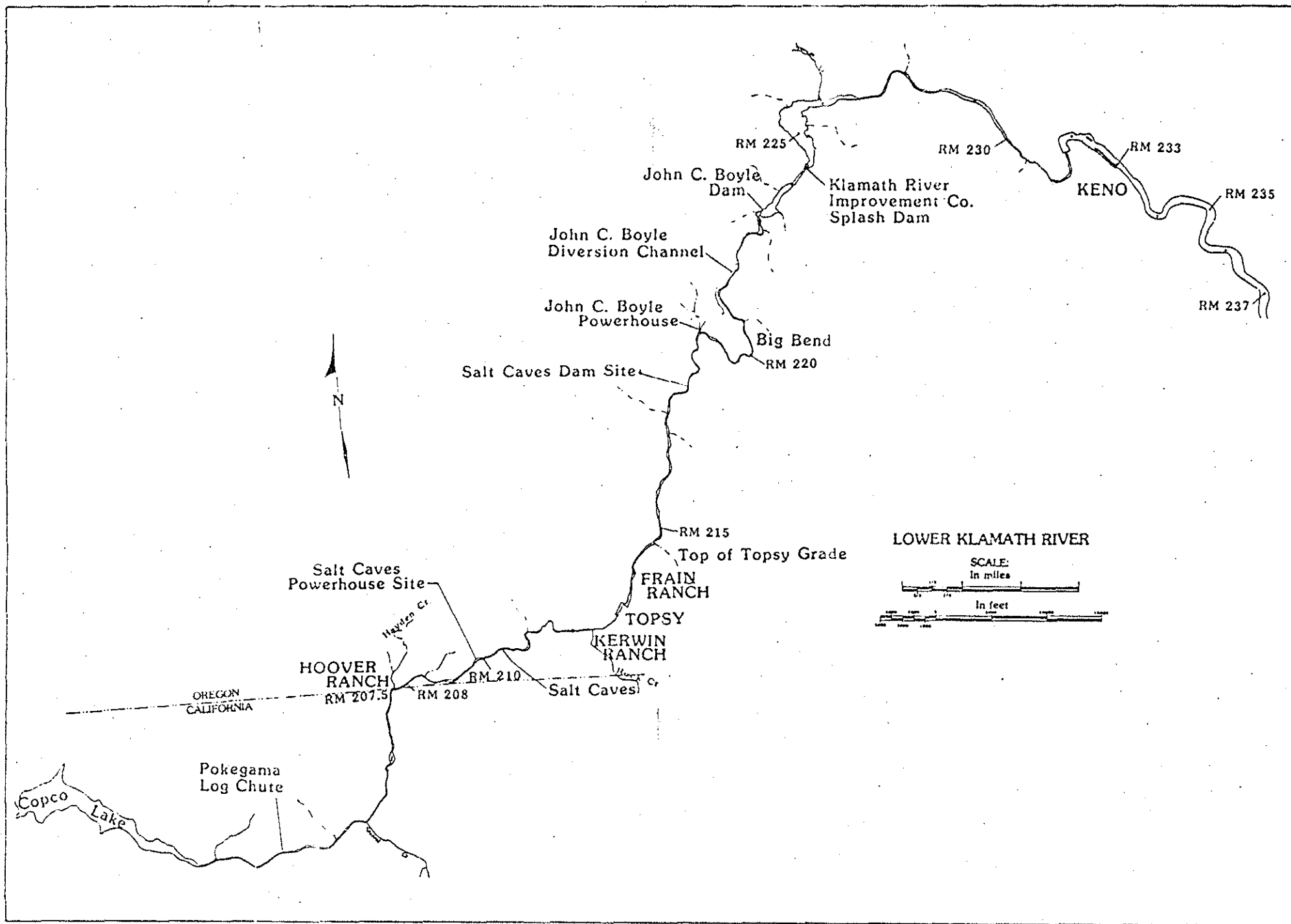
I do not believe we lose anything by waiting. The priority date for an instream water right is determined as of the date the application is received, not the date the right is eventually granted. No consumptive diversions will be approved in the interim which would reduce the flows necessary to maintain the scenic qualities of the river.

I hope this addresses your concern over the protection of the Klamath River. Thank you for taking the time to tell me your views and share your concern on this important issue.

Sincerely,

Barbara Roberts, Governor

MJM



November 1, 1991

[REDACTED]
[REDACTED]
[REDACTED]

Many people have written to me or to the Water Resources Department urging protection of the Salt Caves stretch of the Klamath River from hydropower development. Most have also recommended that the instream water right certificate be issued by the Department.

The canyon and river are resources deserving protection.

The City of Klamath Falls has a pending protest to the issuance of the instream water right. Klamath Falls intends to raise a number of factual issues in its legal proceeding. Other interested parties have also announced their objections. Regardless of the outcome of the protests, the matter likely will be appealed to the Oregon Court of Appeals and possibly to the Oregon Supreme Court.

The City of Klamath Falls cannot build the facility without a Dept. of Environmental Quality (DEQ) 401 water quality permit. DEQ staff have denied this permit. The Environmental Quality Commission upheld a hearings officer's denial of the permit. The city may choose to appeal this decision to the Oregon Court of Appeals.

If Klamath Falls appeals, and is eventually successful in obtaining a DEQ water quality permit, the Water Resources Commission may have to incur substantial court costs at a later time. On the other hand, if the city fails to obtain a DEQ permit and thus is denied a Federal Energy Regulatory Commission hydroelectric license, the city probably would not pursue their protests in the instream flow proceeding. Thus, the likelihood of a contentious proceeding with numerous appeals, at considerable expense to the state, could be reduced if we wait. As such, the state is not currently processing the instream water right application in the hope that an unnecessary expensive legal battle can be avoided.

I do not believe we lose anything by waiting. The priority date for an instream water right is determined as of the date the application is received, not the date the right is eventually granted. No consumptive diversions will be approved in the interim which would reduce the flows necessary to maintain the scenic qualities of the river.

I hope this addresses your concern over the protection of the Klamath River. Thank you for taking the time to tell me your views and share your concern on this important issue.

Sincerely,

Barbara Roberts, Governor

MJM

Klamath project rejected

■ **Salt Caves:** State panel opposes hydropower plan because it would raise water temperature.

By HARRY ESTEVE
The Register-Guard 10-11-91

PORTLAND — At one point Thursday, city officials from Klamath Falls leaned forward expectantly in their seats, ready to celebrate a major victory in their efforts to build a hydroelectric project on a stretch of the Klamath River.

The next moment they stood dejectedly, talking through forced smiles about overcoming setbacks and the possibility of an appeal to a higher court.

The occasion was a meeting of the state Environmental Quality Commission, which handed Klamath Falls officials yet another defeat for what is called the Salt Caves project, a proposed hydropower plant named after the stretch of river it would affect.

On a 3-2 vote, the five-member commission upheld a judge's denial of a permit to go forward with the 96-megawatt plant, which would use water from the Klamath River to turn generating turbines.

The city wants the dam so it can sell the power and use the money for economic development and to provide jobs for unemployed timber workers.

They said Thursday they don't intend to give up. "We have a good project and we're going to build it," City Manager Bill Keller said shortly after the vote. "We're a determined group of people. We don't get discouraged easily."

But an attorney representing several environmental organizations said he viewed the vote as one more nail in the coffin for the hydropower proposal.

"We have won for the moment," said Karl Anuta, who argued against the project on behalf of the Sierra Club, the Oregon Natural Resources Council, the Oregon Rivers Council and other groups. "We're still convinced that the Salt Caves project is a bad idea for a state scenic waterway."

Anuta acknowledged that environmentalists nearly lost a crucial round Thursday and will probably face at least one more battle, this time before the state Court of Appeals.

"It was unclear to me which way they (the commissioners) were going to go," he said, looking relieved after the four-hour hearing.

The vote to deny the permit came only minutes after it appeared that a majority of the commission supported the project and was prepared to override the ruling that has prevented construction.

But commission member Carol Whipple, who at one point stated her

Turn to SALT CAVES, Page 4B

support for the project, grew increasingly concerned that it might violate state environmental rules against changing the temperature of water in the Klamath River.

Rules adopted previously by the EQC prohibit new projects such as dams and other industrial facilities from increasing wintertime water temperatures by more than half a degree.

"I'm torn," Whipple said. She said she doesn't like the temperature standard because she doesn't believe a slight increase would harm fish in the river. However, she said, she believes she is obliged to follow the rule.

Commission member Henry Lorenzen, who argued strenuously to override the judge's ruling and approve the permit, said he wants to see the rule amended.

"If a rule is going to force me into a conclusion I feel is absurd, the rule should be changed," Lorenzen said. "I'm very uncomfortable with the result we came to," he said after the vote.

He was joined by commission member Emery Castle in voting against the permit denial.

The Salt Caves project began in the late 1970s as a proposal for a high dam that would be built by Pacific Power and Light Co. 4.5 miles downstream from the existing John C. Boyle dam.

The city of Klamath Falls took over the project in 1980, changing the proposal to a low dam. In 1986, the city changed the scope of the project again in hopes of getting approval, this time to a water diversion project, similar to those administered by the Eugene Water & Electric Board on the McKenzie River.

Environmental groups have fought the \$200 million project at every turn, claiming it would damage valuable trout habitat and disrupt a popular and scenic stretch of the river.

Last year, Oregon 4th District Rep. Peter DeFazio tried to get the project killed outright by having Congress declare the Klamath a wild and scenic river, which would have prevented new hydro projects. The measure passed the House but never came up for a vote in the Senate.

Earlier this year, the Department of Environmental Quality refused to issue the city a permit to build the project, saying it would raise water temperatures and harm the trout fishery in the Salt Caves reach of the river.

Klamath officials appealed and a state hearings official ruled that, while the project would not necessarily harm fish, it would violate the state's water temperature standard. The ruling was then appealed to the Environmental Quality Commission.

In its ruling Thursday, the commission agreed with the hearings official on both counts. In doing so, the commission went against the recommendation of DEQ head Fred Hansen, who said he believes the project would hurt the fishery.

Keller, the Klamath Falls city manager, said he will consult with lawyers before deciding whether to file another appeal but indicated the project would not be dropped.

He called the commission's discussion "very positive. I'm really encouraged that a state body recognizes we have a good project."

September 25, 1991

Boreas van Nouhuys
PO Box 2049
Lewis and Clark College
Portland, Oregon 97219

Dear Mr. van Nouhuys:

Thank you for your letter of July 30, 1991. We share your concern for the Upper Klamath River. The Upper Klamath has been designated a state scenic waterway since 1988.

Under state law, Oregon will protect this river from all inappropriate development. In addition to the protection afforded to the Upper Klamath by scenic waterway designation, the legislature has passed the following measures:

- Senate Memorial 1: Memorializes Congress to designate the Upper Klamath River as a National Wild and Scenic River.
- Senate Memorial 2: Memorializes the Federal Energy Regulatory Commission to deny a permit for any hydroelectric project on the Upper Klamath River.
- Senate Resolution 2: Directs Governor and state agencies to disapprove hydroelectric projects on the Upper Klamath River and to take steps to prevent hydroelectric projects.
- Senate Bill 919: Prohibits construction of hydroelectric facilities on the Upper Klamath River.

The directives in these recent legislative measures preclude the state approval of the proposed hydroelectric facilities. If you have any questions concerning this issue, please feel free to contact Bill Fujii of the Water Resources Department at 378-8455 ex 286.

Sincerely,

Barbara Roberts,
Governor

Klamath Falls, OR
(Klamath Co.)
Herald & News
(Cir. D. 18,637)
(Cir. S. 20,135)

SEP. 19 1991

City officials conduct strategy session on Salt Caves project

By NICK GREEN
H&N Staff Writer

With a hearing on the Salt Caves hydroelectric project confirmed for Oct. 10 in Portland, the Klamath Falls City Council met in a strategy planning session Wednesday.

The state Environmental Quality Commission is expected to rule at the hearing on the Department of Environmental Quality's decision to deny a water quality permit for the city's multimillion-dollar project on the Upper Klamath River. The permit is necessary for the project.

Because the talk about tactics occurred in executive session with legal counsel, the media are prevented by Oregon law from reporting the details of the discussion.

But some clues on the line of argument the city will use have emerged and more surfaced during a special city council meeting after the executive session.

Consultant Ron Nichols called a recommendation by a hearings officer upholding the DEQ's ruling "the most favorable denial we could get."

Former Oregon Court of Appeals Justice Herbert Schwab recommended in August that the EQC deny the project a permit because it violates a technical water temperature standard. The project would raise the river's winter water temperature by more than 0.5 degrees Fahrenheit and therefore violates state water quality standards, Schwab said.

"It's rapidly becoming an issue that transcends the city of Klamath Falls and the Salt Caves pro-

ject," Nichols said. "It isn't the city that's hanging on by their nails . . . it's a relatively desperate state agency."

That's because the hearings officer ruled that no environmental issues, which have dogged the project in the past, are involved. Furthermore, the temperature standard has never been applied to any other project before, Nichols said.

And that, City Manager Jim Keller has pointed out in the past, is hardly a standard.

Indeed, if it were, a large number of wastewater treatment plants and similar facilities in the state would also be in violation, Nichols said. As a result, groups such as the Oregon Association of Sewer Agencies are taking an interest in the issue and may take part in the October hearing.

The cost of forcing cities and other entities statewide to comply with the standard would drive up sewer rates to such an extent the city's recent water rate increase would look small by comparison, Keller said.

There are three possible outcomes, Nichols said. First, the commission will reverse the DEQ decision. That, he conceded, is not likely.

Second, the commission will recognize a problem with the standard and change the rules. That could take 6 to 8 months, Nichols estimated.

Third, the commission upholds the denial and the city appeals to the state Court of Appeals.

Whatever happens, the city has reduced spending levels and believes it has enough money remaining to continue to fight for the project, he said.

JOLLES, SOKOL & BERNSTEIN, P.C.

ATTORNEYS AT LAW

721 SOUTHWEST OAK STREET
PORTLAND, OREGON 97205-3791



BERNARD JOLLES
LARRY N. SOKOL
HARLAN BERNSTEIN
MICHAEL T. GARONE
EVELYN CONROY SPARKS *
KARL G. ANUTA

* ALSO MEMBER OF
WASHINGTON STATE BAR

TELEPHONE
(503) 228-6474
FACSIMILE
(503) 228-0836

August 16, 1991

RECEIVED

AUG 20 1991

WATER RESOURCES DEPT.
SALEM, OREGON

Mike Mattick
Oregon Water Resources Dept.
3850 Portland Road, NE
Salem, OR 97303

Re: Klamath River Instream Water Right Application No. 70094

Dear Mike:

I represent a number of conservation groups who are concerned with the above-referenced instream water right. Attached is a copy of a November 29, 1990 letter that I wrote to Jake Szramek on this matter.

To-date, I have not received a response. Moreover, I have not even heard from the Department on this matter, although I requested that I be placed on the mailing list. Please advise me immediately of the status of this instream water right and the reason, if any, why it has not been issued yet.

As you know, this right was applied for in October of 1989. Do you think most private irrigation interests would wait for almost three full years for a right without any action being taken - not even a contest case scheduled? We both know the answer to that question. It is incredible to me that this type of important public right would be allowed to languish for so long.

I look forward to your written response in the very near future. The matter has been back-burnered for way too long. As far as I am aware, the Department has provided no rational reason for not moving forward.¹ We both know that the mere

¹ I am independently aware of a federal court action by the U. S. Government on the Klamath adjudication. However, that involves federal reserve rights and an adjudication, not state instream rights. Such rights can only help, not harm the federal reserve rights.

Mike Mattick, OWRD
Re: App. 70094
August 16, 1991
Page 2

existence of a controversy is not a rationale for delaying a decision. If anything, existence of controversy is a basis for resolving the dispute more quickly, so that all involved know how to proceed.

Sincerely,

Karl G. Anuta

KGA:pl

cc: Liz Frenkel, The Sierra Club
Bill Bakke, Oregon Trout
Jim Garvey, Save Our Klamath River
David Paul, NEDC
Bob Doppelt, Oregon Rivers Council
Andy Kerr, Oregon Natural Resources Council
Karen Russell, WaterWatch
Ed Goodman, Oregon Legal Services
Adam Berger, SCLDF
Harold Sawyer, DEQ
Al Cook, Parks Department
Al Mirati, ODF&W
Martha Pagel, Natural Resources Assist., Governor's Office
Bill Young, Director, Water Resources Dept.
Lorna Stickel, Water Resources Commission
Paul Koberstein, The Oregonian

Salt Caves 5064 obstacles formidable

**Official: 'We've hit
end of our money!'**

By NICK GREEN
H&N Staff Writer

Time and money are running out and political realities are closing in on the Salt Caves hydroelectric project the city of Klamath Falls proposes to build on the Upper Klamath River.

Earlier this week a hearings officer upheld a Department of Environmental Quality decision to deny a water quality permit necessary for the \$180 million development to go forward. The ruling is merely a recommendation to the state's Environmental Quality Commission, but it sets the stage for yet more complicated and lengthy legal maneuvers.

The commission is scheduled to meet Sept. 17, although there's some question whether that will happen. The panel's chairman, William Hutchison, Portland, wants to step down and a new commission member would have to be appointed and confirmed by the Senate.

If the commission sides with the hearings officer and the DEQ in denying the permit, the city could appeal to the state Court of Appeals.

The question will soon become whether the city can afford to continue with the process.

"We've hit the end of our money," said Michael Hartfield, project spokesman.

Since 1985 the city has spent about \$16 million on the project; about \$1.1 million has been allocated for this fiscal year.

The city only has another \$700,000 left in its bank account over and above that.

The money came from the sale of bonds, but changes to the tax code means that source of funding is no longer available. The city sold the bonds and invested the proceeds, which yielded the money used for Salt Caves; taxpayer funds were not used.

"We're living on our savings," Hartfield said. "A new bond issue would give us no more earnings."

The question the city council must weigh is whether the cost of going forward with the project is outweighed by the probability of its success.

It's not merely a construction project at stake. Revenues from power sales generated by the project were to finance an economic recovery project known as Project Bootstrap city leaders saw as a way to revitalize the local economy.

The council will decide whether to pursue the project once it has reviewed the DEQ report and heard from the city's consultants, said Chuck Rhodes, council president.

City officials have complained Wednesday's ruling by Herbert Schwab, a retired appeals court justice, was based on an "arbitrary standard" and a "technicality."

Because the project would increase the winter water

Klamath Falls, OR
(Klamath Co.)
Herald & News
(Cir. D. 18,637)
(Cir. S. 20,135)

AUG 16 1991

See SALT CAVES, page 2

Allen's P. C. B. Est. 1888

1

SALT CAVES

From page 1

temperature of the river 0.5 degrees Fahrenheit it violates state water quality standards, Schwab said.

But he also said there is no evidence the temperature increase would hurt fish in the river.

"We're now down to a winter temperature standard that has no environmental impact," Hartfield said.

The city's experts and a Final Environmental Impact Statement on the project issued by the Federal Energy Regulatory Commission in June 1990 concluded the increase in water temperature would actually improve the habitat for trout.

This week's ruling has left Rhodes, a staunch supporter of Salt Caves, wondering if the city can win what he called "a strictly political" issue.

"If there's any way for us to continue to do it, I would like to go forward, but you've got to figure out if it's feasible," he said.

Roger Hamilton, a former Klamath County Commissioner who is now an economic specialist with the Oregon Rivers Council, an environmental group opposed to the Salt Caves proposal, believes the political will to kill the project is too strong.

Members of the EQC are appointed by the governor. Both the current and former governor have been opposed to Salt Caves.

"They're (the state) not going to open the door to this project on technical grounds when politically and philosophically they're opposed to this project," Hamilton said.

Jim Keller, Klamath Falls city manager, doesn't want to believe that.

"(The EQC) was set up to promulgate rules and regulations on the state's waters," he said. "That's a long way from taking a dictatorial position drafted by the governor based on politics. That may be reality, but my God, where have we come and where are we (now)?"

The plan to divert water from the J.C. Boyle Dam through 8.5 miles of buried pipe to a city powerhouse before returning it to the river, has become not only a regional issue, but a national one.

Opposition to the project, tough as it is now, would likely continue even if were to win approval, Hamilton said. Lawsuits would be filed on broader issues such as whether the project violates the state's scenic waterway designation, he said.

The controversy would drag on. And the bottom line looms.

"We've narrowed the issues," Hartfield said. "On the other hand we've narrowed the amount of money we have to complete the project. Both are going down simultaneously."

8-16-91
(2)

JOLLES, SOKOL & BERNSTEIN, P.C.

ATTORNEYS AT LAW

721 SOUTHWEST OAK STREET
PORTLAND, OREGON 97205-3791



TELEPHONE
(503) 228-6474
FACSIMILE
(503) 228-0836

BERNARD JOLLES
LARRY N. SOKOL
HARLAN BERNSTEIN
MICHAEL T. GARONE
EVELYN CONROY SPARKS *
KARL G. ANUTA

* ALSO MEMBER OF
WASHINGTON STATE BAR

November 29, 1990

Jake Szramek
Water Resources Dept.
3850 Portland Rd., NE
Salem, OR 97303

Re: Instream Water Right Application
Upper Klamath River WRC App. No. 70094

Dear Mr. Szramek:

I represent The Sierra Club, Oregon Trout, Save Our Klamath River, the Northwest Environmental Defense Center (NEDC), the Oregon Rivers Council (ORC) and the Oregon Natural Resources Council (ONRC). Each of these organizations has been actively involved for over six years in the "Salt Caves" proceedings. I recently reviewed materials from the above-referenced file.

As you know, this is an instream water right jointly requested by the Oregon Department of Fish and Wildlife (ODFW) and the Oregon State Parks Department. This water right was requested in October 1989. To-date, there appears to have been virtually nothing done to process this application. Please advise why this has occurred.

I note that the City of Klamath Falls has sent several letters objecting to this water right. That is their prerogative. However, it should not in any way interfere with the Department's processing of the application. The City's claim that ORS 537.360 bars you from processing the application is absolute rubbish. The statute bars the Water Resources Commission from issuing a water right. It does not bar the Water Resources Department from gathering and reviewing data on the application.

There is no reason to hold up the processing of this application simply because a decision on the issuance of the water right may be delayed. As you know, it sometimes takes months just to complete the processing of the application. Yet, this must be completed before the Water Resources Commission even considers the right. In addition, the Oregon

FILE COPY

Jake Szramek

-2-

November 30, 1990

Attorney General's Office has ruled that there is no conflict with the Klamath River Compact, ORS 542.620.

NEDC, ONRC, Save Our Klamath River, the Sierra Club, ORC and Oregon Trout all fully support the ODFW/Parks request for an instream water right. Such a right is long overdue on the Klamath, particularly now that it is a state Scenic Waterway. It is undisputably in the public interest to issue this water right. After all, it was the public of this state who designated this stretch of the Klamath as a State Scenic Waterway. Such waterways must be given instream water rights to survive.

The City has now effectively stalled the processing of this water right for well over one year. This has occurred despite the clear directives of the people of this state, the Governor of the state, the Strategic Water Management Group and the Oregon Attorney General's Office. I urge you to ignore the desperate and frenetic smoke screens thrown up by the City and to proceed immediately with processing with this critical instream water right.

Please also see that my name is placed on the mailing list for all materials in this matter.

Sincerely,

Karl G. Anuta

KGA:pl

cc: -Liz Frenkel, The Sierra Club
-Bill Bakke, Oregon Trout
-Jim Garvey, Save Our Klamath River
-David Paul, NEDC
-Bob Doppelt, Oregon Rivers Council
-Andy Kerr, Oregon Natural Resources Council
-Karen Russell, WaterWatch
Ed Goodman, Oregon Legal Services
Adam Berger, SCLDF
Harold Sawyer, DEQ
Paul Koberstein, The Oregonian

June 25, 1991

INTER-OFFICE MEMO

TO: Mike Mattick

FROM: E. George Robison

Concerning: Streamflows for the Klamath River pre-regulation

Attached is a table for the streamflows for the Klamath River at Keno for the period of record of 1904-1913 that is before any major dams and flow regulation of Klamath Lake which occurred in 1919. While there is no regulation for this record there is no doubt that there were diversions. The results show that even before any regulation occurred the flows were not up to 1500 CFS for several months. While this is only 9-10 years of record depending on the month. The lowering of flow below 1500 CFS for August, September, and October would also hold true for a longer record as well at the early teens were climatically a fairly normal period. Another consideration may be the presence of groundwater inflow between Keno and John Boyle. Spencer Creek (the largest tributary between the sites would be a small player for inflows adding only a few CFS.

cc Fred Lissner

John Borden

Barry Norris

Steve Applegate

Ben Scales

Ken Stahr

Mean Water Flow For Station #: 11509500			
For the 1904-1913 Period			
Month	Mean	80% Ex.	50% Ex.
JAN	2246.4	1992.8	2230.7
FEB	2577.1	2258.0	2590.8
MAR	2870.3	2388.1	2839.6
APR	3227.6	2709.3	3099.5
MAY	3118.5	2570.3	3083.4
JUN	2837.5	2044.6	2596.6
JUL	1948.5	1413.1	1854.3
AUG	1319.4	996.7	1270.3
SEP	1128.9	920.7	1115.5
OCT	1226.8	1073.2	1186.3
NOV	1505.9	1368.2	1461.6
DEC	1870.5	1650.9	1848.0

Statesman
Thursday 12, 1991

Klamath Falls argues state took too long on dam permit

The Associated Press

KLAMATH FALLS — The state gave up its authority to deny a water quality permit for the Salt Caves hydroelectric project by taking too much time, a lawsuit filed by the city of Klamath Falls contends.

"We feel the state has gone beyond the 12-month limit in granting the 401 (water quality permit), and therefore the 401 is ours by default," Salt Caves spokesman Michael Hartfield said.

Filed Tuesday in Klamath County Circuit Court, the lawsuit represents a second effort to overcome the state Department of Environmental Quality's denial of the crucial permit for the hydroelectric project.

Last week, the city appealed to the Oregon Court of Appeals to overturn the Environmental Quality Commission, which twice refused to reverse the agency director's denial of the permit.

Agency spokeswoman Carolyn Young said the department hadn't seen the lawsuit, but the issue raised was an old one.

Although the Federal Energy Regulatory Commission has supported the \$180 million project, the city can't build it without state certification that it wouldn't violate federal water quality standards. The city hopes to use profits from the sale of electricity to finance economic development.

Salt Caves would involve drawing water from the tailrace of the J.C. Boyle Dam on the Klamath River and running it through 8.5 miles of conduit to a powerhouse, where the water would return to the river.

The state agency decided that the project would violate clean water standards by raising water temperatures in the Klamath River by more than a half degree in winter.

SEATTLE — Federal timber sales in the Pacific Northwest would be slashed to less than half the level of the 1980s under a recovery plan for the northern spotted owl that reportedly is close to being adopted.

Two spotted owl recovery team insiders said the 16-member federal panel finished drafting the plan Monday. Deliberations have been closed to the public.

The plan could be overruled by Congress or the White House, but neither is likely, the *Seattle Post-Intelligencer* reported Wednesday.

The draft goes to Interior Secretary Manuel Lujan, who is expected to release a public proposal Feb. 12. Lujan has been advised of the panel's work and is not likely to make major changes, the insiders said.

Deadlock on issue

Congress has been deadlocked between environmentalists and timber interests on spotted owl protection.

The bird, listed as threatened on the endangered species list, is considered an indicator to the overall health of the old-growth forest ecosystem. Its listing last year by the U.S. Fish and Wildlife Service means its forest habitat must be protected for it to survive.

A recovery team member, Rich Nafziger, the chief timber adviser to Washington Gov. Booth Gardner, said the plan apparently would cut logging slightly more than a proposal made 21 months ago by a federal scientific group headed by Jack Ward Thomas of the U.S. Forest Service.

The Thomas plan would result in federal timber sales amounting to about 2 billion board feet in the Pacific Northwest, compared with a yearly average of 4.5 billion board feet through the 1980s. It would cost about 45,000 jobs and more than \$2 billion in annual salaries, a review panel found.

The latest recommendations did not include acreage or timber harvest figures, Nafziger said.

"There's probably not going

between harvest new proposal and report, added C... an aide to the commissioner of Brian Boyle, an on the recovery

Features of plan

Other reports the plan:

■ Adjustment of boundaries to other than the old-growth

■ Leeway for trees within owl in places where cided selective improve habitat

■ Timber sale damaged by wi spite concern might be enco fires.

■ Scientific five years, which an easing of res industry can p that the owls th er forests.

■ A way for state landown most logging re owl nests, esser serving tree c link groups of prove long-term the birds.

Economic costs

Nafziger said plan would do economic and so

"The entire been on max tecton of the ow

Nafziger said though outnumber panel, prevailed deliberations be crats lacked the challenge them numerous court

"No one's wi any chances" v survival, he said

Partridge said should be." H that the most was to make th cally credible.

Federal court required that plans meet the of the Endang Act, which give listed species p forts to reduce e

GEORGE H. PROCTOR
RICHARD FAIRCLO

PROCTOR & FAIRCLO
ATTORNEYS AT LAW
280 MAIN STREET
KLAMATH FALLS, OREGON 97601

why Young
JRP Borden
M. Matlick
(503) 882-4436
FAX 503-882-6953

April 24, 1991

RECEIVED
APR 25 1991
WATER RESOURCES DEPT.
SALEM, OREGON

Bill Young, Director
Water Resources Department
3850 Portland Road NE
Salem, OR 97310

Re: Klamath River

Dear Bill:

Would you kindly furnish me a copy of the order approving the instream flow for the Klamath River waterways. Thank you for your consideration.

scenic

Very truly yours,

PROCTOR & FAIRCLO



George H. Proctor

GHP:1a

(Klamath Co.)
Herald & News
(Cir. D. 18,637
S. 20,135)

FEB 6 1991

County will intervene in water rights case

By LU WOLCHIN
H&N Staff Writer

Klamath County will attempt to block the Oregon Department of Fish and Wildlife's applications for instream water rights.

The county commissioners Tuesday voted to ask the state Water Resources Commission for permission to participate in a contested case in which the fish and wildlife application is already being reviewed.

According to the request being filed, the commissioners believe the ODFW's water rights should be rejected and the agency stopped from filing any further applications for instream water rights until they are supported by adequate factual data and properly utilize acceptable scientific methods.

The formal document states that the commissioners believe people within the county will be adversely affected by the granting of the ODFW application, and that the water rights it has applied for will be "wasteful, uneconomic, impractical and unreasonable" and "will impede the orderly economic development of the waters involved for multiple purposes."

The county's request points out that the ODFW's application listed flow levels exceeding the estimated average natural flow of the streams, and that the method used for setting the levels does not adjust for

seasonal flow deficiencies.

"ODFW filed for water rights on most streams in the county based on high water flows," said Commissioner Wes Sine.

Also Tuesday, Chris Maudry of the Lost River Booster Club asked for help from the commissioners to complete the all-weather track at Lost River High School, by paying for road-grade rock.

Funds for such a project would come from road money set aside each year for special public works projects, which was used last year to help pay the cost of paving a parking lots at Oregon Institute of Technology and a portion of the Sprague River community park.

The booster club, Maudry said, has already raised some of the money needed and hopes to raise a great deal more during the next several months.

"Seventy percent of Lost River's students are involved in sports, so we feel this is important," he said.

The commissioners deferred the request until the booster club completes this year's fund drives and knows how short they are of their goal.

In other business, the commissioners accepted 39 private bids on tax-foreclosed properties not sold at public auction, totaling approximately \$87,500.

DAVIS WRIGHT TREMAINE

LAW OFFICES

2300 FIRST INTERSTATE TOWER • 1300 SW FIFTH AVENUE • PORTLAND, OR 97201-5682
(503) 241-2300

RECEIVED

DEC 3 1990

WATER RESOURCES DEPT.
EM, OREGON

Richard M. Glick

November 29, 1990

CERTIFIED MAIL
RETURN RECEIPT

William H. Young
Director
Water Resources Department
3850 Portland Road NE
Salem, Oregon 97310

RE: Klamath Basin Instream Water Rights
Application No. 70798 - 70832
Our File No. 54030-013

Dear Mr. Young:

The City of Klamath Falls (the "City") has received the Public Notice for Instream Water Right Filings issued by the Water Resources Department (the "Department") on November 9, 1990. Included within the notice are several applications filed by the Department of Fish and Wildlife ("ODFW") on streams within the Klamath Basin, including application numbers 70798 through 70832.

The City has pending before the Department its application submitted June 8, 1989, to appropriate water from the upper Klamath River for hydroelectric power generation purposes. The Department has rejected the application, without evaluation, and the matter is under judicial review (City of Klamath Falls v. Water Resources Department and Water Resources Commission, Klamath County Circuit Court No. 890-2024C). Under ORS 536.075(5), the filing of a petition for judicial review in either the circuit court or the court of appeals shall stay enforcement of the Director's order rejecting the City's application. Thus, by operation of law, the City's application is still pending and all later filed applications, including the instream water rights applications discussed herein, are junior in priority.

Fax: (503) 778-5299 • Telex 185224

ANCHORAGE, ALASKA • BELLEVUE, WASHINGTON • BOISE, IDAHO • LOS ANGELES, CALIFORNIA
RICHLAND, WASHINGTON • SEATTLE, WASHINGTON • WASHINGTON, D.C.

William H. Young
November 29, 1990
Page 2

Because all of the subject applications are for reaches above the Salt Caves reach of the Klamath River, and because such water rights are by their nature non-consumptive, the City does not expect that the instream rights would interfere with the City's ultimate water use. Nor would the City's proposed water use interfere with the proposed instream uses.

Nonetheless, the City asks that the record on each of ODFW's applications reflect the City's prior application. Please send all notices, correspondence and pleadings concerning the subject applications to the undersigned as well as the City.

Thank you for your consideration.

Very truly yours,

DAVIS WRIGHT TREMAINE

A handwritten signature in cursive script, appearing to read "Richard M. Glick".

Richard M. Glick

cc Mr. Randy Fisher
Hon. George C. Flitcraft

NEIL GOLDSCHMIDT
GOVERNOR

RECEIVED

AUG 23 1990

WATER RESOURCES DEPT.
SALEM, OREGON



OFFICE OF THE GOVERNOR
STATE CAPITOL
SALEM, OREGON 97310-0370
TELEPHONE: 378-3111

August 21, 1990

The Honorable Mark Hatfield
711 Hart Senate Office Building
Washington, D.C. 20510

Dear Senator Hatfield:

It's my pleasure to send you the information you requested on the proposed Salt Caves project. At my request, the relevant State agencies prepared the enclosed summary, along with extensive attachments.

Keeping track of Salt Cave proposals could become a thriving cottage industry in Oregon. In the seven years since the project was first proposed, thousands of pages of documents, thousands of hours of State personnel time, and hundreds of thousands of taxpayer dollars have been spent evaluating first one proposal then another. At each turn, project sponsors have argued to me and others that the particular project then on the table was environmentally benign. We have now been through three iterations in which a new project was proposed with the admission, "...well, maybe there were some problems with the last proposal--but this one is perfectly acceptable."

The irony this time -- a galling irony for the State of Oregon -- is that it is not the project sponsors who created the latest version. Nor is it an elected or appointed official. For all we know, it may be someone who has never set foot in Oregon. Because the "author" of the latest version of Salt Caves is the staff of the Federal Energy Regulatory Commission (FERC).

I am willing to grant that the current proposal is better than the last. But it is not good enough. It is not a project that Oregon would condone. You can imagine the frustration for Oregonians when they realize that they will not be allowed to make or influence the decision.

We have always worked diligently with you and Federal agencies on Federal resource decisions, whether they regard forests or Hanford. It often is difficult for the State to see the effect of its labors on such issues. But compared to dealing with FERC, we have a real partnership with the Federal government on forest management and Hanford.

The Final Environmental Impact Statement (FEIS) from FERC is larded with staff conclusions that mock the idea of cooperative, federal resource development. For example: "The staff concludes that the no-dam alternative is best adapted to a comprehensive plan for the affected waterway...." (page xxv, FEIS).

This staff judgment flies in the face of state and regional plans developed after arduous study and collaboration. These include the State's comprehensive waterway plan, the Klamath River Trout Management Plan, the Oregon Non-game Management Plan, the Statewide Comprehensive Land-Use Plan, the Northwest Power Planning Council Fish and Wildlife Plan and the Klamath River Basin Compact.

With one sentence, FERC staff dismisses years of effort and denies the State its rightful voice in development of its own resources.

FERC staff summarizes its case this way:

"In recommending licensing, the staff concludes that the following positive attributes of the no-dam alternative outweigh the adverse impacts:

- Through displacement of coal-fired power generation, the no-dam alternative could make a small contribution to reducing air emissions associated with acid rain and global warming.
- The no-dam alternative would result in significant positive effects on the depressed local economy.
- The no-dam alternative would improve water quality and benefit the regionally significant population of native rainbow trout.
- There is a high likelihood of a regional need for power in the mid-1990s, a portion of which could be met cost-effectively by the no-dam alternative."

(page xxv-xxvi, FEIS)

Let's quickly dispose of these reasons and see what is left.

The project will fight global warming.

It is true that non-coal-fired generation is better -- but not all of it is equally good. The proponents of nuclear power are making the same arguments. The irony of building more fish-damaging hydro at the same time we are wrestling with the endangered species issue on the Columbia is not lost on anyone but FERC.

The project will benefit the local economy.

IF there were no uncertainties surrounding the financial feasibility of the project and IF there were not adverse effects, the State of Oregon would happily endorse this conclusion. But the FERC staff itself rates the chance that the project will secure a long-term power sales contract as "moderate." FERC staff acknowledges that such agreements "could be hindered by institutional impediments associated with regional issues such as intertie access and protected areas designation."

Other complications noted by FERC are the residential power exchange for IOUs and the limitation (for tax-exempt bond financing) to 25 percent purchase of output by IOUs. In short, although FERC staff documents the financial uncertainties of the project, it does not discount for them. In part, the State fears that the project might be licensed and built, yet produce far less economic benefit than in the "best-of-all-worlds" scenario. We would still be stuck with the adverse effects. The fact that the project has so far failed to attract any buyers increases this worry. One way for FERC staff to eliminate the uncertainty would be to say "no license until you have a contract." This the staff rejects.

(The "impediments" which FERC staff says might "hinder" sale of the project's power -- intertie access policy, protected areas residential exchange, bond limitations -- are of course, policies carefully worked out to protect ratepayers, taxpayers, and fish.)

The project would improve water quality and the trout fishery.

Even FERC will acknowledge, we hope, that Federal law clearly leaves to the State determination of water quality effects and issuance of the 401 water quality permit. The Oregon Department of Environmental Quality has just begun review of the no-dam alternative. As to the trout fishery, the Oregon Department of Fish and Wildlife simply disagrees with FERC staff.

The project will provide needed power for the region.

The region needs power. It does not need this power.

In November 1987 when I announced my opposition to the then-proposed project, I reached my conclusion "based upon uncertain energy and economic returns measured against the certain loss of natural values we cannot replace." Despite progress over the years in moving from a terrible proposal to one that is just not good enough, my earlier conclusion stands. I am not willing to ask Oregonians to accept the decision of FERC staff over and against the combined judgments of many State and regional bodies with responsibility for stewardship of the river and region.

It is ironic that, over the years, the project sponsors have accused the State of moving the goalposts and changing the standards. In fact, it is the sponsors who have changed the game, each time advancing a new proposal with the strong and certain claim that all the problems have been fixed. It is no wonder that State agencies are a little perplexed at the no-dam alternative. When these same agencies raised concerns about the older versions of the project -- the very concerns which the no-dam alternative is advertised to cure -- the project sponsors then protested that "we've resolved the environmental concerns about the project..." They accused State agencies of failing to provide an objective review of the project. Apparently when FERC speaks, the City listens.

As far as Oregon is concerned, it is still an orphan project, for it has not received any of the State permits it would need.

The skirmish over Salt Caves has been long and costly. Conservatively, the State has spent more than \$625,000 in reviewing and commenting on the proposal. I don't know how much the City has spent, but published annual budgets from proceeds of the Salt Caves bonds have been \$3 to \$4 million since 1985. That, of course, is taxpayer money because it is the arbitrage earnings from \$250 million of tax exempt bonds. This is all before we have hit the heavy lawsuit stage, which we surely will, absent a revolution at FERC.

You indicated in your letter that you are evaluating the merits of both a wild and scenic designation and the project licensing. I have included material related to wild and scenic designation. The voters, of course, have resolved that issue for the State. Since that does little to deter FERC, I endorse Congressional action which would end the Salt Caves saga.

The Honorable Mark Hatfield
August 21, 1990
Page 5

The record is extensive. We have tried to organize it to a complete but usable track through the earliest high dam proposal to the latest no-dam proposal. I will be pleased to provide further information or respond to any questions you may have.

Sincerely,

A handwritten signature in dark ink, appearing to read "Neil", written over the printed name.

Neil Goldschmidt
Governor

cc: The Honorable George Flitcraft,
Mayor of the city of Klamath Falls

ECONOMIC IMPACTS OF FEDERAL SCENIC DESIGNATION
OF THE UPPER KLAMATH RIVER

Comments of the Oregon Department of Energy
August 1990

SUMMARY:

The Director of the Bureau of Land Management and the City of Klamath Falls have raised concerns about impacts of federal scenic waterway designation. Other than banning new hydro projects these concerns are unfounded. Federal designation of the upper Klamath River as a scenic river will have no significant economic impact beyond the questionable economic impact of banning new hydro projects in the reach. This view is supported by the March 1990 Final Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study of the Bureau of Land Management (BLM Report).

Specifically, federal designation would not restrict the following uses, beyond state law and federal management plans already in effect:

- Existing water rights;
- Future upstream storage projects;
- Future irrigation projects;
- Federal power land withdrawals;
- Local power rates;
- Timber harvests; and
- Existing power operations.

Federal designation will preclude new hydro projects in the reach including the 'No Dam' alternative Salt Caves project. Construction of the project is by no means assured. FERC staff acknowledges the "uncertain nature of the current power sales situation, ..." and rates the project's "potential to secure favorable long-term power sales contracts in the current institutional setting" as "moderate." FERC FEIS p. 2-32.

If the Salt Caves project is built, the only assured economic benefit to Klamath County is jobs during the three year construction period and the 1 or 2 long-term jobs to operate the project. The City of Klamath Falls has presented no evidence to support its forecast of \$5 million per year of net revenue. ODOE's view is that the City will have difficulty selling power from the project at all, let alone at a substantial profit. The City has failed to find a buyer for Salt Caves' power after five years of trying.

INTRODUCTION:

Concerns raised by Cy Jamison:

In his testimony on June 28, 1990, before the U.S. House Subcommittee on Natural Parks and Public Lands, Cy Jamison, BLM Director, raised seven questions that should be answered before Congress acts on designation. Specifically he questions the impact of designation on:

- Existing water rights;
- Future upstream storage projects;
- Future irrigation projects;
- Federal power land withdrawals;
- Local power rates;

He also questioned local economic impacts generally. He raised similar issues in his April 2, 1990 cover letter to the BLM Report.

Concerns raised by the City of Klamath Falls:

The City of Klamath Falls commissioned a report Analysis of the Regional Costs of Wild and Scenic Designation of the Upper Klamath River, March 1990 (RMI Report). The report was prepared by Resource Management International, Inc., the city's primary contractor on the Salt Caves project. The RMI Report raises issues similar to those raised by Cy Jamison. In addition, the RMI Report states that federal designation would impact timber harvests and the operation of existing hydro projects. The RMI Report forecast that designation will cost the Klamath Falls region \$1.5 to 2.8 billion over 40 years.

Response to Concerns:

The BLM Report directly resolves all but one of the concerns raised by the BLM Director and the City of Klamath Falls. The remaining concern (impact on local power rates) is also unfounded. The only impact of designation is to prohibit new hydro projects in the reach.

Overall, the BLM Report concludes that designation would have no significant economic impact beyond halting the Salt Caves project. ODOE concurs. Each of the concerns is resolved below. The comments conclude with a discussion showing there is little likelihood of substantial benefits to the Klamath region from the Salt Caves project.

CONCERN: IMPACT ON EXISTING WATER RIGHTS:

Mr. Jamison's June 28 testimony states:

"Before a determination as to designation is reached, we believe consideration should be given to ... Potential elimination of flow regulation priority on Link River Dam for agricultural use during water short years to meet existing agricultural needs;"

RESPONSE:

The BLM Report states:

"Designation of the upper Klamath River would have no effect on valid existing water rights. This is specifically provided for in Section 13 of the Wild and Scenic Rivers Act: ... Existing irrigation systems and other water developments and diversions would not be affected by designation of the eligible and suitable segments of the upper Klamath River." BLM Report, p. 5-26 (emphasis added).

ODOE agrees: Federal designation would not affect existing vested water rights. See 16 USC § 1284(b).

CONCERN: EFFECT ON FUTURE UPSTREAM STORAGE PROJECTS:

Cy Jamison's June 28 testimony raises a concern about the:

"Potential impact of designation on ability to increase upstream storage in the Upper Klamath system to address additional water supply needs for beneficial uses such as endangered species mitigation, water quality improvements marshland restoration, additional agricultural diversion, etc."

The RMI Report states:

"It would also be impossible to construct new storage impoundments. Thus, a federal designation would freeze the present level of appropriation and allow no further appropriation or water storage." RMI Report, p. 24.

RESPONSE:

The BLM Report States:

"Future water appropriations, including offstream storage, could be allowed within a designated river to the extent they are consistent with State Law, the Compact, and Section 13 of the Wild and Scenic Rivers Act. ... Under Section

13(d) of the Wild and Scenic Rivers Act, the States continue to have jurisdiction over water use, so long as the values for which the river was designated are not impaired. BLM Report, p. G-10 and G-11 (emphasis added).

Federal designation allows future appropriations. Federal designation does not impose a more restrictive standard than state law and the state has jurisdiction over appropriation. Therefore, federal designation would have no substantive effect on future appropriations.

Section 7 of the federal Wild and Scenic Rivers Act provides, in part:

"[N]o department or agency of the United States shall assist by loan, grant, license, or otherwise in the construction of any water resources project that would have a direct and adverse effect on the values for which such river was established, as determined by the Secretary charged with its administration. Nothing obtained in the foregoing sentence, however, shall preclude licensing of, or assistance to, developments below or above a wild, scenic or recreational river area or on any stream tributary thereto which will not invade the area or unreasonably diminish the values present in the area on the date of designation of a river as a component of the National Wild and Scenic Rivers System.
16 USC § 1278(a) (emphasis added).

This provision could apply to federal sponsorship, funding, or approval of upstream storage projects. However, it is only speculative that an upstream storage project, especially one above upper Klamath Lake, would be determined to have a "direct and adverse effect" or "unreasonably diminish" the values of the upper Klamath River. In the meantime, there is no categorical legal or factual basis for the claim that federal designation would preclude upstream storage.

More importantly, restrictions on upstream storage, if any, could occur under state law regardless of whether the river is federally designated. Under the state Scenic Waterways Act, the Water Resources Commission (WRC) may not permit water diversions for storage upstream of a state scenic waterway (such as the upper Klamath) if the project would reduce flows below those necessary for recreation, fish, and wildlife uses. ORS 360.835(1); Diack v. City of Portland, 306 Or 287 (1988). Future water rights and development upstream of the upper Klamath will generally continue to be governed by this state law (and the Klamath River Basin Compact) even if the

upper Klamath is designated a federal scenic river. See 16 USC § 1284(d); see also BLM Report p. 5-15 and 5-26.

In sum, federal law would not automatically preclude upstream storage if the upper Klamath River were designated a wild and scenic river. Restrictions could be placed on such storage under state law whether or not the river is federally designated. State designation already requires the protection of recreation, fish, and wildlife values.

CONCERN: EFFECT ON FUTURE WATER APPROPRIATIONS

The RMI report states that federal designation would result in:

"Prohibition against further diversions from the river in excess of those presently taking place." RMI Report, p. 9.

Cy Jamison's June 28 testimony raises concerns about the:

"Potential impact of designation on future water supply needs of the northern California and south central Oregon agricultural industry which is supplied by water through the Bureau of Reclamation's Klamath project;"

RESPONSE:

The laws that cover appropriation are much the same as cover upstream storage (see above). The discussion on p. G-10 of the BLM Report (above) also applies to appropriations for irrigation. Federal designation could legally affect future proposals to divert water (e.g., for irrigation) within or upstream of the designated segment, but would, in fact, not add to state authority or apply a stricter standard than state law.

Federal designation could create an implied federal reserved water right. The reserved water right would date from passage of the legislation designating the river into the Wild and Scenic Rivers System, and would be for the quantity of water necessary to maintain the values that led to the river's designation. See 16 USC § 1284(c). Future appropriations junior and detrimental to the federal reserved water right could be protested by the United States.

Whether a future proposed diversion would conflict with the federal designation is speculative. The BLM Report states:

"The specific effect of designation on future water rights applications cannot be assessed in a hypothetical setting. There are too many variables which would have to be considered in determining whether new water rights would have any impact on the designated segment of the river. These variables could include point of diversion, amount of diversion, type of use, place of use, place of

storage, point of return flows, and hydrologic conditions, to name a few. Generalized statements indicating that designation would preclude future agricultural development or offstream storage are completely unfounded. Some water rights developments could even be beneficial to flows in the designated segments. For example, releases of water from offstream storage upstream of the designated segment could enhance flows during periods of low water." BLM Report, p. 5-26.

As pointed out by the BLM, future water appropriations could be affected by federal designation hypothetically, but with certainty by state law. Under the state Scenic Waterways Act, the WRC cannot approve new diversions within or upstream of a scenic waterway if the diversion would reduce flows below those necessary for recreation, fish, and wildlife. ORS 390.835; Diack, supra. Further, the Scenic Waterways Act prohibits the construction of dams, reservoirs, or water impoundment facilities within a scenic waterway. ORS 390.835(1). Hydroelectric diversion facilities are prohibited on scenic waterways under OAR 690-51-030(1).

In addition to these state law restrictions, the instream water right filings by Oregon Departments of Fish & Wildlife and Parks & Recreation for 1,500 cfs for recreation, fish, and wildlife purposes could, if granted, restrict further diversions within and upstream of the upper Klamath scenic waterway. The state agency water rights would be senior to and supersede later appropriations.

Finally, it should be noted that the Salt Caves hydroelectric project itself, if licensed, would preclude future in-reach diversions (since the project's diversion reach would be diverted except for minimum flows) and would probably restrict upstream diversions in order to preserve its power flow needs.

In sum, restrictions on future water appropriations will probably occur whether or not the upper Klamath is federally designated. State standards will likely govern restrictions in either case.

CONCERN: CONSISTENCY WITH FEDERAL POWER LAND WITHDRAWALS

Mr. Jamison's June 28 testimony raises a concern over:

"Whether designation is inconsistent with Federal power land withdrawals along the Klamath River;"

RESPONSE:

The BLM Report states:

"Federal water power withdrawals do not necessarily preclude designation of a river to the NWSRS (National Wild and Scenic

Rivers System). For instance, the Kings River in California, added to the NWSRS in 1987, is totally under federal power withdrawals." BLM Report p. 1-10 (emphasis added).

In Table 5-2 the BLM Report shows that "Federal power withdrawals (have) no effect on suitability." BLM Report p. 5-9.

Federal power withdrawals do not require an area be developed for hydropower. They only withhold certain parcels of public land from disposal to the public or protect certain uses.

CONCERN: IMPACT ON LOCAL POWER RATES

Mr. Jamison's June 28 testimony raises a concern over:

"Potential impact of designation on future power rates to agricultural customers in the Klamath Basin."

RESPONSE:

Federal designation would not impact future power rates to local customers. Most of Klamath County is served by Pacific Power, an investor-owned utility. No more than 25 percent of the Salt Caves' power could be sold to investor-owned utilities as a condition of the tax exempt status of the bonds. In any case, the price of the power from Salt Caves will be higher than local rates in the early years of the project.

CONCERN: PROHIBITION OF LOGGING OF PUBLIC AND PRIVATE LANDS

The RMI Report states that federal designation would cause:

"Prohibition against harvest of public and privately-owned timber in the designated river area." RMI Report, page 3.

RESPONSE:

The BLM Report states:

"The existing Jackson-Klamath land management plan already places constraints on timber harvest on land in the Klamath River canyon. Beyond this, timber harvest on federal land would not be significantly affected if the upper Klamath River were (federally) designated. ... (federal) designation would have no effect on private timber harvest. ... No effects on the timber industry in Klamath County would result from (federal) designation of the upper Klamath River." BLM Report p. 5-23, (emphasis added).

The Wild and Scenic Rivers Act merely requires federal agencies to:

"[T]ake such action respecting management policies, regulations, contracts, plans, affecting such lands [including, bordering upon, or adjacent to a designated river] as may be necessary to protect such rivers . . . Particular attention shall be given to scheduled timber harvesting, road construction, and similar activities . . ."
16 USC § 1283(a).

Logging on public lands would be governed by BLM management plans, and allowed if it did not adversely affect the river or its immediate environment. BLM Report, p. 5-23. This is how timber is currently managed by the BLM. BLM Report, p. 2-15. The BLM notes "[t]here has been no timber sale activity . . . in the Klamath River Canyon during the last decade." Id

As to logging on private lands, the BLM Report states:

"Timber harvest activities on private lands in segment 2 are regulated by the Oregon Forest Practices Act, not by the BLM; therefore, designation would have no effect on private timber harvest. In addition, timber harvest activities on private lands within 1/4 mile of the river would be regulated under Oregon Administrative Rules for Oregon Scenic Waterways (OAR 736-40-005 to 736-40-095), which requires, among other things, notification to the Oregon State Parks and Recreation Department of planned timber harvest operations." BLM Report p. 5-23.

According to the BLM, the amount of privately-owned timber land and the level of commercial logging in the canyon is currently very limited. BLM Report p. 2-15.

As far as ODOE has been able to ascertain, the only legal handle the BLM would have on logging activities on private lands within the river's corridor would be condemnation to acquire scenic easements. 16 USC § 1277(b).

In sum, there is no legal basis for the claim that federal designation would prohibit harvest of public and privately-owned timber within the Klamath River Canyon. Any management restrictions resulting from designation probably would not significantly exceed current restrictions.

CONCERN: IMPACT ON EXISTING POWER OPERATIONS

The RMI Report states that federal designation would:

"... eliminate the daily peaking operations of these facilities (J.C. Boyle and other dams)... eliminating

river rafting as a viable recreational use." RMI Report p. 26.

RESPONSE:

BLM Report Tables 5-4 (p. 5-12) and 5-5 (p. 5-19) show that federal designation would not affect operation or relicensing of the J.C. Boyle plant.

Existing hydropower facilities would be maintained. See BLM Study, p. 5-12 and 5-23. There is no legal basis for the claim that power production would be reduced at existing facilities, or J.C. Boyle's peaking operations eliminated, solely because of wild and scenic designation.

Upon relicensing of an existing project, the project's operations and flow regimes could be reviewed in light of their impact on the values for which the upper Klamath were designated. ODOE doubts J.C. Boyle's existing operations would be reduced, upon relicensing, because of federal designation of the river below it. BLM's finding of eligibility and suitability took J.C. Boyle's current operations into account. The facility's operations could be modified for other reasons upon relicensing -- for instance, to address fish and wildlife concerns -- but this could happen upon relicensing even without the downstream stretch being designated.

Finally, it might be noted that future hydropower development on or directly affecting the upper Klamath River would be contrary to the Northwest Power Planning Council's (NPPC) "protected area" designation under the Northwest Conservation and Electric Power Plan. FERC would be required to consider the NPPC's designation with or without wild and scenic river designation. 16 USC § 803(a).

CONCERN: LOCAL ECONOMIC IMPACT

Mr. Jamison's June 28 testimony raises a concern about the:

"Potential economic impact of designation on the Klamath Falls community."

RESPONSE:

The BLM Report states:

"There is no detailed economic analysis (in the BLM Report) because, between present management and anticipated management under (federal) designation, there would be little, if any notable economic effect or

difference. Probable economic effects from the proposed Salt Caves hydroelectric project, which would be precluded by designation, are considered in the Federal Energy Regulatory Commission's (FERC) EIS on the proposed hydroelectric project." BLM Report p. G-4., (emphasis added).

ODOE agrees that there would be no significant economic impact on Klamath County outside of halting the Salt Caves project.

ECONOMIC IMPACTS OF THE SALT CAVES PROJECT

The only substantial impact of federal legislation would be elimination of future hydro development, including the 'No Dam' alternative for the Salt Caves project. The only assured local economic impact of the 'No Dam' alternative would be the loss of the jobs from construction and continuing operations.

FERC's Final EIS estimates about 220 jobs for less than three years (1,218,000 man-hours over 33 months). After the three year construction period, "Employment associated with ongoing operation and maintenance would be limited to 1 or 2 workers." FERC FEIS p. 2-19.

The City of Klamath Falls has stated they expect to receive \$5 million per year of net revenues from sale of the power See RMI Report p. 33. There is no evidence to support this forecast. It is ODOE's view that the City will have trouble selling the power output at all, let alone at a substantial profit.

FERC notes that

"Despite competitive internal rates of return, successful negotiation of power sales agreements could be hindered by institutional impediments associated with regional issues such as intertie access and protected areas designation." FERC FEIS, p. 2-31.

Bonneville Power Administration has promised not to buy power from projects in Northwest Power Planning Council protected areas, including the upper Klamath River. Only 25 percent of the power can be sold to investor-owned utilities. Therefore, the bulk of the power must be sold to publicly-owned utilities (POUs).

The alternative resource for POU's is not new resources, but Bonneville preference power, currently priced at 2.3 cents per kWh. Bonneville forecasts the preference rate will not escalate above the general rate of inflation for the next 20 years. ODOE estimated the City's earlier proposal needed a price of above 7.3 cents per kWh to yield net profits (See

Tab F: Preliminary Comments of the State of Oregon, FERC Project No. 10199, Salt Caves, October 14, 1987, pp. 6-7 and Tab G: Untitled briefing for Governor Goldschmidt, undated (prepared November 1987), pp. 16-20). The current 'No Dam' alternative costs more, so its break-even price would be higher.

Although some POUs have indicated a willingness to pay a premium to be independent of Bonneville, ODOE doubts they will pay more than 7 cents per kWh. After five years of trying, the City has yet to find a buyer for Salt Caves' power.

The only plausible scenario would be for the City to sell the FERC license and construction plans. The purchaser would be betting that power from the project would be economic sometime in the next century. Only large utilities could afford the high cost in the early years. The most likely buyer would be a utility in Washington state.

In return the City would receive a one-time payment. This net profit of this kind of deal would be far less than \$5 million per year the City expects.

p&p\forecast\pc\hatfield.w51



Water Resources Department

3850 PORTLAND ROAD NE, SALEM, OREGON 97310

PHONE

MEMORANDUM

TO: Water Resources Commission

FROM: Director

SUBJECT: Agenda Item W, March 30, 1990, Water Resources Commission meeting

Status Report of Scenic Waterway studies

Background

Attached is the first in a series of recreation assessments on State Scenic Waterways. The report on the Klamath Scenic Waterway was created using a method presented to the Commission by the Parks and Recreation Division (now Department) during its meeting of July 7, 1989.

During the same July 7th meeting the Commission requested the Sandy Scenic Waterway be added to the other Scenic Waterway recreation assessments. The Sandy Scenic Waterway would fall into the recreation flow study schedule for December 1992 under the priority criteria.

Discussion

Klamath River

The Klamath Scenic Waterway is unique because flows from John Boyle Reservoir are regulated on an hourly basis by Pacific Power and Light. The report shows that during operational periods, to maintain recreation boating on the Klamath River, 1500 cubic feet per second (cfs) is required for a period of at least six hours per day. Flows of 550 cfs are required to optimize fishing during the non-hydro operation. Parks and ODFW had previously filed a joint instream water right application for the Scenic Waterway. Parks review of the report and found it consistent with the application.

Sandy River

Parks and Recreation Department reviewed the recreation flow for the Sandy Scenic Waterway completed as part of the City of Portland hydroelectric project application, and later cited in the Diack decision. In May of 1989 Parks staff indicated that those recreation flows were sufficient to meet the requirements of the Diack decision. At that time Parks staff stated that it expected the Commission to be able use this information to make findings on new applications. In the Commission's findings there are specific flow recommendations for the period December through May and a stipulated flow of 1500 cfs for months not otherwise limited by naturally occurring low flows.

Agenda Item W
March 30, 1990
Page 2 of 2

For the period of June through December, the Sandy Basin is withdrawn from appropriations by statute except for domestic, stock, municipal, fish culture, aesthetic, recreational, or public park purposes and all uses are allowed on Big Creek, Beaver Creek and Buck Creek. If such applications are accepted, public interest and water availability findings must be made in addition to the recreation findings before a permit can be issued or denied.

John Day River

Staff is completing a study of the John Day Scenic Waterway and will be submitting this report to Parks for its review. Parks staff do not expect to have instream water right rules approved by its commission until May or June. At that time the Parks Department may submit an instream water right application and use the report to substantiate its request.

Summary

In the future, once Parks has accepted a Scenic Waterway recreation assessment report, we expect them to respond to the data with analysis sufficient to provide findings on water right applications held in abeyance regardless of the instream water right.

Director's Recommendation

This is an information report only no action is required. Staff welcomes any comment on the Klamath Scenic Waterway. The Commission may also wish to direct staff to process water right applications in the Klamath River and Sandy River based on the findings discussed in this report.

Attachments: 1) Klamath River Scenic Waterway Recreation Analysis

2) Letter from Alan Cook, Planning and Grants Manager, Oregon State Parks and Recreation Department.

Bill Fujii
378-3671
March 15, 1990

MARCH30.SIR bf

KLAMATH RIVER
SCENIC WATERWAY
RECREATION ANALYSIS

OREGON WATER RESOURCES DEPARTMENT

OREGON STATE PARKS AND RECREATION DEPARTMENT

MARCH 1990

INTRODUCTION

PURPOSE

The purpose of this report is to analyze the instream flow requirements for recreation on the Klamath River Scenic Waterway. The report outlines the recreation uses of the river, and uses existing information to identify the range of flows sustaining current recreation. The report does not address potential recreation opportunities that may be considered in future management of the scenic waterway.

The Scenic Waterways Act was created to protect rivers with outstanding natural resources, scenic beauty, and recreational opportunity. Scenic Waterway designation identifies the highest and best use of the waters within the waterway as being recreation, fish and wildlife. The Water Resources Department (WRD), Department of Fish and Wildlife (ODFW) and Parks and Recreation Department (Parks) are cooperating in an effort to quantify instream flows necessary to protect the fish, wildlife, scenic and recreation values on State Scenic Waterways.

METHOD FOR ASSESSING RECREATION STREAMFLOW

The method for determining flow requirements by recreation use is based on the presumption that river recreation is both adaptive to existing conditions and opportunistic for the time the flow conditions allow use. Current use by the public displays the range of recreation activities needing protection. Other assumptions used in the report are:

- 1) In cases where there is no recreation use, flow levels identified by ODFW for fish and wildlife or Department of Environmental Quality (DEQ) for pollution abatement (whichever is higher) shall be the baseline.
- 2) In cases where there is no current recreation use, a land managing agency can identify a flow to support recreation.

- 3) Some high-flow periods may have impact on recreation, but not on recreation use.

An example of this would be a high wintertime flow that flushes sediment from a gravel bar important for fish spawning or deposits sand for camping.

Portions of other methodologies, such as the RIVERS (U.S. Forest Service (USFS)) and the "Hyra" instream flow incremental method (IFIM) were borrowed to develop the framework for this recreation assesment. This assessment is weighted towards preserving the existing opportunities for the full range of recreation activities that are present during a "typical" year. The study uses historical use data rather than user surveys, cross section points, or other factors. The assessment of current use provides an indication of the streamflow levels necessary to protect recreational opportunities.

The data and conclusions from this report may be valuable to the development of river management plans for both State Scenic Waterways and Federal Wild and Scenic Rivers. The River Management Plan process (both state and federal), instream water right application process, and Parks' rulemaking for recreation instream water rights will provide opportunities to determine policies relating to flows for recreation activities.

BACKGROUND INFORMATION

LOCATION AND SETTING

The Klamath River Scenic Waterway was added to the Scenic Waterway through the initiative petition process. Ballot Measure 7 passed in November 1988 designated the area of the Klamath River from the John C. Boyle Dam Powerhouse (River Mile 220) to the Oregon-California border (RM 209.3).

The Klamath River Scenic Waterway is located in Klamath County in south-central Oregon. The scenic waterway is approximately 20 miles southwest of the City of Klamath Falls. The nearest community is Keno, located approximately seven miles east of the Klamath River. The scenic waterway flows in a southwesterly direction from the John Boyle Powerhouse to the Oregon-California border. The Scenic Waterway is accessed from Highway 66, just west of where the highway crosses the river (see Map 1).

A. Setting

The Klamath is one of two Oregon rivers to cut through the Cascades. The river flows from south central Oregon through northern California to Klamath, California, where it discharges to the Pacific Ocean. This unique geographical aspect gives the Klamath diversity of setting. Just below John Boyle Power Plant at the USGS Gage the Klamath River drains approximately 4080 square miles¹. Upper Klamath Lake (Oregon's largest natural water body) feeds Lake Ewauna which is the beginning of the main stem Klamath river. Upper Klamath Lake's major tributaries are the Sprague, Wood and the Williamson Rivers.

The Scenic Waterway is located within the area known as the Klamath River Canyon. Below John Boyle Powerhouse the evidence of man's activities cease to dominate Klamath Canyon's visual features. The Canyon is a contrast to all of the surrounding landscape features. Visitors coming from the west will have just crossed a mountain pass; those coming from the east will have just left pastoral farmlands. The perspective from the bottom is vertically confined by canyon walls of 400 to 1000 feet high, and horizontally by a 100 to 800 foot-wide canyon floor. The canyon contains a combination of nearly vertical basalt cliffs, talus slopes, upland benches and alluvial terraces of recent volcanic origin. The geologic features are framed by open

¹source Friday and Miller, USGS 1984

forests, grass lands and riparian areas. The feeling of remoteness and the landform of the canyon combine to create a magnificent aesthetic experience.

The Klamath basin is characterized by dry summers with high temperatures and wet winters with moderately low temperatures. Average annual precipitation at Klamath Falls is about 14 inches. Because of the elevation difference, the climatic conditions from the canyon rim to floor can be substantial. The floor of the canyon is not as dominated by conifers as the rim. The temperatures in the canyon tend to be more moderate and tends to have earlier spring conditions. In the fall, daytime temperatures can be cool on the rim while the canyon floor warm by comparison.

B. Plant communities

The vegetative cover is a mixture of ponderosa pine, juniper, deciduous trees such as Oregon white oak and grass lands. The plant communities found in the canyon are mixed conifer forest, pine/juniper, pine/oak forest, oak forest, oak shrub, rock/talus, oak/grassland, meadow, steppe, and riparian². Small areas may have some wetland characteristics, but there is no evidence of any large areas of hydric soils.

The Klamath Canyon also offers unique opportunities to view wildlife. According to the Bureau of Land Management (BLM), there are 98 species of birds, 31 species of mammals, and 15 species of reptiles and amphibians known to make use of the Klamath Canyon. The bird species include raptors (16), water fowl (8), upland game birds (8) and non-game birds (66). Big game mammals include black tailed deer, black bear, roosevelt elk, and cougar. Furbearers include beaver, mink, fisher, coyote, bobcat, muskrat, and raccoon.

² source: Draft Environmental Impact Statement Proposed Salt Caves Hydroelectric Project (FERC July 1989)

C. Development

Below the John Boyle Powerhouse the river canyon is largely undeveloped. On the west side (right bank³) there is a graveled road, maintained by Pacific Power and Light (PP&L), to access the John Boyle Powerhouse. Beyond the powerhouse the access road is unimproved, and closely follows the river to Frain Ranch at RM 214.5. At this point there is a secondary access point and the main road turns slightly away from the river and follows a bench above the river. An additional secondary access to the right bank is from Ward Road, which connects with the Powerhouse Road at about RM 211 and RM 209.5. High above the left bank the Topsy Road follows the canyon from Highway 66 to below the Oregon-California border. The Topsy Road connects with two right bank secondary access roads. One follows the river between two access points at about RM 217 and RM 214.8 (Map 2).

Approximately seventy-five percent of the corridor⁴ land is managed by the BLM Klamath Resource Area headquartered in Klamath Falls. This land is a combination of regular BLM land and O&C property reverted back to BLM. Other owners are Pacific Power and Light, Weyerhaeuser, and private individuals (Map 3).

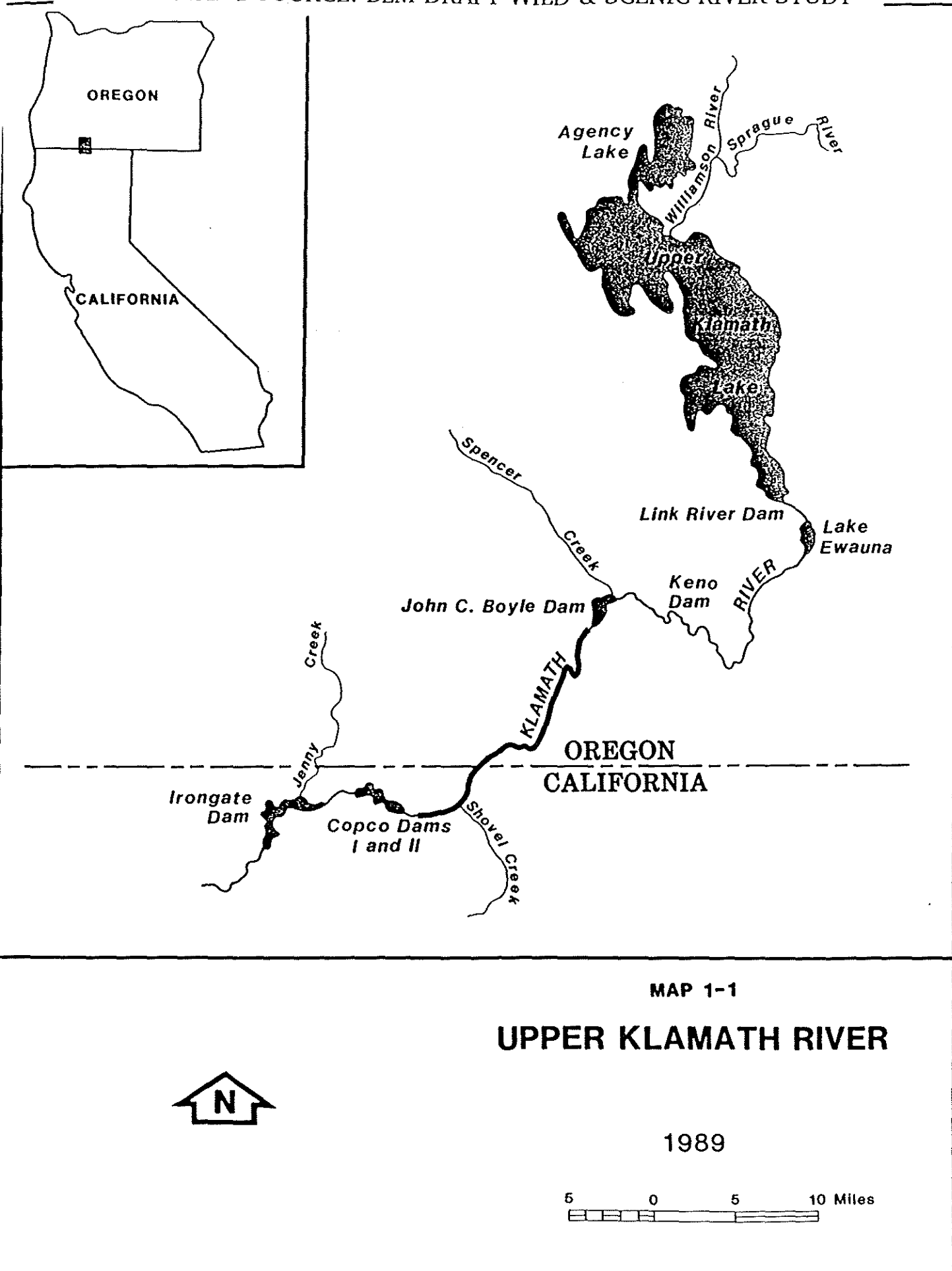
D. River Attributes

In addition to the other physical features of the canyon, the river itself adds diversity to the setting. The river has 52 rapids within the scenic waterway⁵. The river is wider in the upper reaches from the BLM launch site (RM 220.1) to Caldera rapids (RM 214.3); the boating experience in this stretch is less demanding. At the beginning of Caldera rapids, the river narrows and it also begins to drop faster. This whitewater experience has made the Klamath

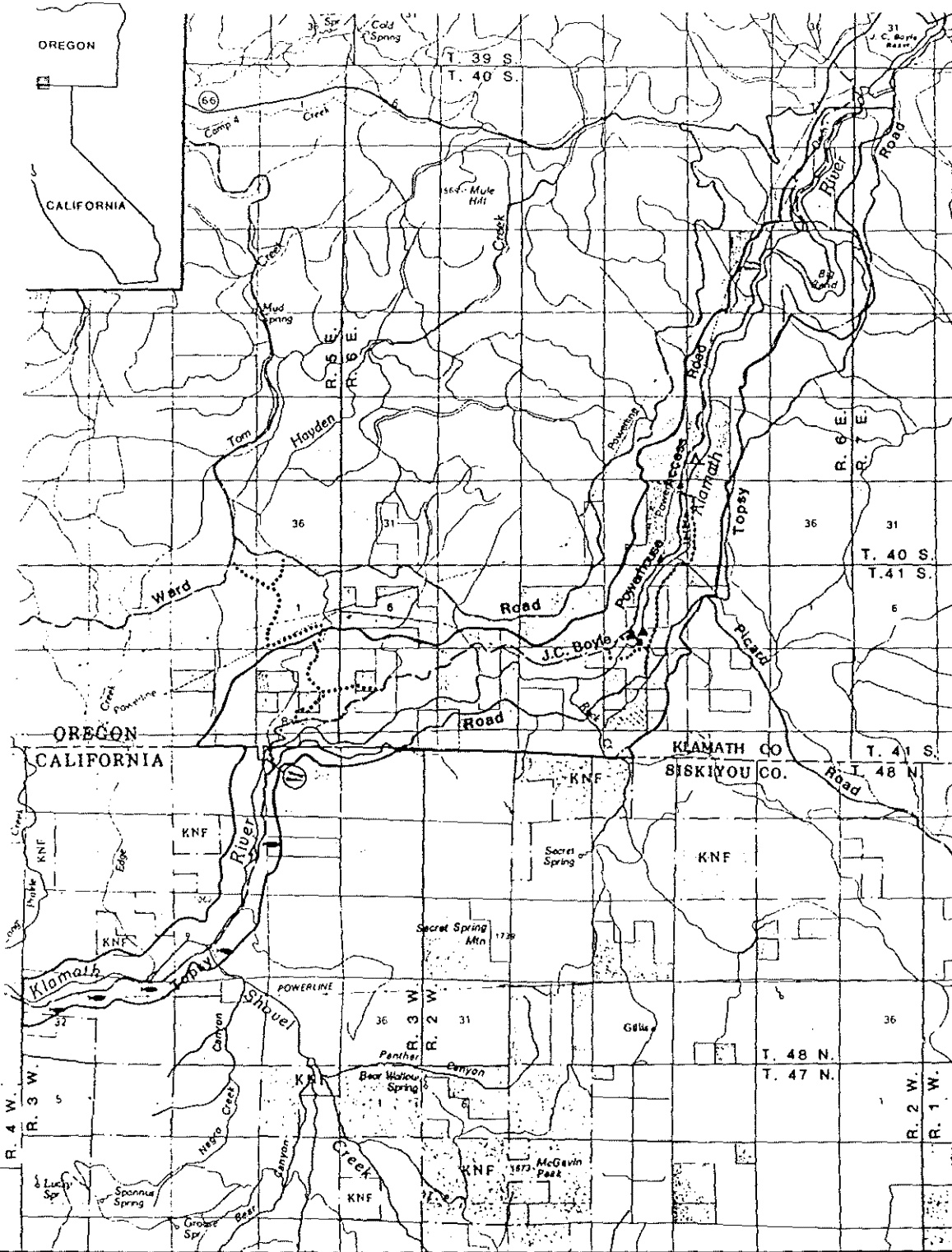
³ facing down stream

⁴ 1/4 mile on each side of the river defined in Scenic Waterways Act

⁵. source: Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study



MAP 2 SOURCE: BLM DRAFT WILD & SCENIC RIVER STUDY



LEGEND

- Highway 66
- - - Primary Access Roads
- Secondary Access Roads
- ▬ BLM Raft Launch Area
- △ BLM Semi-Primitive Campsites
- ▲ Primitive Campsite (Private Property)
- ▲ Primitive Campsites with Fire Rings
- Frain Ranch (Recreational Use Area)
- ⊖ BLM Raft Take-Out Area
- Fishing Access Points
- SRMA Boundary



MAP 2-3 UPPER KLAMATH RIVER ACCESS ROADS AND RECREATION SITES

1989



famous. The rapids from Caldera rapids (RM 214.3) to the Oregon-California border (RM 209.3) are more frequent and more difficult than the upper reach. Below the Scenic Waterway, in California the river widens again and the whitewater boating is similar to the first stretch.

The flow characteristics of the scenic reach of the Klamath River are displayed on Table 1. The average annual rate of flow is 1903 cubic feet per second (cfs). The highest flows occur from December through April. Only about ten percent of the average annual flow is available during the low flow months, June through August. The character of the flow in the Klamath Canyon is unique. During the late spring through fall the flow can "bounce" from 350 cfs to over 1500 cfs in a single day. This flow regime is due to operation of John C. Boyle Powerhouse (see Daily hydrograph chart). During the winter and early spring, flow is fairly constant.

MAP 3 SOURCE: BLM DRAFT WILD & SCENIC RIVER STUDY

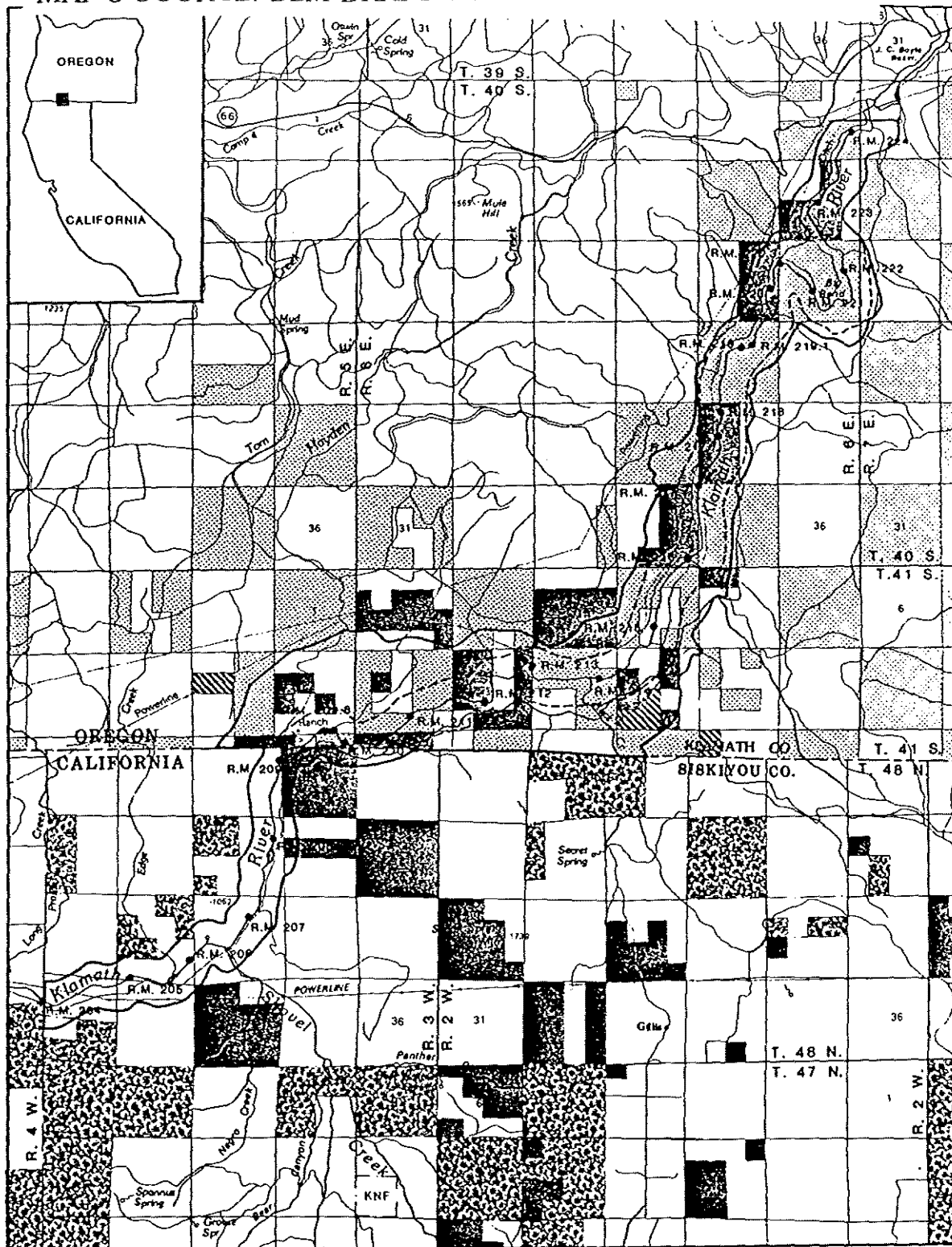


TABLE 1
AVERAGE MONTHLY FLOW, 1962-1988 KLAMATH RIVER
BELOW JOHN C. BOYLE POWER PLANT

MONTH	MIN CFS	MAX CFS	MEAN CFS	% RUNOFF
OCT	786	3157	1685	7.2
NOV	897	4506	2196	9.3
DEC	1112	5733	2700	11.6
JAN	1174	7905	2668	12.5
FEB	1091	7780	2723	11.8
MAR	634	8755	3153	13
APRIL	723	5645	2550	11
MAY	591	3935	1725	7.6
JUNE	550	2327	872	3.5
JULY	502	1339	651	2.9
AUG	590	1054	903	4
SEPT	776	1876	1258	5.6

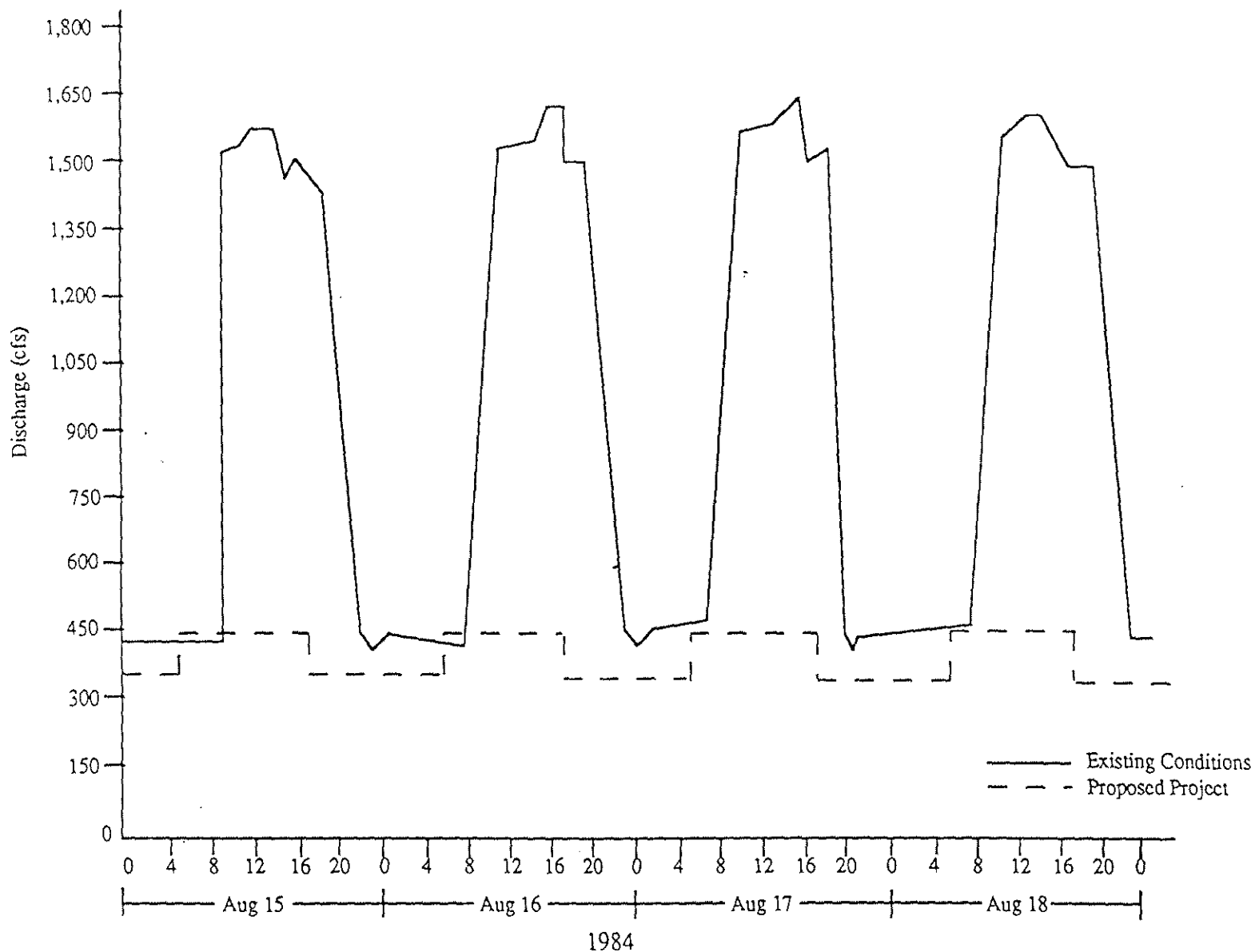


Figure 4-1. Daily hydrographs for the Klamath River below the proposed Salt Caves powerplant site (Beak lower gage) under existing and proposed project conditions during the summer based on data from August 15 to 18, 1984. (Source: the staff, modified from Klamath Falls, 1986).

INSTITUTIONAL CONSTRAINTS:

A. Recreation Resource Management:

Since 1984 the BLM has managed the area from the John Boyle Reservoir to just below the Oregon-California Boarder as the Klamath River Special Recreation Management Area. The river canyon has been classified Scenic Quality A and is managed under the Visual Resource Management (VRM) class II rules. Recreation opportunities are managed under Recreation Opportunity Spectrum (ROS), as semi-primitive motorized and roaded natural classes. The canyon area on the right side of the river is managed by the BLM as the Pokegama Wild Horse Management Area.

The Klamath River Scenic Waterway (designated in November of 1988) under the State Scenic Waterway system would likely fall into the Scenic Class, the mid-level of six classifications.

NATIONAL WILD AND SCENIC RIVER STATUS:

The Klamath River is being studied by the BLM as a result of direction from Congress through the 1988 Oregon Omnibus Rivers Bill. The report is to establish if any areas are eligible for designation as a National Wild and Scenic River, recommend the most likely classification for the designation and analyze the suitability for eligible area designations.

Under the provisions of the Omnibus Bill the study must be submitted to Congress by April 1, 1990. The Klamath River study area differs from the other Wild and Scenic River Studies. Other rivers have a three-year study period and the designated areas during this study period are managed in a protected status. The language of the Omnibus Bill specifically allowed the FERC process on the Salt Caves Hydroelectric Project to continue during the Wild and Scenic

study period. Since the release of the BLM study, Senator Hatfield has sent a letter to FERC requesting it delay its findings until Congress has had the opportunity to review the final BLM Wild and Scenic River study. The BLM draft Federal Wild and Scenic River system eligibility study recommended a classification of Scenic for most of the Scenic Waterway.

STATE MANAGEMENT

The State Scenic Waterway is being managed under the general rules for land management specified in the Scenic Waterways Act. ODFW manages the river as a wild trout fishery and the Klamath River Canyon as critical winter deer range and bald eagle habitat. The Division of State Lands has determined the Klamath to be navigable. The Northwest Power Planning Council has included the river in the protected status areas.

The DEQ has established beneficial uses for which water quality will be managed. These uses are domestic water supply, industrial water supply, irrigation, livestock watering, salmonid fish rearing and spawning, resident fish and aquatic life, wildlife, hunting, fishing, boating, water contact recreation, and aesthetic quality.

B. Water Resource Management:

The appropriation of the surface waters of the Klamath River has been governed by the Klamath River Basin Compact (ORS 542.620), since 1957. The compact was ratified by Oregon and California, and approved by the U.S. Congress. It established the following priority of beneficial uses in the situation where sufficient water is not available to satisfy all applications:

- a) domestic use,
- b) irrigation use,
- c) recreational use, including use for fish and wildlife,
- d) industrial use,
- e) generation of hydroelectric power, and

f) other uses.

The Compact also established priorities for irrigation uses limited to the quantity of water needed to irrigate 200,000 acres in Oregon and 100,000 acres in California.

There are no minimum streamflows established in the Klamath River. However, WRD is processing an application for an instream water right from Parks and ODFW of 1500 cfs (when available) for whitewater floating and 550 cfs for fishing.

Other water rights total of 1.9 cfs in the study area⁶. There are some small hand-built instream structures in the river related to irrigation.

There are three dams above the Scenic Waterway, John C. Boyle Dam and upstream from that, Link and Keno Dams. Below the Scenic Waterway in California there are three dams, Copco 1 and 2 and Iron Gate Dams. All six dams are operated by PP&L under FERC licence #2082. Satisfying the needs of the steelhead below Iron Gate Dam is the only instream flow requirement in the FERC licence for the PP&L dams on the Klamath River. The minimum releases from Iron Gate are to be: September 1 - April 30 1300 cfs, May 1 - May 31 1000 cfs, June 1 - July 31 710 cfs and August 1 - August 31 1000 cfs⁷.

The John Boyle Project (originally named Big Bend) is licenced by the State of Oregon through the Hydroelectric Act (ORS 543.010 to 543.655); this licence (HE 180) will expire in 2006. The original licence required a minimum flow of 200 cfs below the powerhouse at all times.

⁶source: Pam Homer, Oregon Water Resources Department September 1989.

⁷article 52 of FERC license for project 2082

The flows in the Klamath Canyon are comprised of three elements: releases from the John Boyle Dam, releases from John Boyle Powerhouse and natural flow from within the canyon. The percentage of flow released from the two structures varies with the season. The bulk of the summertime flow in the Scenic Waterway is comprised of stored water released for hydroelectric generation. PP&L determines the releases based on several sets of criteria. The first criteria is to satisfy the requirements of its operating permits from FERC and the Bureau of Reclamation (BOR). The instream requirements below Iron Gate Dam is the larger consideration. The release schedule is based on the fish flows required at Iron Gate. Next in priority of the criteria is the supply of the BOR irrigation projects. The BOR owns Link and Keno Dams and holds the storage permits for the water. Some of PP&L's other criteria are not required by FERC and BOR permits. Peak power demand, fish requirements within the Klamath Canyon reach, and recreation are among these elements.

During early July there is a two-week period in which PP&L performs turbine maintenance at the powerhouse and makes no releases from this facility. During this time, the releases from John Boyle Dam may be higher (from 500-700 cfs) and/or water can be stored to prolong the summertime power releases.

There is flow from John Boyle Dam fisheries structures, several small springs and scheduled release from John Boyle Powerhouse. This cumulative flow provides the streamflow regime for rafting. Summertime power-related releases are to turn one generator. Releases last about six hours and have a two-hour ramp⁸ time. In 1979 PP&L investigated the Klamath Canyon recreation use and the current pattern of release was determined to balance the needs for generating efficiency, whitewater floating and fish needs. This process led PP&L to install and maintain the "flow phone" and to favor the hours that allowed the rafters to adequately float

⁸ ramp time is the period of transition from the low and high flow, typically this term indicates that there is a gradual change

the river⁹. The summer season release times are slightly later than PP&L's actual peak demand times. The amount of release is predicated on the amount of water that is needed for efficient operation of the turbine¹⁰.

TABLE 2

NUMBER OF DAYS WITH FLOWS EQUAL TO OR GREATER THAN 1500 CFS¹¹

<u>MONTH/YEAR</u>	<u>6+ HRS</u>	<u>MONTH/YEAR</u>	<u>6+ HRS</u>
10/87	30	10/88	24
11/87	23	11/88	25
12/87	22	12/88	31
1/88	29	1/89	27
2/88	28	2/89	28
3/88	25	3/89	31
4/88	23	4/89	30
5/88	8	5/89	31
6/88	6	6/89	7
7/88	25	7/89	0
8/88	22	8/89	19
9/88	31	9/89	18

⁹source: personal contact with Les Lingschiet, Pacific Power and Light

¹⁰source: personal contact with Ed Wies, Pacific Power and Light

¹¹source: USGS gauge records

RECREATION FLOW ANALYSIS

INSTREAM USES

There are two major recreation instream uses of the river: whitewater boating and fishing.

A. Whitewater boating:

Whitewater boating occurs in three forms: rafting, kayaking, and drift boating. There is no difference in the minimum flow required for these activities. Although the Klamath has been run in an open canoe by professionals¹², it is not generally recommended¹³. There is no evidence of any power boat use in the Klamath Canyon. At 1500 cfs the Scenic Waterway has 15 class I rapids, 18 class II rapids, 14 class III rapids, 3 class IV rapids and 2 class V rapids¹⁴. At higher flows or colder temperatures many of these rapids increase in difficulty. Kayakers should be expert or intermediate with a "bomb-proof roll"¹⁵ (a "bomb-proof roll" means that the kayaker should be able to return the boat to the upright position in difficult situations).

1.) Location of use: Most use appears to be from the BLM launch site (RM 220.1) to the BLM access site #1 (RM 203.7) or the Copco Store (RM 203). This float trip runs from .2 miles below the John Boyle Powerhouse to 5.6 miles below the Oregon-California Border, total length of 16.4 miles.

¹²source: Dave Steele, 1989 BLM contractor for Klamath River recreation

¹³source: River Information Digest

¹⁴ Class refers to the American Whitewater Affiliation International Scale of River Difficulty, source: Soggy Sneakers Guide to Oregon Rivers - Willamette Kayak and Canoe Club July 1988 see attached

¹⁵source: Soggy Sneakers Guide - Willamette Canoe and Kayak Club

Some shorter trips occur on the upper end from the BLM launch site (RM 220.1) to Frain Ranch (RM 215). These trips take advantage of the easier stretch of rapids. In this area the river is wider, drops 27 feet per mile and has 14 class I, 9 class II and 1 class III rapids.

The lower section from Frain Ranch (RM) 215 to the Oregon-California Border (RM 209.3) contains more difficult rapids. This area has 1 class I, 9 class II, 13 class III, 3 class IV, and 2 class V rapids. At the entrance to Caldera Rapids (RM 214.3) the river turns a corner, narrows, and the drop increases to 77 feet per mile. The rapids become more difficult and frequent. This is one of the most demanding sections of whitewater in the region.

2) Time of use: The opportunity for whitewater boating is year-round. Most boating use on the Klamath River occurs on weekends from mid-May through mid-September. Some other boating occurs during other months when the flows are high. The unique whitewater boating opportunities on the upper Klamath River attract visitors from outside the region who are willing to travel long distances to experience the quality, late-season Class II-V run that is not found on other rivers¹⁶.

Peak use occurs during the months of July and August when there is at least one generator at the John Boyle Powerhouse operating. Typically there is a two-week period that the generators are shut down in July. Generally it is not possible for the generator(s) to be efficiently operated on a twenty-four-hour basis and the summertime rafting release is about 6 hours. PP&L has installed a special "flow phone" to help rafters schedule trips. PP&L slowly increases the flow (ramps) in the river at the beginning of the release and also slowly decreases the flow at the end of the release.

¹⁶ source: Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study

During the period from November through March it is likely that more than one generator may operate. Most early season (before June) use is from private boaters, who are predominately from within the region. Most late-season use (after August) is from commercial outfitters due to the lack of compatible whitewater boating opportunities elsewhere¹⁷.

3.) Amount of use: BLM does not have a permit system for private boating for the Klamath. Its records for private boating are based on a voluntary registration system. BLM has stated that private boating records are used to depict trends in use and the actual use is higher than their records indicate.

¹⁷ see above

TABLE 3

ESTIMATED WHITEWATER BOATING USE BY MONTH¹⁸

<u>MONTH</u>	<u>1987 BOATERS</u>	<u>1988 BOATERS</u>
JULY	289	541
AUGUST	890	1256
SEPTEMBER	386	357

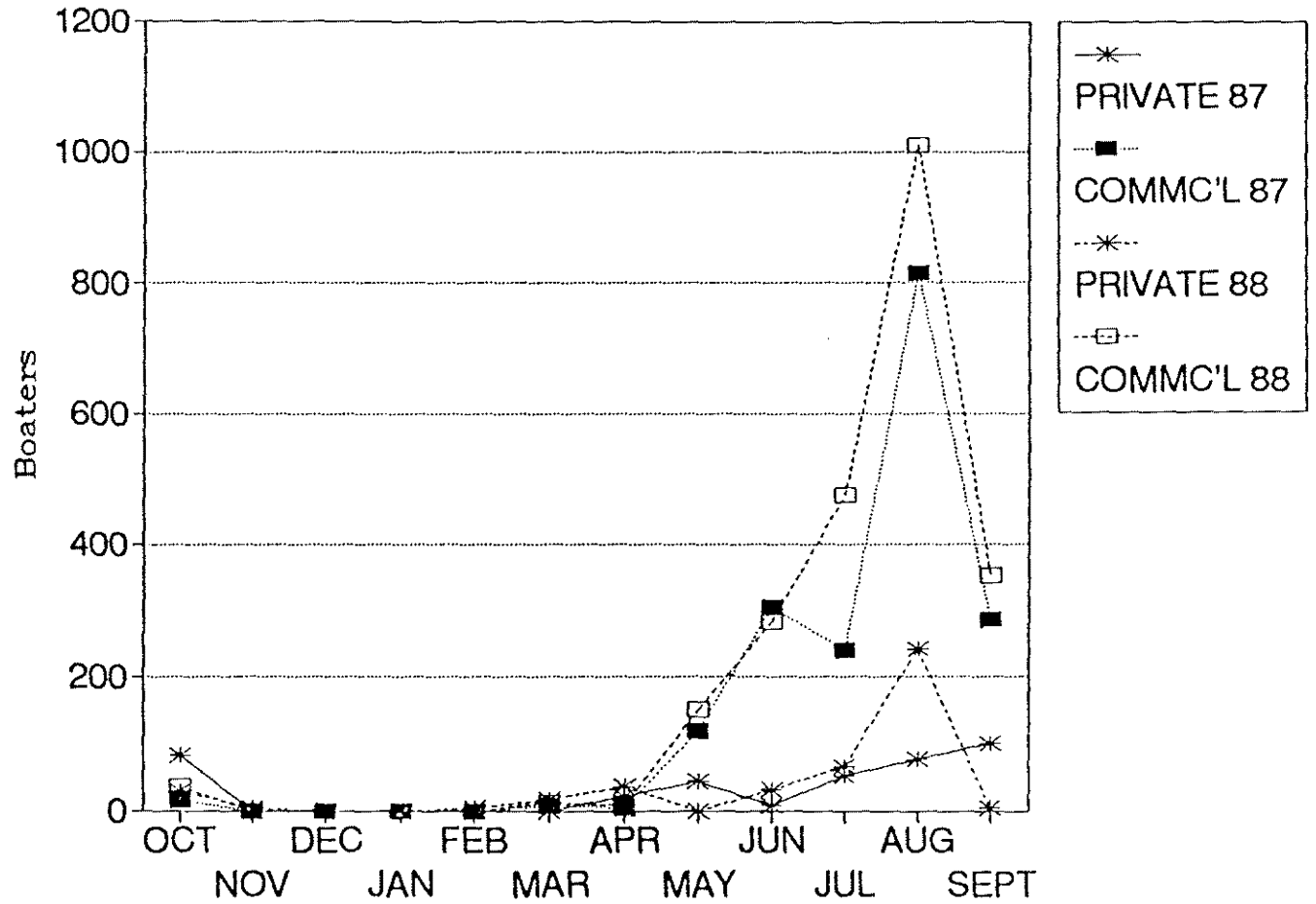
WHITEWATER BOATING USE ESTIMATES¹⁹

WHITEWATER BOATERS	<u>1986</u>	<u>1987</u>	<u>1988</u>
COMMERCIAL	1751	2163	2621
PRIVATE	210	291	450

¹⁸source: compiled by staff from BLM records

¹⁹source: Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study

KLAMATH RIVER BOATING USE



B. Fishing:

All of the documents reviewed rated the Klamath high for its trout fishery, because it is one of the most productive fisheries for wild trout for both size and numbers.

1) Location of use: Fishing use occurs from the BLM Launch site to the BLM Landing with the majority of bank use occurring from the Powerhouse to Frain Ranch. Past this point, bank access becomes more difficult, though in a few places the river is accessible with a 4-wheel-drive vehicle. Some private fishing trips in boats take place from the put-in to Frain Ranch. These trips take advantage of the easier stretch of river²⁰.

One of the reasons for the popularity of the Klamath River Scenic Waterway among fishermen is the number and size of the river's wild trout. These trout are unique because they have not only adapted to the biological circumstances of the river, but have adapted to the extreme changes in daily flows. Their size relates directly to the food supplies from the flows supplied from John Boyle Reservoir.

Time of use: Below John Boyle Dam, the Klamath River is open to angling all year long. The trout fishery is especially popular during the spring months when run-of-the-river flows average 1500-3000. June 15 through September 30 are reserved for catch and release with barbless flies and lures only. This restriction is to prevent waste of fish because, during this time period, the fish are unpalatable²¹.

4) Amount of use: There are no exact counts of current fishing use on the Scenic Waterway. The Resident Fish Creel Census Summary by ODFW indicates that since 1984 there has been

²⁰source: John Fortune, ODFW

²¹ Comments on Salt Caves Draft Environmental Impact Statement by ODFW

a rise in the number of anglers on the river. Creel census data (table 4) is not a count of all users within the canyon, but is a method to track user trends and provides a rough indication of angling effort.

TABLE 4
RESIDENT FISH CREEL SUMMARY²²

<u>TIME PERIOD</u>	<u>ANGLERS</u>	<u>HOURS FISHED</u>
1984		
FEB/MARCH	2	1
APRIL/MAY	3	6
JULY/AUG	3	8
SEPT/OCT	6	18
1985		
JAN/FEB	2	5
MAY/JUNE	3	9
JUNE/JULY	6	21
JULY/AUG	11	27
SEPT/OCT	2	10
OCT/NOV	11	33
1986		
JUNE/JULY	2	4
AUG/SEPT	10	13
1987		
DEC 86/JAN	3	6
FEB/MAR	10	13.5
APRIL/MAY	6	21
MAY/JUNE	10	20
AUG/SEPT	8	13
SEPT/OCT	9	26

²²source ODFW

STREAM RELATED USES:

The Klamath Canyon offers opportunity for many stream-related uses such as camping, hiking, wildlife viewing/nature appreciation, hunting, trapping, and off-road vehicle use.

A. CAMPING:

Most camping in the canyon is related to other recreational activity. The BLM rates the camping opportunities within the Canyon as semi-primitive. Topsy Campground, upstream from John Boyle Dam, is operated for those wishing a less demanding camping experience. The Klamath River Special Recreation Management Area Plan estimates use of Topsy Campground at 15,000 per year for both camping and day use. Much of the non-local day use of the canyon starts from Topsy Campground.

Location of use: Most camping occurs on the upland benches at Frain Ranch (RM 215) or at the BLM sites. BLM maintains semi-primitive sites (RM 217.7) and 5 primitive campsites (RM 217 to RM 216). There are also two other primitive campsites on private land at RM 215.

Time of use: Summer use is primarily from commercial whitewater boaters and some anglers. Spring and fall camping is generally related to hunting and fishing.

Amount of use:

BLM Semi-developed sites: 1000 camping visits.

Topsy Campground: 1358 camping visits (outside of the Scenic Waterway but most of the camping-related day use originates from this point).

Relation to stream flow: The majority of camping within the canyon area is in combination with rafting and occurs on the upland terraces.

B. Hunting:

Hunting in the canyon is primarily for black-tailed deer, silver-grey squirrels, mountain and valley quail, chukar, and turkey. Hunting is regulated by ODFW as part of the Keno Unit.

Location of use: use occurs along open benches along the river and in draws along the canyon rim.

Time of use: Some type of hunting is allowed in all but February and March.

Deer: September/October (rifle), October/November (bow)

Elk: October

Silver gray squirrel: August through November

Birds: October/November (quail), April/May (turkey), October through January (chukar)

Amount of use: Hunter use figures specifically for the Klamath Canyon are not available from ODFW, but the BLM estimates 300 hunting visits annually.

Relation to flow: No dependent relation known.

C. Trapping:

The major species of interest for trappers in the Klamath Canyon are weasel, muskrat, mink, racoon, otter and beaver.

Time of use: November through March

Amount of use: Less than ten local individuals²³

Relation to flow: wetted perimeter of riparian area is the habitat for many of these species.

D. Other uses:

Other uses such as hiking, wildlife viewing/nature appreciation, and off-road vehicle operation; can often be independent from any other recreation activity. Many people use the Klamath Canyon for these activities, particularly nature appreciation²⁴.

Location of use: Dispersed throughout reach

Time of use: Year-round

Amount of use:²⁵

Other land-based visits: 400

Non-motorized travel visits: 280

Off-road visits: 1250

Winter sports visits: 500

Other motorized travel visits: 1000

Relation to flow: No dependent relation known.

²³source: Ralph Opp, ODFW

²⁴source: personal contact with Kattie Ardt and Charlotte Opp, Klamath Falls Chapter Audubon

²⁵source: BLM estimates

INSTREAM RECREATION FLOW NEEDS:

In summer and fall natural flows would not be sufficient for instream recreational activities. Use of stored water at these times is the key to preserving the opportunity for recreation activities. The Klamath Scenic Waterway is a good example of recreation uses filling different niches in both time of use and flow requirements. Although the activities can and do overlap, both rafting and fishing occur within the current flow regimes. There is no evidence of a recreational conflict at this time.

A. Whitewater boating:

Recreation use on the Klamath Scenic Waterway has been adapted to the conditions created by the release regime established by the John Boyle Powerhouse. Summertime rafting is dependent on the current flow regime. The following sources were used to determine flow needs.

Soggy Sneakers Guide (Willamette Kayak and Canoe Club, July 1988)

Location of description: John Boyle Powerhouse to Copco Reservoir.

Use listed: CLASS 4-5 RAFTING/KAYAK - Discussion in this document does not differentiate between rafting flows and kayak flows. It does suggest that the kayakers be expert or intermediate with a "bomb-proof roll."

Time of use: Lists season as all year. This guide refers to the releases from the powerhouse providing "some of the best class 4 summertime paddling in Oregon. "

Handbook to the Klamath River (Quinn and Quinn 1983)

Location of description: John Boyle Powerhouse to Copco Reservoir

Use listed: CLASS 4-5 RAFTING/KAYAK - Discussion in this document does not differentiate between flows and kayak flows.

Time of use and flows suggested: This guide listed 1650 cfs as the flow at which its log was written. The guide lists flows above 3000 cfs to be unsafe.

Recreation Value Study (PNWPPC 1987).

This study was done for the Northwest Power Plan, by the Oregon State Parks Division, to determine the value of instream recreation. Uses are rated on a scale 1 - 5, with 1 being the highest rating for recreation quality.

Location of description: Klamath River below Boyle reservoir.

Use listed: The activities ratings listed as 1 are canoe/kayak, rafting, trout fishing and hiking, swimming, camping, and nature viewing. Drift boating was given a 3 rating.

Klamath River Special Recreation Management Area Plan (BLM 1983)

Location of description: John Boyle reservoir to the BLM landing just below the California border.

Use listed: Discussion of boating in this document is listed as "floating" and does not assign the standard rating for the river.

Time of use: The canyon is used year-round, with most of the rafting occurring during the late spring and summer. High water and cold temperatures keep all but the most avid floaters off the river in winter and early spring.

River Information Digest

Location of description: John Boyle Dam to California border.

Use listed: "Not suitable for open canoes, first 5 miles Class II-III, miles 5-11 Class III-V"

Time of use and flows suggested: Year-round use was listed. This document does not suggest flows but does cite low flows and hazardous high flows as limiting factors.

DEIS Salt Caves Hydro Electric Project (FERC July 1989)

Location of description: The DEIS refers to the area in relation to the reaches affected by the proposed hydro project, the whitewater boating uses are largely within the same reach of the river.

Use listed: "The lower reach contains all of the class 4 and class 5 rapids and the majority of the class 3 rapids. The river is much wider in the upper reach, which has only one class 3 rapid".

Time of use and flows required: "Whitewater boaters include both rafters and kayakers. Rafting use, in particular, is dependent upon the J.C. Boyle hydroelectric powerhouse, and generally occurs only when at least one generator is operating. The J.C. Boyle Project operates in a peaking mode during the summer and fall months, creating large daily fluctuations in flow. During the typical summer operations, one generator is operated daily from approximately 10 a.m. to 4 p.m., increasing the river flow from approximately 350 cfs to approximately 1,500 cfs. In the upper reach the flows have to be at least 380 cfs to be raftable (Klamath Falls, 1988). Scoping meeting comments and conversations with whitewater outfitters indicate that most rafters prefer flows at or above 1500 cfs. Additionally the BLM considers 1500 cfs the minimum raftable flow (letter from Lance Nimmo, Manager, Klamath Resource Area, BLM, Medford, Oregon, February 19, 1989)."

Nationwide River Inventory

Location of description: John Boyle Dam to Copco Reservoir

Use listed: Discussion in this document does not differentiate between rafting flows and kayak flows, "among the best whitewater rafting rivers in the West; with long, sustained rapids of class IV and V difficulty."

Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study
(BLM)

Location of description: River mile 220.1 - 204. The Wild and Scenic River study examined a portion of the river that extended below the state line.

Type of use: This document does not differentiate between rafting and kayaking. Whitewater boating was broken down by class and river section (see chart). This study showed 15 class I rapids, 18 class II rapids, 14 class III rapids, 3 class IV rapids and 2 class V rapids within the Scenic Waterway (this data is no doubt predicated on flows of 1500 cfs, flows higher or lower may result in a different classifications).

Time of use: "Most boating use on the upper Klamath occurs on weekends from mid-May through mid-September. Some boating occurs during other months when flows are high. The unique whitewater boating opportunities on the upper Klamath River attract visitors from outside the region who are willing to travel long distances to experience the quality, late season Class III-V run that is not found on other rivers. Most of the early season use is from private boaters who are predominantly from inside the region. Most of the late season use is from commercial outfitters due to the lack of comparable whitewater boating opportunities elsewhere."

Oregon Rivers Initiative Information Packet

Location of description: John C. Boyle Dam powerhouse to Oregon-California Border.

Type of use: "The Klamath is also well known for its spectacular whitewater rafting. 41 companies currently use the river for their business. It provides a thrilling succession of class III, IV and V rapids (Class VI are virtually unraftable). One particular steep stretch drops 225 feet in just three miles. The Klamath is only one of two on the west coast with summertime class IV and V rapids."

Application for Licence Salt Caves Hydroelectric Project April 1988 Response to Additional Information Requests

This document compiles the comments of some of the user groups, commercial outfitters and the BLM covering the proposed hydroelectric project.

Location of description: Proposed Salt Caves diversion structure to Oregon-California border.

BLM statement: The BLM considers the minimum raftable flow to be 1500 cfs. Rafting the Upper Klamath has occurred with flow greater than 4000 cfs. The analysis of the project predicts that with a stable flow of 350 cfs there would be encroachment of vegetation into the river channel. This encroachment may reduce or eliminate rafting possibilities in the future.

Whitewater Voyages/Rivers Exploration Ltd. statement: "As a bare minimum, we would propose a flow of 1,600 cfs, while for long term operations we require minimum flows of 1,700 cfs and prefer average flows of 1,800 to 2,400 cfs. "

Southern Oregon Association of Kayakers (SOAK) statement: "The Klamath River is a particularly rocky river, demanding great skill and care to run. Exposure to the rocks, which are extremely sharp, is naturally much greater as the water level decreases. To avoid wrapping, pinning or ripping a raft or kayak, a minimum flow of 1500 cfs is required. Although kayaks may get through in somewhat lower water than rafts, Klamath River kayakers agree that the nature of the rocks here demand a safer level of water, which is the 1500 cfs flow. "

Klamath Canyon River Outfitters statement by Dean Munroe: "I have run the river at many levels, and 1500 is satisfactory. For comparative purposes, 1700 cfs is better and 1900 cfs would probably be ideal. A flow of 2700 cfs is great. At 5900 cfs the river is incredibly demanding. However, is my opinion alone the real measure of ideal? At 1200 cfs the river may

be runnable, or it may not. If it is, it would not be a Class IV-V experience. The rafts would [be] constantly hitting rocks through Caldera, Satan's Gate, Hell's Corner, Dance Hall, Ambush, Salt Cave, Captain Jack, Roughshod, and Snag Island. The 1200 cfs. experience would not approach the exciting and exhilarating experience it is at 1500 cfs. "

Eagle Sun Inc. statement: "A minimum of 1500 cfs is need to do the job and do it right.... As for release times, we could run everyday June through September if there was enough water. Plus, we would need a six hour release from 9:00 am till 3:00 pm for optimum use. "

Ouzel Outfitters statement: "PP&L has established their own idea of a reasonable level to be a minimum of 1500 cfs, and that barely does it."

B. Fishing:

Fishing is less dependent on the high flow regime. Sufficient flows from John Boyle Reservoir must occur to meet food and temperature needs to maintain the high quality of the fish. Fishing use seems to occur at all flows but is most evident at low flows due to better access. Some fishing enthusiasts prefer those times of the year when a more constant flow is available.

Location of use: DEIS Salt Caves Hydro Electric Project reaches.

The DEIS refers to the area in relation to the reaches affected by the proposed hydro project. The reaches utilized for fishing are same for the purposes of this report. The project reach is extremely productive, supporting a high quality wild rainbow trout population.

Comments on Salt Caves DEIS by ODFW

Page 1 Fishery Resources: Harvest of trout in the Salt Caves reach is not allowed during summer months because of poor palatability. However, cooler summer water temperatures in the Salt Caves reach allow catch and release angling.

Page 3 River and Land Management Plans: The EIS should also include a discussion of the Department's statewide Wild Trout Policy and statewide Trout Management Plan, both of which are elements of Oregon's Comprehensive Waterway Management Plan. These plans recognize the importance of conserving genetic resources of wild trout populations. The Klamath trout adapted both to lacustrine and riverine environments, represents unique genetic resource among Oregon wild trout populations. The ODFW statewide plans also recognize the need to conserve and to provide a diversity of angling opportunities within the state, including the opportunity to enjoy angling in semi-primitive settings such as the Klamath Canyon.

Time of use and flows needed:

Page 3 Recreational Setting: The EIS should be reworded to state that good fishing, both in terms of catch rate and access, is enjoyed within the Salt Caves reach at a variety of flows. The trout fishery is especially popular during the spring months when run-of-the-river flows average 1500-3000 cfs with out the complications of peaking below J.C. Boyle Powerhouse.

Page 4 Recreation Setting: The DEIS itself states that the "most preferred " period for summer angling is when J.C. Boyle Powerhouse is shut down for maintenance. At this time, there is no peaking, and steady flow below the powerhouse averages about 650 cfs. ODFW field observations also indicate that 350 cfs in the project reach above Frain Ranch precludes boat angling, as now occurs (John Fortune, ODFW, September 1989).

Page 6 Fishery Resources: Tennant (1975), cited in the DEIS, recommended 0.3 of the mean daily flow as a minimum continuous flow required to support good survival of aquatic life. In the case of the Salt Caves reach this base flow would be $0.3 * 1900 = 570$ cfs. This is

consistent with the 550 cfs recommended by ODFW as the minimum flow needed to support the trout population.

Special resource identified:

ODFW Central Region Administrative Report No 83 - 5, (John Tolman, June 1983)

The Klamath River was stocked with legal size rainbow from 1954 to 1978. Stocking was discontinued after 1978 when Klamath River was classified for wild trout management. Also Ceratomyxa shasta (a parasitic protozoa) has been identified in the Klamath River below Iron Gate Dam and in Klamath Lake.

Recreation Value Study (PNWPPC 1987).

(see: boating section)

KLAMATH RIVER SPECIAL RECREATION MANAGEMENT AREA (BLM 1983)

Location of description: John Boyle reservoir to the BLM landing just below the California border.

Use listed: " The Upper Klamath also provides exceptional trout fishing and it is considered by many to be one of the best fly fishing rivers in the Northwest."

Amount of use: "Fishing use within the canyon is estimated at 2,000 visitors per year."

Nationwide River Inventory

Location of description: John Boyle Dam to Copco Reservoir

Use listed: "Excellent wild trout fishery."

Oregon Rivers Initiative Information Packet

Location of description: John C. Boyle Dam powerhouse to Oregon-California Border.

Use listed: "The river is well-known as one of the best wild trout fishing streams in Oregon. It is managed by the state as a 'wild trout fishery' (no hatchery stocking), and it was one of the first to receive the designation by the state."

Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study (BLM)

Location of description: River mile 220.1 - 204; the 5d Wild and Scenic River study examined a portion of the river that extended below the state line.

Use listed: " The upper Klamath River is, managed as a wild trout river in all three segments, provides an excellent trout fishery and is among the better fly fishing rivers in Oregon. The Klamath Basin provides a wide variety of angling opportunities, but only the upper Klamath River provides such an excellent catch rate for large wild rainbow trout on a major river. It is rivaled in Oregon only by the Deschutes River."

Time of use: "Currently, the upper Klamath, Rogue, and the lower Klamath are the only major rivers in the region that are open to trout angling year round." "Spring comes early to the upper Klamath River Canyon, providing the earliest angling opportunity for a river fishery in Klamath County. The majority of fishing use occurs during spring and fall."

SUMMARY: Flow Ranges Identified for Boating and Fishing.

Whitewater boating the Klamath Scenic Waterway is for advanced and expert boating skills. Some whitewater boating can be done at flows less than 1500 cfs, but the majority of use occurs at 1500 cfs. There may not be an upper flow limit for some experts. The Quinn and Quinn guide lists 3200 cfs as their upper limit, the BLM records indicate that rafting has been done as high as 4000 cfs, and the Klamath River Rafters letter to FERC said that 5900 cfs is

incredibly demanding. This suggests two flow ranges: 1500 cfs - 3200 cfs for the majority of the public use; and 3200 cfs - 5900 cfs for expert or professional boaters when the opportunity is available.

Fishing opportunities occur on a year-round basis, 550 cfs is the flow that ODFW has determined as the optimum flow for fish, through the Oregon method. They have further confirmed this figure using the Tenant method. Fishing is also very popular during times of constant flow.

TABLE 5

RECREATION FLOW CHART

REC USE	MIN FLOW	MAX FLOW	SEASON OF USE
G E N E R A L			MAY-SEPT
BOATING	1500	3200	
E X P E R T			OCT-APR
BOATING	3200	5900	YEAR-ROUND
FISHING	550	3000	

WATER RIGHT APPLICATIONS:

Instream uses:

Parks/ODFW have submitted to WRD an instream water right application for 1500 cfs (when available) for whitewater floating and 550 cfs for fishing.

Out of stream uses:

The City of Klamath Falls no longer has a water right application for hydro development pending with WRD. The City has an appeal before the circuit court to require WRD to accept the "no dam" application even though it is located within the Scenic Waterway. The status of this application is pending a court decision.

There are 38 pending surface water applications in the Klamath basin that are above or tributary to the Klamath Scenic Waterway. The purposes of these applications are: domestic (1), irrigation (9), live stock (3), hydroelectric (2), and road watering (23). Some of these

application are from parties in current adjudication of the Klamath Basin and do not represent new water uses.

CONCLUSIONS

During the critical periods of highest recreation use, the Upper Klamath flows are dependent on the release of stored water from John Boyle Reservoir and other upstream impoundments.

The time periods with fairly constant flows, early spring and during July maintenance shutdown, are highly valued by anglers. Below John Boyle Powerhouse recreation activities require a minimum 1500 cfs of six or more hours per day and 550 cfs for the remainder of the day, during May through September.

FLOWES NEEDED TO SUPPORT CURRENT RECREATION ACTIVITIES BY MONTH

<u>MONTH</u>	<u>MIN FLOW NEEDS</u> <u>(CFS)</u>	<u>S I G N I F I C A N T</u> <u>R E C R E A T I O N</u> <u>OPPORTUNITY</u>	<u>EXTENT OF USE</u>	<u>MEAN FLOW**</u>
OCTOBER	1500(6HRS)/550	GEN BOAT/FISH	MEDIUM	1685
NOVEMBER	1500	EXP BOAT/FISH	LOW	2196
DECEMBER	1500	EXP BOAT/FISH	LOW	2700
JANUARY	1500	EXP BOAT/FISH	LOW	2668
FEBRUARY	1500	EXP BOAT/FISH	LOW	2723
MARCH	1500	EXP BOAT/FISH	LOW	3153
APRIL	1500	GEN BOAT/FISH	LOW	2550
MAY	1500(6HRS)/550	GEN BOAT/FISH	MED	1725
JUNE	1500(6HRS)/550	GEN BOAT/FISH	MED	872
JULY*	1500(6HRS)/550	FISH/GEN BOAT	HIGH	651
AUGUST	1500(6HRS)/550	GEN BOAT/FISH	HIGH	903
SEPTEMBER	1500(6HRS)/550	GEN BOAT/FISH	MED	1258

*550 CFS+ during non-hydro operation period 550 cfs / 1500 cfs (six hours) during hydro operation

**Serves as an indicator of the possibility of supply only 1500 cfs (six hours) / 550 cfs (18 hours) is approximately equal to an average daily flow of 788 cfs.

REFERENCES

The following are the data sources that were used to determine recreation use patterns and streamflow requirements.

- a) Recreation Value Study (Pacific Northwest Power Planning Council).

- b) Agency reports and records

Klamath River Special Recreation Management Area Plan (BLM 1983)

River Information Digest (Interagency Whitewater Committee 1985)

Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study (BLM 1989)

Private Trip registration cards (BLM)

Information on Annual Visitor Use October 1987 to September 1988 (BLM)

Resident Fish Creel Census Summary (ODFW 1987, 1988, 1989)

ODFW Central Region Administrative Report No. 83-5 Klamath River: Summary of Biological Parameters John Tolman June 1983

- c) User Fee Reports supplied by BLM (Guide service records) 1987 1988.

- d) River guide publications

Soggy Sneakers Guide (Willamette Kayak and Canoe Club, July 1988)

Handbook to the Klamath River (Quinn and Quinn 1983)

- e) Professional/expert opinion

Dave Steele, BLM contractor

Dean Munroe, Klamath Canyon River Outfitters

Kattie Ardt, Klamath Falls Audubon

Charlotte Opp, Klamath Falls Audubon

Les Lingschite, Pacific Power and Light

Scott Senter, BLM

Kathy Humphery, BLM

- f) Hydrologic records (Friday and Miller 1984)
- g) WRD records.

The Klamath River Scenic Waterway Water Resources Summary - Homer, September 1989

Summary of Klamath Basin water right applications - WRIS December 1989

- h) USGS records Gauge number 11510700
- i) Salt Caves Hydroelectric Project Documents

Application for Licence Salt Caves Hydroelectric Project April 1988 Response to Additional Information Requests

DEIS Salt Caves Hydro Electric Project (FERC July 1989)

Comments on Salt Caves DEIS by ODFW

- j) Nationwide River Inventory (HCRS)

WHITEWATER CLASSIFICATIONS

CLASS: The class designations given in this book indicate the class of the majority of the run, according to the American Whitewater Affiliation international scale of river difficulty, which is described below. If only one or two spots are more difficult than the majority of the run, parentheses are used, e.g., South Santiam as 4(6) or Lower McKenzie as 1(2). The letter "t" is used after the number designation to indicate that a run is predominantly technical in nature, and the letter "P" is used in to indicate that at least one portage is mandatory.

Class 1. Moving water with a few riffles and small waves. Few or no obstructions.

Class 2. Easy rapids with waves up to 3 feet, and wide clear channels that are obvious without scouting. Some maneuvering is required.

Class 3. Rapids with high, irregular waves often capable of swamping an open canoe. Narrow passages that often require complex maneuvering. May require scouting from shore.

Class 4. Long difficult rapids with constricted passages that often require complex maneuvering. May require scouting from shore.

Class 5. Extremely difficult, long, and very violent rapids with highly congested routes which nearly always must be scouted from shore. Rescue conditions are difficult and there is significant hazard to life in event of a mishap. Ability to Eskimo roll is essential for kayaks and canoes.

Class 6. Difficulties of class 5 carried to the extreme of navigability. Nearly impossible and very dangerous. For teams of experts only, after close study and with all precautions taken.

If the water temperature is below 50 degrees F, the AWA states that the river should be considered one class more difficult than normal.

Still water and class 1 are sometimes subdivided according to water speed:

Class A. Standing or slow flowing water, not more than 2.5 mph.

Class B. Current between 2.5 and 4.5 mph, but backpaddling can effectively neutralize the speed.

Class C. Current more than 4.5 mp, but backpaddling cannot neutralize the speed of the current. Simple obstacles may occur that require a certain amount of boat control.

GRADIENT: The average gradient of the section, reported in feet of elevation change per mile of river length. The letters "PD" are used to indicate that a run is primarily "pool-drop" in nature. Most of the elevation change on such a run occurs over relatively steep sections, which are separated by relatively level stretches. The letter "C" is used to indicate that a run is primarily "continuous" in nature. The elevation change on such a run is relatively uniform over the length of the section.

SEASON: The time of year that a river can normally be run is related to the weather and the source of the river. West of the Cascade Range, it rains more or less continuously from

November through May, and is dry from typically June or July through September or October. East of the Cascade Range, conditions are mostly dry and desert-like throughout the year, although significant snowfall accumulates in mountainous regions during the winter months. The classifications according to weather and source of water are:

ALL YEAR - There is adequate water for boating year-round. The sources of these rivers are generally dam controlled. Examples: North Santiam, Metolius, the lower Deschutes, Rogue.

DAM CONTROLLED - The flow of these rivers is controlled by dams or irrigation diversions, but there is no requirement for minimum flow. Water may be shut off or reduced below runnable flows by the controlling agency. Examples: the upper Deschutes runs, and the Middle Santiam between the dams.

RAINY - These rivers reach runnable levels after several days of rain. Many of the rivers of western Oregon are in this group. Examples: Coquille, Siletz, Wilson, Molalla, Calapooia.

SNOWMELT - These rivers generally receive the bulk of their water from melting snow in the spring and early summer. Such rivers are at high elevations or in Eastern Oregon. Examples: White Salmon, John Day, Owyhee.

RAINY/SNOWMELT - These rivers receive their water both from rain and from snow. They will be runnable after a few days of good rain and into early summer because of melting snowpack. Examples: Breitenbush, Sandy, Quartzville Creek.

KLMFNL

RAGEN, TREMAINE, KRIEGER,
SCHMEER & NEILL
LAWYERS

2300 FIRST INTERSTATE TOWER
1300 S.W. FIFTH AVENUE
PORTLAND, OREGON 97201
TELEPHONE (503) 241-2300
TELECOPIER (503) 776-5299
TELEX 185224

WASHINGTON, D.C. OFFICE
SUITE 800
2300 M STREET, N.W.
WASHINGTON, D.C. 20037
(202) 333-6400

November 9, 1989

FRED M. AEBI
JAMES F. AMBROSE
GARY M. ANDERSON
DAVID C. BACA
DOUGLAS G. BECKMAN
PATRICK G. BOYLESTON
SEAN DONAHUE
RICHARD M. GLICK
PATRICK J. GREEN, P.C.
THOMAS S. HILLIER
DAVID J. KRIEGER, P.C.
MILTON C. LANKTON, P.C.
RODNEY E. LEWIS, JR.
D. CHARLES MAURITZ
JOHN F. MCGRORY, JR.
WILLIAM R. MILLER, JR.
CHRIS L. MULLMANN
JAMES K. NEILL, JR.
ROBERT D. NEWELL
PHILLIP C. QUERIN
RONALD K. RAGEN
MICHAEL H. SCHMEER, P.C.
MILTON R. STEWART
H. STEWART TREMAINE, P.C.
JOSEPH M. VANLEUVEN
TIMOTHY R. VOLPERT

Mize
cc: Young
Borden
Appointed 12/1/89
Continued 1/1/89
AMY R. ALPERN
ANNE L. BARRAGAR
DUANE A. BOSWORTH
MYLES A. CONWAY
WALLACE FITZWATER
SUSAN G. HOWE
JAY D. HULL
CLAUDIA MICHELLE LARKINS
MARYLEE A. LOWRY
TRACY J. MABRY
GEORGE M. MARDIKES
KEITH ALAN MOORE
CHARLES S. OAKES
RUTH E. PEKELDER
O. MICHAEL RINKE
PETER A. SERGIENKO
ANN L. SHERMAN
JAMES S. SMITH
PAMELA S. STEBBES
JOHN C. WENDLANDT
MARK A. WENTZIEN
VICKI HOPMAN YATES

OF COUNSEL

WALTER H. EVANS III
ELIZABETH C. MADSEN
WATSON D. ROBERTSON

Mr. William H. Young
Director
Water Resources Commission
3850 Portland Road NE
Salem, OR 97310

RECEIVED

NOV 13 1989

Re: Instream Flows on the Klamath River
WRC Application No. 70094
Our File No. 54030-013

WATER RESOURCES DEPT.
SALEM, OREGON

Dear Mr. Young:

On October 13, 1989, the Oregon Department of Fish and Wildlife ("ODFW") and the Oregon State Parks and Recreation Division ("State Parks") jointly applied to the Water Resources Commission ("WRC") for an instream water right on the Klamath River (the "joint application"). On behalf of the City of Klamath Falls (the "City"), we request your review of this application pursuant to OAR 690-77-030(b).

The joint application requests instream flows on the Klamath River from the confluence of the J.C. Boyle Powerhouse tailrace and the natural channel (approximately river mile 220.4) to the Oregon-California border (approximately river mile 209.30). The joint application requests 550 cfs for fisheries and 1500 cfs for recreation.

The subject of the joint application is the same reach of river for which the City has earlier filed water rights applications for the Salt Caves Hydroelectric Project. Despite the fact that the City has had applications on file before the WRC since 1986, neither ODFW nor State Parks served a copy of the joint application on the City. The City learned of the joint application when it noticed the application attached as an exhibit to the State's comments to the Federal Energy Regulatory Commission ("FERC") dated October 25, 1989, regarding the FERC's draft environmental impact statement for the Salt Caves Project.

That the City was not notified of ODFW's and State Parks' action, which is of such obvious import to the City, is

RECEIVED

Mr. William H. Young
November 9, 1989
Page 2

NOV 13 1989

WATER RESOURCES DEPT.
SALEM, OREGON

particularly distressing since these agencies indicated their intent to defer recreational flow recommendations until December 1989. The WRD Staff memorandum accompanying Agenda Item B for the July 7, 1989 WRC meeting states:

"The available data is insufficient to meet our needs, but additional data will be collected. . . . The earliest flow recommendations will be available in December, 1989 (Klamath and John Day basins) and the last group will be done in December, 1992." Memorandum at 2.

It is unclear to the City why ODFW and State Parks felt the need to make an early application before the necessary data was collected. It is troubling that neither ODFW, State Parks nor the WRC saw fit to send a copy to the City.

In support of its request for review, the City asserts the following:

- I. The Water Resources Commission is prohibited from considering the joint application for instream water rights.

The WRC is prohibited from considering the joint application for instream water rights. ORS 537.360 provides that the WRC may not take any action on an application for instream water rights when there is an application pending before the WRC to use the water for a hydroelectric project.

There is now an application pending before the WRC to appropriate water for the Salt Caves Hydroelectric Project, which involves the same stretch of the Klamath River that is the subject of the joint application. The City submitted its application to appropriate Klamath River water on June 8, 1989. This most recent City application for water rights supports what has been called the "no dam" configuration.

On July 28, 1989, the Water Resources Department ("WRD"), on behalf of the WRC, returned the City's application to appropriate water for the hydroelectric project. The City of Klamath Falls then filed an appeal of the WRC decision to reject the application (Klamath County Circuit Court Case No. 890 2024-C). The filing of this appeal operates to stay the WRD's or WRC's order rejecting the City's application. ORS 536.075(5).

Consequently, the City's application is still pending

RECEIVED

NOV 13 1989

Mr. William H. Young
November 9, 1989
Page 3

WATER RESOURCES DEPT.
SALEM, OREGON

before the WRC. Because there is pending an application to use the water for the City's hydroelectric project, the terms of ORS 537.560 prohibit any consideration of the joint application.

II. The instream water right application is not in the public interest.

Even if the WRC had the authority to act on the joint application, the establishment of an instream water right on this stretch of the Klamath River is contrary to the public interest. Consequently, the application should be denied pursuant to OAR 690-77-030(c).

The City has actively pursued the Salt Caves Hydroelectric Project for over six years. Significant sums of money and effort have been expended on the development of this Project. The FERC is currently in the process of studying the Project's environmental impacts.

The establishment of instream water rights on this stream in the amounts applied for would require all available water in this stretch and make any significant hydroelectric development, including Salt Caves, impossible. This would result in the loss of significant public and private resources already expended on the Project and forever preclude future use of the resource for hydroelectric development.

In addition, the appropriation of water for an instream water right would be contrary to the terms of the Klamath River Basin Compact (ORS 542.620; the "Compact"). The Compact is an interstate agreement between Oregon and California, ratified by the United States Congress, and designed to govern the allocation and use of Klamath River Basin water. The Compact expressly governs the stretch of river which is the subject of the instream water right application. As an interstate compact approved by Congress, the Compact has the effect of federal law. One of the primary objectives of the Compact is to facilitate and promote the development of hydroelectric power. If the instream water right application is granted, the development of hydroelectric power will be prohibited, and the terms of the compact will be violated.

III. The joint application for instream flows is premature.

ODFW and State Parks are only authorized to request the quantity of water necessary to support fish, wildlife or recreation. ORS 537.336. The joint application must be supported by data establishing a proper level of stream flow. Without such data, the application may not properly be considered.

The minimum stream flows requested in the joint application are not the product of studies or investigation. The application does not provide any data to substantiate the levels

RECEIVED

RAGEN, TREMAINE, KRIEGER, SCHMEER & NEILL

NOV 13 1989

Mr. William H. Young
November 9, 1989
Page 4

WATER RESOURCES DEPT
SALEM, OREGON

of flow which are requested. Therefore, the application is premature.

Further, the requested flows are inherently contradictory. The application requests 1500 cfs for recreation and 550 cfs for fisheries. These two levels cannot be reconciled. There are not sufficient flows in the Klamath River to provide 1500 cfs year round; 1500 cfs occurs when J.C. Boyle operates as a peaking facility.

Present peaking operations below J. C. Boyle powerhouse provide daily peak releases of about 1100 to 1500 cfs in the summer above an off-peak (evening and night) flow of about 350 cfs. It is this peaking flow that permits rafting in the summer, the only season when rafting the Klamath occurs. Studies have shown that maintaining the flow in the river at the 350 to 450 cfs range would improve the fishery which is now impacted by the daily fluctuation in flows relied upon by river rafters. Thus, 1500 cfs peak releases are harmful to the fishery in this reach, while 550 cfs is insufficient for rafting.

The joint application, then, does not request a level of instream flow suitable to both agencies. Neither the fishery nor the rafting resource would be served; as the City has demonstrated, one or the other resource can be optimized, but not both. Therefore, the joint application is not in the public interest and should be rejected.

Based upon the reasons set forth above, the WRC is prohibited from taking any action on the joint instream water right application. Even if the WRC were permitted to take any action on the application, a minimum stream flow on this stretch of the Klamath River is contrary to the public interest.

Please send all notices and correspondence concerning the joint application to the undersigned. Thank you for your courtesy.

Very truly yours,

RAGEN, TREMAINE, KRIEGER,
SCHMEER & NEILL


Richard M. Glick

cc: Mayor George Flitcraft
David G. Talbot
Randy Fisher

RMG:MAC:tlt
F:\54030013\YOUNG04.LTR

WATERWATCH of OREGON, Inc.
Route 2, Box 925
Hillsboro, Oregon 97123

(503) 628-1071

NOV 13 1989
WATER RESOURCES
DEPARTMENT
SALEM, OREGON

Director
Water Resources Department
3850 Portland RD. NE
Salem, Oregon 97310

Date: November 13, 1989

Gentlemen:

Waterwatch request that information on permit application
70094 in the name of David G. Talbot
be provided as follows:

1. Water availability in cfs for each month of the year in
the source below the diversion of the proposed appropriation
which provides or could provide public uses (ORS 537.332(4)).

2. The methods, standards, and criteria of how water
availability was calculated.

3. The protection now provided for public uses below the
diversion in the source of the proposed appropriation.

Sincerely,


Audrey J. Simmons

President, Waterwatch,

Oregon Water Resources Department
Water Rights/Adjudication Section

Water Right Application Number: IS 70094

Proposed Final Order

Summary of Recommendation: The Department recommends that the attached draft certificate be issued with conditions.

Application History

On 10/13/89, the Oregon Department of Fish and Wildlife submitted an application to the Department for the following instream water right certificate.

Source: KLAMATH R TRIB PACIFIC OCEAN

County: Klamath

Purpose: Migration, spawning, egg incubation, fry emergence, and juvenile rearing.

The amount of water (in cubic feet per second) requested by month:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Fish life and fish habitat											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
550	550	550	550	550	550	550	550	550	550	550	550

To be maintained in:

KLAMATH R FM THE CONFLUENCE OF JC BOYLE POWERHOUSE TAILRACE &
THE NATURAL CHANNEL AT R.M. 220.4 (NWNW, S 13, T40S, R6E WM);
TO THE OREGON/CALIFORNIA BORDER R.M. 209.3 (NWNE, S13, T41S, R5E WM)

The Department mailed the applicant notice of its Initial Review on April 29, 1996. Public notice of the application was provide in the Department's weekly public notice on May 13, 1996. Comments were received for 30 days.

The following supporting data was submitted by the applicant:

- (a) Fish and Wildlife Resources of the Klamath Basin, Oregon, and Their Water Requirements; April, 1970.
- (b) Determining Minimum Flow Requirements for Fish, ODFW Report January 20, 1984.
- (c) Developing and Application of Spawning Velocity and Depth Criteria for Oregon Salmonids, Alan K. Smith, Transactions of the American Fisheries Society, April 1973.

- (d) Determining Stream Flows for Fish Life, Oregon State Game Commission Report, March 1972.
- (e) A letter dated April 5, 1996, stating that the flows requested in this application are the minimum amount necessary to restore, protect and enhance populations and habitats of native wildlife species at self-sustaining levels

In reviewing applications, the Department may consider any relevant sources of information, including the following:

- comments by or consultation with another state agency
- any applicable basin program
- any applicable comprehensive plan or zoning ordinance
- the amount of water available
- the proposed rate of use
- pending senior applications and existing water rights of record
- the Scenic Waterway requirements of ORS 390.835
- applicable statutes, administrative rules, and case law
- any comments received

An assessment with respect to conditions previously imposed on other instream water rights granted for the same source has been completed.

An evaluation of the information received from the local government(s) regarding the compatibility of the proposed instream water use with land use plans and regulations has been completed.

The level of instream flow requested is based on the methods of determining instream flow needs that have been approved by administrative rule of the agency submitting this application.

Findings of Fact

The basin Basin Program allows the proposed use.

Senior water rights exist on this source or on downstream waters.

The source of water is within or above a State Scenic Waterway.

The source of water is not withdrawn from appropriation by order of the State Engineer or legislatively withdrawn by ORS 538.

The estimated average natural flow for the lower end of the requested reach is as follows (in cubic feet per second):

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2170	2290	2840	3390	3230	2780	1900	1330	1160	1260	1500	1810

Conclusions of Law

Under the provisions of ORS 537.153, the Department must

presume that a proposed use will not impair or be detrimental to the public interest if the proposed use is allowed in the applicable basin program established pursuant to ORS 536.300 and 536.340 or given a preference under ORS 536.310(12), if water is available, if the proposed use will not injure

other water rights and if the proposed use complied with rules of the Water Resources Commission.

The proposed use requested in this application is allowed in the basin Basin Plan.

No preference for this use is granted under the provisions of ORS 536.310(12).

The proposed use will not injure other water rights.

The proposed use complies with rules of the Water Resources Commission.

The proposed use complies with the State Agency Agreement for land use.

The proposed instream flows do not fully appropriate this source of water year round. Water is available for additional storage.

Water is not available for the proposed use at the amount requested year round because the unappropriated water available is less than the amounts requested during some months.

For these reasons, the presumption set forth in ORS 537.153, as discussed above, has not been established. The application therefore has been processed without the statutory presumption.

"When instream water rights are set at levels which exceed current unappropriated water available the water right not only protects remaining supplies from future appropriation but establishes a management objective for achieving the amounts of instream flows necessary to support the identified public uses." OAR 690-77-015(2).

"The amount of appropriation for out-of-stream purposes shall not be a factor in determining the amount of an instream water right." "The amount allowed during any time period for the water right shall not exceed the estimated average natural flow ..." (excerpted from OAR 690-77-015 (3) and (4)).

Because the proposed use exceeds the available water, it can not be presumed to be in the public interest. However, under the direction of OAR 690-77-015 (2)(3) and(4), the proposed use is in the public interest up to the limits of the estimated average natural flow.

Oregon law allows certain uses of water to take precedence over other uses in certain circumstances. When proposed uses of water are insufficient for all who desire to use them, preference shall be given to human consumption purposes over all other uses and for livestock consumption over any other use (excerpted from ORS 536.310 (12)).

The Department therefore concludes that

- the proposed use, as limited in the draft certificate, will not result in injury to other water rights,
- the proposed use, as limited in the draft certificate, will not impair or be detrimental to the public interest as provided in ORS 537.170.
- the proposed use, as limited in the draft certificate, will

include the following conditions: for purposes of water distribution, this instream right shall not have priority over human or livestock consumption.

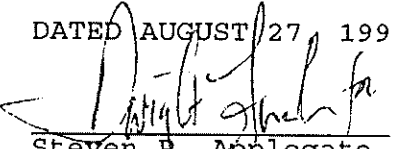
- the flows are to be measured at the lower end of the stream reach to protect necessary flows throughout the reach.
- the stream flows listed below represent the minimum flows necessary to support the public use.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1330	1160	1260	1500	1500

Recommendation

The Department recommends that the attached draft certificate be issued with conditions.

DATED AUGUST 27, 1996


Steven P. Applegate
Administrator
Water Rights and Adjudications Division

Protest Rights

Under the provisions of ORS 537.153(6) or 537.621(7), you have the right to submit a protest against this proposed final order. Your protest *must* be in writing, and must include the following:

- Your name, address, and telephone number;
- A description of your interest in the proposed final order, and, if you claim to represent the public interest, a precise statement of the public interest represented;
- A detailed description of how the action proposed in this proposed final order would impair or be detrimental to your interest;
- A detailed description of how the proposed final order is in error or deficient, and how to correct the alleged error or deficiency;
- Any citation of legal authority to support your protest, if known; and
- If you are not the applicant, the \$200 protest fee required by ORS 536.050.
- Proof of service of the protest upon the applicant.

Your protest must be received in the Water Resources Department no later than October 11, 1996.

After the protest period has ended, the Director will either issue a final order or schedule a contested case hearing. The contested case hearing will be scheduled only if a protest has been submitted and if

- upon review of the issues the director finds that there are significant disputes related to the proposed use of water, or
- the applicant requests a contested case hearing within 30 days after the close of the protest period.

DRAFT
STATE OF OREGON

CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

Oregon Water Resources Department
158 12th Street NE
Salem, Oregon 97310

The specific limits for the use are listed below along with conditions of use.

Source: KLAMATH R TRIB PACIFIC OCEAN

County: Klamath

Purpose: Migration, spawning, egg incubation, fry emergence, and juvenile rearing.

To be maintained in:

KLAMATH R FM THE CONFLUENCE OF JC BOYLE POWERHOUSE TAILRACE &
THE NATURAL CHANNEL AT R.M. 220.4 (NWNW, S 13, T40S, R6E WM);
TO THE OREGON/CALIFORNIA BORDER R.M. 209.3 (NWNE, S13, T41S, R5E WM)

The right is established under Oregon Revised Statutes 537.341.

The date of priority is 10/13/89.

The following conditions apply to the use of water under this certificate:

1. The right is limited to not more than the amounts, in cubic feet per second, during the time periods listed below:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1500	1500	1500	1500	1500	1500	1500	1330	1160	1260	1500	1500

2. The water right holder shall measure and report the in-stream flow along the reach of the stream or river described in the certificate as may be required by the standards for in-stream water right reporting of the Water Resources Commission.
3. For purposes of water distribution, this instream right shall not have priority over human or livestock consumption.
4. The instream flow allocated pursuant to this water right is not in addition to other instream flows created by a prior water right or designated minimum perennial stream flow.
5. The flows are to be measured at the lower end of the stream reach to protect necessary flows throughout the reach.

Witness the signature of the Water Resources Director affixed this ____ day of _____, 19__.

Instream Application No.

70094

Certificate No.

RECEIVED

OCT 13 1989

STATE OF OREGON

WATER RESOURCES DEPARTMENT

WATER RESOURCES DEPARTMENT
SALEM, OREGON

Application for Instream Water Right
by a State Agency

There is no fee required for this application.

A. Applicant: David G. Talbot for Oregon State Parks & Rec Division
(Director) (Agency)

Mailing Address: 525 Trade Street SE

Salem

City

OR

State

97310

Zip

378-6378 (Al Cook)

Phone No.

B. Applicant: Randy Fisher for Oregon Dept. of Fish & Wildlife
(Director) (Agency)

Mailing Address: 506 SW Mill St.

Portland

City

OR

State

97201

Zip

229-5406

Phone No.

C. Applicant: _____ for _____
(Director) (Agency)

Mailing Address: _____

City

State

Zip

Phone No.

1. The name of stream or lake of the proposed instream water right is Klamath River
a tributary or source (if lake) of Pacific Ocean

2. The public use(s) this instream water right is based upon include:

Recreation boating, scenic enjoyment, state scenic waterway
designation and fish life and fish habitat

Instream Application No. 70094 Certificate No. _____

3. The amount of water needed by month and/or year for each category of public use. If more space is needed, use a separate sheet of paper.

List quantities in either cfs, acre-feet, or lake elevation above Mean Sea Level

Use(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Recreation*												
Boating, scenic enjoyment												
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Fish life and fish habitat *												
	550	550	550	550	550	550	550	550	550	550	550	550
* See Addendum												

4. The reach of the stream identified for an instream water right is from the:

upstream end at confluence of the J.C. Boyle Powerhouse tailrace and the natural
River Mile (if known) approximately 220.4 channel

within the NW 1/4 of the NW 1/4 of
Section 13 Township 40S Range 7E W.M.,
County Klamath

downstream end at Oregon/California border

River Mile (if known) 209.3 (approx)

within the NW 1/4 of the NE 1/4 of
Section 13 Township 41S Range 5E W.M.,
County _____

Lake identified for an instream water right is

within the _____ 1/4 of the _____ 1/4 of
Section _____ Township _____ Range _____ W.M.,
County _____

5. Method(s) used to determine the requested amounts:

See addendum

Instream Application No. 70094

Certificate No. _____

6. When were the following state agencies notified of the intent to file for the instream water right?

Department of Environmental Quality
Department of Fish and Wildlife
Parks and Recreation Division

Date September 1, 1989
Date September 11, 1989
Date _____

7. If possible, include recommendations for measuring locations or methods:

8. If possible, include recommendations for assisting the Water Resources Department (WRD) in measuring and monitoring procedures:

9. If possible, include other recommendations for methods or conditions necessary for managing the water right to protect the public uses (see OAR 690-77-020 (5)(c)):

Remarks: _____

This application must be accompanied by a basin map with the applicable lake or stream reach identified.

An instream water right may be allowed for an instream beneficial use of water subject to existing water rights with an effective date prior to the filing date of this application.

This type of beneficial use is for the benefit of the public and a certificate issued confirming an instream water right shall be held in trust by the Water Resources Department for the people of the State of Oregon, pursuant to ORS 537.341.

October 13, 1989 / 10/13/89
Date

David L. Fitch / Nancy M. MacHugh
Signature

Oregon State Parks / OR Dept. Fish & Wildlife
Agency

Administrator / Chief, HCD
Title

Instream Application No. 70094 Certificate No. _____

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return them for:

In order to retain its priority, this application must be returned to the Water Resources Department with corrections on or before _____, 19 ____.

Date: _____, 19 ____.

Water Resources Department

Title

This document was first received at the Water Resources Department in Salem, Oregon, on the 13 day of October, 19 89, at 2³⁰ o'clock P M.

70094

RECEIVED

Addendum to Instream Application
Klamath River

OCT 13 1989

WATER RESOURCES DEPT.
SALEM, OREGON

The primary recreational activities on the Klamath River can be categorized as both water-dependent and water-related uses. Certain data exists to help determine flow needs for the water-dependent uses. Determining the flows needed for water-related uses is a more subjective decision. The requested instream water right of 1,500 cubic feet per second is sufficient to satisfy flow requirements for both categories of recreational use.

The predominant water-dependent recreational uses of the Klamath are whitewater rafting and fishing. Noted commercial guides, river user publications¹, professional observation and private users all prefer 1,500 CFS or more for whitewater rafting experiences. The Bureau of Land Management also asserts that 1,500 CFS is the minimum raftable flow needed for whitewater rafting².

Flow requirements for water-related uses (camping, hiking, scenic enjoyment), while equally important, are not easily quantified. It is the Parks and Recreation Division's position that the flows within the Klamath at the time of scenic waterway designation are indicative of those needed to safeguard the water-related recreation values. In the case of the Klamath, the flow regime is determined by the J.C. Boyle project operation scheme and flows in the natural channel of the Klamath at the confluence of the natural channel and J.C. Boyle Powerhouse tailrace.

The Parks and Recreation Division therefore is requesting a 1,500 CFS for recreational purposes as measured at the confluence of the J.C. Boyle Powerhouse tailrace and the natural channel.

Minimum desirable flows for angling have not been established through an angler preference survey. Parks or ODFW may apply at a later date for a supplemental instream water right necessary to support angling use once such flow needs have been established.

The Oregon Department of Fish and Wildlife has concluded from results of the instream flow studies of fish habitat between J.C. Boyle Powerhouse and the California stateline that 550 cfs is the minimum desirable flow for maintaining suitable habitat for juvenile and adult rainbow trout. The instream flow requirements for spawning, incubation and migration of Shortnose and Lost River

¹ Handbook to the Klamath River Canyon, Quinn & Quinn, 1983, p. 31

Soggy Sneakers Guide to Oregon Rivers, WKCC, 1986, p. 65

² FERC DEIS, Salt Caves Hydroelectric Project (FERC 10199-000), 1989 page 3-51.

Suckers, two endemic threatened and endangered (T&E) species, were not established through the instream flow studies referred to above. ODFW may apply for a supplemental instream water right for these T&E species at a later date after the flow needs of these species have been established. The instream flow studies for rainbow trout were conducted at request of ODFW by Pacific Power and Light, and the City of Klamath Falls, as described in the license application to the Federal Energy Regulatory Commission for the Salt Caves Hydroelectric Project (City of Klamath Falls, 1988). The studies followed Instream Flow Incremental Methodology or "IFIM" procedures recommended by the U.S. Fish and Wildlife Service for the purpose of determining the instream flow habitat requirements of rainbow trout (U.S. Fish and Wildlife Service Information Paper No. 12, 1982).

RECEIVED

OCT 13 1989

WATER RESOURCES DEPT.
SALEM, OREGON

AC:lr
KRIVER.TXT
10/89

70094

RECEIVED

Addendum to Instream Application
Klamath River

OCT 13 1989

WATER RESOURCES DIV.
SALEM, OREGON

The primary recreational activities on the Klamath River can be categorized as both water-dependent and water-related uses. Certain data exists to help determine flow needs for the water-dependent uses. Determining the flows needed for water-related uses is a more subjective decision. The requested instream water right of 1,500 cubic feet per second is sufficient to satisfy flow requirements for both categories of recreational use.

The predominant water-dependent recreational uses of the Klamath are whitewater rafting and fishing. Noted commercial guides, river user publications¹, professional observation and private users all prefer 1,500 CFS or more for whitewater rafting experiences. The Bureau of Land Management also asserts that 1,500 CFS is the minimum raftable flow needed for whitewater rafting².

Flow requirements for water-related uses (camping, hiking, scenic enjoyment), while equally important, are not easily quantified. It is the Parks and Recreation Division's position that the flows within the Klamath at the time of scenic waterway designation are indicative of those needed to safeguard the water-related recreation values. In the case of the Klamath, the flow regime is determined by the J.C. Boyle project operation scheme and flows in the natural channel of the Klamath at the confluence of the natural channel and J.C. Boyle Powerhouse tailrace.

The Parks and Recreation Division therefore is requesting a 1,500 CFS for recreational purposes as measured at the confluence of the J.C. Boyle Powerhouse tailrace and the natural channel.

Minimum desirable flows for angling have not been established through an angler preference survey. Parks or ODFW may apply at a later date for a supplemental instream water right necessary to support angling use once such flow needs have been established.

The Oregon Department of Fish and Wildlife has concluded from results of the instream flow studies of fish habitat between J.C. Boyle Powerhouse and the California stateline that 550 cfs is the minimum desirable flow for maintaining suitable habitat for juvenile and adult rainbow trout. The instream flow requirements for spawning, incubation and migration of Shortnose and Lost River

¹ Handbook to the Klamath River Canyon, Quinn & Quinn, 1983, p. 31

Soggy Sneakers Guide to Oregon Rivers, WKCC, 1986, p. 65

² FERC DEIS, Salt Caves Hydroelectric Project (FERC 10199-000), 1989 page 3-51.

Suckers, two endemic threatened and endangered (T&E) species, were not established through the instream flow studies referred to above. ODFW may apply for a supplemental instream water right for these T&E species at a later date after the flow needs of these species have been established. The instream flow studies for rainbow trout were conducted at request of ODFW by Pacific Power and Light, and the City of Klamath Falls, as described in the license application to the Federal Energy Regulatory Commission for the Salt Caves Hydroelectric Project (City of Klamath Falls, 1988). The studies followed Instream Flow Incremental Methodology or "IFIM" procedures recommended by the U.S. Fish and Wildlife Service for the purpose of determining the instream flow habitat requirements of rainbow trout (U.S. Fish and Wildlife Service Information Paper No. 12, 1982).

RECEIVED

OCT 13 1989

WATER RESOURCES DEPT.
SALEM, OREGON

70094

CC PFO

TO

Bill Brooks

BLM

PO Box 2965

Portland OR

27208-2965

Please put this
on application
Thanks MM

AC:lr
KRIVER.TXT
10/89

RECEIVED

STATE OF OREGON

OCT 13 1989

WATER RESOURCES DEPARTMENT

WATER RESOURCES DEPARTMENT
STATE OF OREGONApplication for Instream Water Right
by a State Agency

There is no fee required for this application.

A. Applicant: David G. Talbot for Oregon State Parks & Rec Division
(Director) (Agency)Mailing Address: 525 Trade Street SE
Salem, OR 97310 378-6378 (Al Cook)
City State Zip Phone No.B. Applicant: Randy Fisher for Oregon Dept. of Fish & Wildlife
(Director) (Agency)Mailing Address: 506 SW Mill St.
Portland, OR 97201 229-5406
City State Zip Phone No.C. Applicant: _____ for _____
(Director) (Agency)Mailing Address: _____
_____, _____, _____, _____
City State Zip Phone No.1. The name of stream or lake of the proposed instream water right is Klamath River
a tributary or source (if lake) of Pacific Ocean2. The public use(s) this instream water right is based upon include:
Recreation boating, scenic enjoyment, state scenic waterway
designation and fish life and fish habitat

3. The amount of water needed by month and/or year for each category of public use. If more space is needed, use a separate sheet of paper.

List quantities in either cfs, acre-feet, or lake elevation above Mean Sea Level

Use(s)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Recreation*												
Boating, scenic enjoyment												
	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500
Fish life and fish habitat *												
	550	550	550	550	550	550	550	550	550	550	550	550
* See Addendum												

4. The reach of the stream identified for an instream water right is from the:

upstream end at confluence of the J.C. Boyle Powerhouse tailrace and the natural
River Mile (if known) approximately 220.4 channel

within the NW 1/4 of the NW 1/4 of
Section 13 Township 40S Range 7E W.M.,
County Klamath

downstream end at Oregon/California border

River Mile (if known) 209.3 (approx)

within the NW 1/4 of the NE 1/4 of
Section 13 Township 41S Range 5E W.M.,
County _____

Lake identified for an instream water right is

within the _____ 1/4 of the _____ 1/4 of
Section _____ Township _____ Range _____ W.M.,
County _____

5. Method(s) used to determine the requested amounts:

See addendum

6. When were the following state agencies notified of the intent to file for the instream water right?

Department of Environmental Quality
Department of Fish and Wildlife
Parks and Recreation Division

Date September 1, 1989
Date September 11, 1989
Date _____

7. If possible, include recommendations for measuring locations or methods:

8. If possible, include recommendations for assisting the Water Resources Department (WRD) in measuring and monitoring procedures:

9. If possible, include other recommendations for methods or conditions necessary for managing the water right to protect the public uses (see OAR 690-77-020 (5)(c)):

Remarks: _____

This application must be accompanied by a basin map with the applicable lake or stream reach identified.

An instream water right may be allowed for an instream beneficial use of water subject to existing water rights with an effective date prior to the filing date of this application.

This type of beneficial use is for the benefit of the public and a certificate issued confirming an instream water right shall be held in trust by the Water Resources Department for the people of the State of Oregon, pursuant to ORS 537.341.

October 13, 1989 / 10/13/89
Date

David L. [Signature] / Theresa M. [Signature]
Signature

Oregon State Parks / OR Dept. Fish & Wildlife
Agency

Administrator / Chief, HCD
Title

Instream Application No. 70094 Certificate No. _____

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return them for:

In order to retain its priority, this application must be returned to the Water Resources Department with corrections on or before _____, 19 ____.

Date: _____, 19 ____.

Water Resources Department

Title

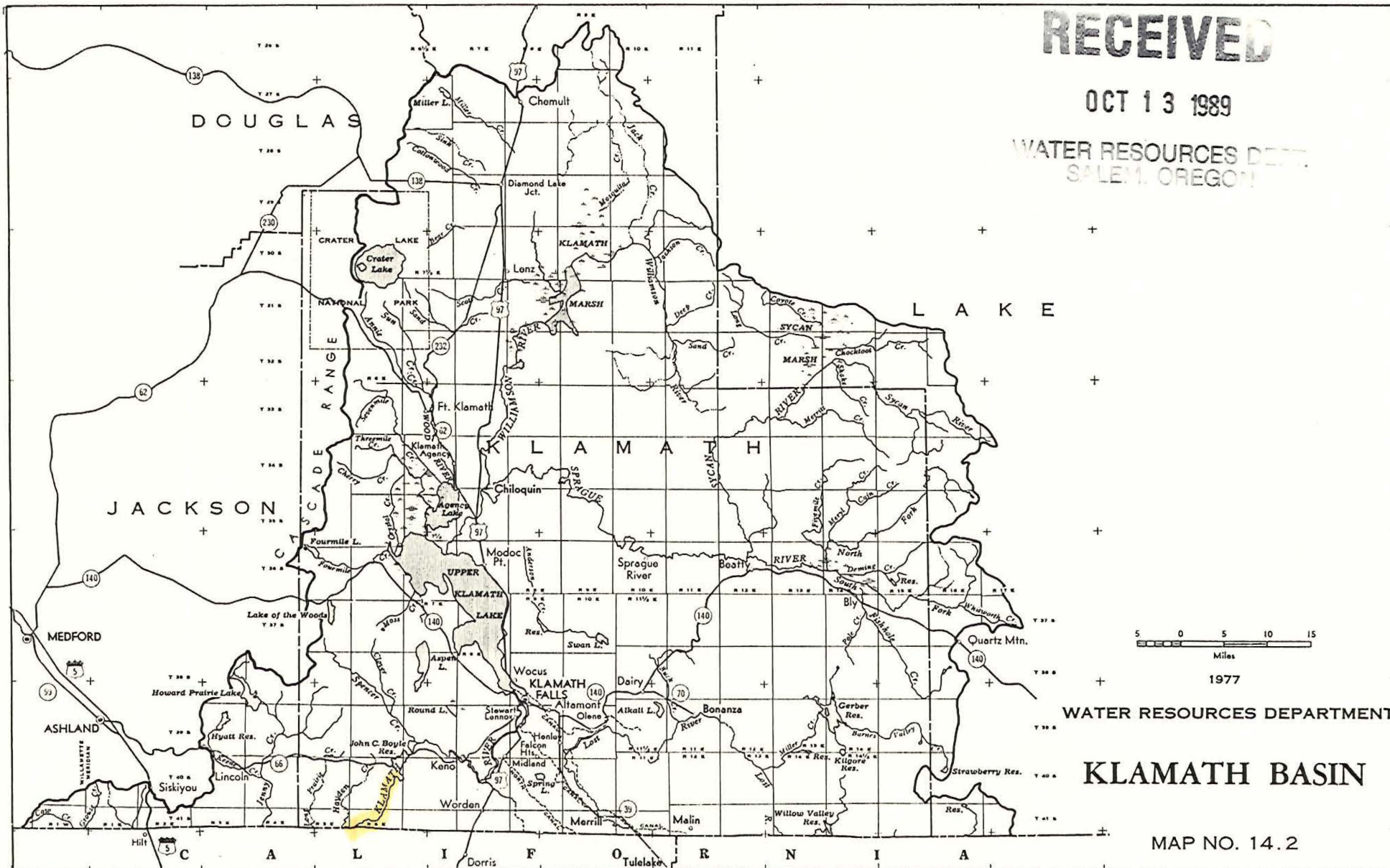
This document was first received at the Water Resources Department in Salem, Oregon, on the 13 day of October, 19 89, at 2³⁰ o'clock P M.

70094

RECEIVED

OCT 13 1989

WATER RESOURCES DEPT.
SALEM, OREGON



DAVE FROHNMAYER
ATTORNEY GENERAL

~~CONFIDENTIAL?~~



why
Young
Mize
Borden

JAMES E. MOUNTAIN, JR.
DEPUTY ATTORNEY GENERAL

DEPARTMENT OF JUSTICE

Justice Building
Salem, Oregon 97310

Telephone: (503) 378-6986

RECEIVED

OCT 10 1989

WATER RESOURCES DEPT.
SALEM, OREGON

October 10, 1989

Richard M. Glick
Ragen, Tremaine, Krieger
Schmeer & Neill
Attorneys at Law
2300 First Interstate Tower
1200 SW Fifth Avenue
Portland, OR 97201

Re: Salt Caves Filing
DOJ File No. 690-001-NR023-89

Dear Mr. Glick:

I have been asked by the Water Resources Department (WRD) whether it would be appropriate for them to accept the filing which the City of Klamath Falls recently submitted. This filing was made based on a default judgment reinstating the application. As you are aware, we have recently filed a motion to set aside this default judgment. We have advised WRD not to act on the filing until the judge has an opportunity to rule on our motion.

Sincerely,

/s/ WALTER PERRY, III

Walter Perry III
Assistant Attorney General
Natural Resources Section

WPIII:tmt/0817H

cc: William Young, WRD ✓

John E. Borden



Water Resources Department

3850 PORTLAND ROAD NE, SALEM, OREGON 97310

PHONE 378-3739

September 29, 1989

Richard M. Glick, Esq.
Ragen, Tremaine, Krieger, Schmeer & Neill
2300 First Interstate Tower
1300 S.W. Fifth Ave.
Portland, OR 97201

Re: Salt Caves Hydroelectric Project
(Application No. 69942)
Judged "misfiled" by Water Resources, August 1989

Dear Mr. Glick:

I am still unclear as to what the department should do regarding whether to "stamp in" or take any other action on your application. Accordingly, I have transmitted the materials you gave me on September 28 to our Assistant Attorney General for advice.

We will contact you as soon as we receive counsel.

Sincerely,

John E. Borden
Deputy

cc Bill Young
cc Applications & Permits Section

b1:kf



Water Resources Department

3850 PORTLAND ROAD NE, SALEM, OREGON 97310

PHONE 378-3066

July 28, 1989

George C. Flitcraft, Mayor
City of Klamath Falls
500 Klamath Avenue
Klamath Falls, OR 97601

REFERENCE: File 69942

Based upon a conclusion (OP 6334) by Dave Frohnmyer, Attorney General for the State of Oregon advising that we lacked authority to accept your application for a permit describing the proposed use of 2,500 cubic feet per second from the tail race discharge of the J. C. Boyle Hydroelectric Project for hydroelectric power generation, the application should not have been filed and is being considered "misfiled". The application is enclosed and will be of no force or effect.

A check will be prepared in the amount of \$200 and sent to you at later date refunding all the fees submitted with the application.

Sincerely,

WAYNE J. OVERCASH
Water Rights Specialist

WJO

Enclosure

cc: Rick Glick, Attorney



OFFICE OF THE ATTORNEY GENERAL

DAVE FROHNMAYER

FOR IMMEDIATE RELEASE
July 28, 1989

Attorney General Dave Frohnmayer today issued an opinion stating that the Water Resources Department lacked authority to accept the third application by the City of Klamath Falls to build a hydroelectric facility on the Klamath River. The opinion was requested by William H. Young, Water Resources Department Director.

The opinion found that the third application for the Salt Caves project is not exempted from the strict licensing standards adopted by the 1985 legislature. Because the exemption does not apply, Water Resources Commission rules which prohibit accepting applications for hydroelectric projects on or near scenic waterways require the Department to return the application. Young said he would return the application next week.

The 1985 legislature enacted strict siting and licensing standards for new hydroelectric projects. The legislature exempted the pending application for the Salt Caves project from the new standards to allow a long-standing proposed project to continue under the legal standards applicable at the project's inception. Today's opinion found that the characteristics of the third proposal for the Salt Caves project no longer qualify it for the exemption.

Kreag
Mize
Borden
Hayes
WRC
cc: Young

The first two proposals for the Salt Caves project called for building a dam and creating a reservoir on the Klamath River. The third application, filed in June, proposes to divert water from an existing powerhouse and send it through conduits to the Salt Caves powerhouse. It does not call for creating a dam or reservoir.

The city first applied in 1985 for state and federal licenses to build a dam and create a reservoir on the Klamath River (Salt Caves I). In 1986, the city modified its application to request permission to build a scaled-down version of the dam and reservoir (Salt Caves II). A 1987 Attorney General's opinion found that the Salt Caves II application was within the 1985 legislative exemption from the stricter licensing standards.

The state Water Resources Commission and Energy Facility Siting Council rejected the Salt Caves II application in February, 1989. Both agencies found that the project would violate the state Scenic Waterways Act, which prohibits dams on scenic rivers.

The city's appeal of the Salt Caves II decisions is pending in the Oregon Supreme Court.

* * * *

Contact: Marla Rae or Phil Lemman
378-6002

6538a

DAVE FROHNMAYER
ATTORNEY GENERAL
STATE OF OREGON

JAMES E. MOUNTAIN, JR.
DEPUTY ATTORNEY GENERAL



DEPARTMENT OF JUSTICE

Justice Building
Salem, Oregon 97310
Telephone: (503) 378-4400

July 28, 1989

William H. Young, Director
Water Resources Department
3850 Portland Road NE
Salem, OR 97310

Re: Opinion Request OP-6334

Dear Mr. Young:

You have asked whether the hydroelectric project proposed by the City of Klamath Falls on June 8, 1989 (Salt Caves III), falls within the exemption found in Oregon Laws 1985, chapter 569, section 27. For the reasons discussed below, we conclude that it does not. The application, therefore, would be subject to the strict licensing standards of the 1985 enactment, and to the Water Resources Commission's (WRC) division 51 administrative rules.

Discussion

1. Background

In January 1985, the City of Klamath Falls (city) applied to state and federal licensing agencies for permission to construct and operate a hydroelectric facility on the Klamath River. In March of that year the city council authorized the issuance of \$250 million in revenue bonds to finance the project. The city ordinance described the project as follows:

"The Project, as proposed, would consist of an embankment dam, spillway and power diversion facility located at river mile 214.3 creating a reservoir 4.8 miles long; 4.1 miles of open channel power conduit leading to twin steel penstocks 1320 feet long; and a powerhouse containing two (2) 40 MW turbine-generator units located at river mile 209.9 near the Oregon - California border. * * * Minor revisions may be necessitated through the licensing process."

William Young
Page 2
July 28, 1989

In early 1986, before the WRC completed review of that application, the city modified the project, withdrew its original applications, and submitted revised applications to state and federal regulatory bodies (Salt Caves II). In July 1986, the city authorized new bonds to fund this project. Although the ordinance did not describe the project in detail, the Preliminary Official Statement made clear that the project included a dam and reservoir, albeit considerably scaled down from those proposed in Salt Caves I, with a longer open channel conduit leading to the powerhouse.¹ The ordinance authorizing the 1986 bonds stated that the project had been redesigned to satisfy environmental and regulatory concerns raised during the administrative review process.

In February 1989, both the WRC and the Energy Facility Siting Council (EFSC) rejected the city's Salt Caves II application. Both agencies determined that the project could not be licensed because it would be constructed in the Klamath Scenic Waterway. The city's appeals of these decisions are currently pending before the Oregon Supreme Court.

On June 8, 1989, the city filed an application for a new project (Salt Caves III) with the Water Resources Department (WRD). Salt Caves III would divert waters directly from the tailrace of the J.C. Boyle powerhouse, to be transported through a series of conduits to a channeling forebay and into this project's powerhouse. The proposed project would not involve construction of a dam or reservoir. To our knowledge, the city has enacted no new ordinance authorizing the issuance of bonds to finance Salt Caves III.

2. Analysis

In 1985, the Oregon legislature enacted strict new standards to apply to siting and licensing of hydroelectric projects. Or Laws 1985, ch 569 (HB 2990). These standards are codified at ORS 543.015 and 543.017. With one exception, the new standards apply not only to applications received after the effective date of the law but to all pending applications for which the hearing record had not closed on the effective date of HB 2990. The exception appears in section 27 of HB 2990, which provides:

"Nothing in this Act applies to any hydroelectric project in excess of 25 megawatts for which funding has been approved by the governing body of a city on or before May 15, 1985."

Or Laws 1985, ch 569, § 27 (uncodified).

William Young
Page 3
July 28, 1989

The WRC adopted rules consistent with the standards of HB 2990 to govern review of hydroelectric applications. These rules incorporated the same exemption.² Therefore, any project that is exempt under section 27 of HB 2990 would be reviewed under WRC's "old" hydroelectric rules found at OAR chapter 690, division 50.

The issue here is whether Salt Caves III comes within the exemption from HB 2990. For the following reasons we conclude that it does not.

We have previously addressed a similar issue. In April 1987, we considered whether the Salt Caves II proposal was exempt from HB 2990. See Letter of Advice dated April 2, 1987, to Fred Hansen, Director, Department of Environmental Quality (OP-6043). In attempting to ascertain the scope of the exemption, we reviewed the statutory language in light of the legislative history. Our review persuaded us that "the legislature's reference to funding approval was [not] intended to invoke the technicalities of municipal bonding law." OP-6043 at 8. Rather, we concluded that through the exemption the legislature had attempted "to exempt a specific project, the 'Salt Caves Project,' by describing certain characteristics possessed by only that project." *Id.* The legislature thus had attempted through section 27 "to allow a long-standing proposed project to proceed under legal standards applicable at the project's inception."³ *Id.* at 10. That exemption resulted from the legislature's apparent desire to avoid any unfairness that would result from applying new and stricter standards to a project long in the planning stages under a different set of standards. *Id.* at 12. Additionally, the reference in the legislative history to the administrative "process" underway

"demonstrates legislative awareness of multi-agency review procedures which were then ongoing or contemplated. Those processes themselves contemplate that the final configuration of the project might be altered from that embodied in the initial application. The legislature may fairly be charged with this knowledge."

Id. at 10. We reasoned, therefore, that an alteration in the project design did not necessarily remove it from the exemption. Nonetheless, we cautioned:

William Young
Page 4
July 28, 1989

"There may be a theoretical occasion * * * to argue that configuration of a previously approved project has been so altered that it no longer fits the legislative purpose in exempting Salt Caves."

Id. at 12.

Reviewing the Salt Caves II application in light of the legislative intent, we concluded that Salt Caves II fell within the exemption. When HB 2990 was enacted, joint review of the Salt Caves I configuration was underway but not completed. Nor had the review been completed when the city withdrew its first application and submitted a new application for Salt Caves II. Although the city had changed the project design to accommodate environmental and regulatory concerns, that change did not exceed the bounds contemplated by the legislature when it enacted the exemption for the "Salt Caves Project." Accordingly, we concluded that Salt Caves II satisfied the section 27 exemption from HB 2990.

For the reasons that follow, however, the rationale of OP-6043 does not extend so broadly as to include Salt Caves III within section 27.

In three key ways, the circumstances surrounding Salt Caves III differ markedly from those surrounding Salt Caves I and II, rendering the policies underlying section 27 inapplicable here. First, the city offered Salt Caves II as a modified alternative to Salt Caves I. Finding Salt Caves II within the scope of section 27 furthered the legislative intent to encourage and accept "compromise and accommodation by the project's sponsors when confronted by objections in the ongoing administrative process." OP-6043 at 11. In contrast, the city submitted its application for Salt Caves III only after both the EFSC and the WRC rejected Salt Caves II and the city sought judicial review of those actions. Salt Caves III does not substitute for or modify Salt Caves II; rather, the city is pursuing two mutually exclusive projects simultaneously. Thus, unlike its predecessor, Salt Caves III did not result from beneficial compromise expected in typical administrative review procedures. Hence, the basis for our conclusion in OP-6043 that the alterations in the project did not remove it from section 27--that those alterations were a contemplated product of the ongoing administrative review process--is absent here.

William Young
Page 5
July 28, 1989

Second, the Salt Caves III configuration is an entirely new concept for hydroelectric development on this stretch of the Klamath River. When we concluded in OP-6043 that Salt Caves II was covered by the grandfather clause, we premised our answer on the legislature's desire to "avoid any unfairness that would result from applying new and stricter standards to a project long in the planning stages." OP-6043 at 12. Salt Caves III, however, was not in the planning stages when section 27 was enacted. Rather, the city developed that proposal only recently in response to a suggestion by staff of the Federal Energy Regulatory Commission. Consequently, the "grandfathering" policy that led to our conclusion in OP-6043 does not apply here.

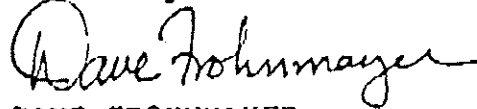
Third, Salt Caves III differs radically from both Salt Caves I and II. Unlike the earlier proposals, Salt Caves III involves no dam or reservoir. Instead, the city proposes to divert the entire return flow from the dam immediately upstream and transport it approximately ten miles to the powerhouse. In OP-6043, we concluded that, despite the changes in design from Salt Caves I to Salt Caves II, the project "remained the same 'hydroelectric project' referred to in Oregon Laws 1985, chapter 569, section 27." OP-6043 at 11. We so concluded because the two proposals remained fundamentally similar in character. As already noted above, however, we cautioned that "configuration of a previously approved project [might be] so altered that it no longer fits the legislative purpose in exempting Salt Caves." Id. at 11-12. We conclude that Salt Caves III deviates so radically from Salt Caves I and II that the legislature could not have intended the exemption to apply.⁴

Because we conclude that Salt Caves III falls outside the exemption set out in section 27 of HB 2990 and in OAR 690-51-020(3), the city's application necessarily would be subject to OAR chapter 690, division 51. These rules prohibit the WRC from accepting an application for a project in a scenic waterway designated under ORS chapter 390.⁵ Although Salt Caves III would involve no new dam or reservoir in the bed of the stretch of the Klamath River so designated, the Klamath Scenic Waterway includes "associated uplands": that is, uplands within 1/4 mile of the riverbed. The canals conveying the water would fall within that 1/4 mile. The project, therefore, would be within the scenic waterway and subject to the WRC's division 51 rules.⁶

William Young
Page 6
July 28, 1989

We conclude, therefore, that the WRD lacked the authority to accept the city's application for Salt Caves III. Consequently, the director should inform the city that it intends to return the application and fees.

Sincerely,



DAVE FROHNMAYER
Attorney General

DF:AWS:WP111:RDW
tmt/0389H

¹ The Preliminary Official Statement described the project as follows:

"The Project will consist of a diversion embankment structure approximately 75 feet high and 580 feet long, a spillway and a power diversion facility. The diversion facility would create a diversion pool about 1.4 miles long with an active storage capacity of about 500 acre-feet and a surface area of 70 acres at normal high pool elevation of 3,250 feet. A 7.3 mile long open channel power conduit will connect to twin steel penstocks 1,320 feet long serving a powerhouse containing two 40 MW (nameplate) turbine generating units."

² OAR 690-51-020(3) makes division 51 applicable to projects "[e]xcept as provided by Oregon Laws, (OL) 1985, chapter 569, section 27." It further provided that "[p]rojects to which OL, 1985 Chapter 569 do not apply, shall be subject to the provisions of OAR Chapter 690, Division 50 and 74."

³ The purpose of the exemption was, in Representative Agrons' words, "to permit a process which has been underway for several years to proceed without changing the goal posts on it. Judgments relative to the merits of that project, whether or not it succeeds, I think should be judged on the process in which it is currently involved." Joint Water Policy Committee (HB 2990), May 28, 1985, tape 82, side B, at 161-402.

William Young
Page 7
July 28, 1989

4 We do not address whether the bonds approved to finance Salt Caves I or Salt Caves II would apply to Salt Caves III. If that financing would not apply, then for that reason as well Salt Caves III would not be a "hydroelectric project * * * for which funding has been approved by the governing body of a city on or before May 15, 1985." Or Laws 1985, ch 569, § 27.

5 We do not intend to suggest that the applicability of OAR chapter 640, division 51 will alone determine the fate of the application. Even if the application were properly accepted, water rights for the project could not be approved if the project would interfere with maintaining the "free-flowing character of * * * waters [within the scenic waterway] in quantities necessary for recreation, fish and wildlife uses." ORS 390.835(1) (emphasis added).

6 The City of Klamath Falls has suggested that the WRC's order rejecting Salt Caves II contains language that could be read to limit the WRC's power to ban all hydroelectric projects in a scenic waterway. We disagree with that reading of the law and of the WRC's order.

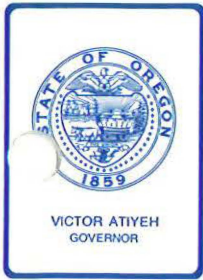
In its Salt Caves II order, the WRC noted several reasons why Oregon's Scenic Waterways Act, ORS 390.805-390.925, does not conflict with the Klamath River Basin Compact. In response to an assertion that the Compact forbids the state from banning hydroelectric development, the WRC observed that the Scenic Waterways Act does not preclude development of all hydroelectric projects, but only those projects that contain dams or reservoirs. The city has seized on that language to support its contention here. That reliance is mistaken.

The WRC's discussion in its order does not lead to the conclusion that the Klamath Compact bars the state from imposing by rule a complete ban on any projects within a scenic stretch of the river. The Compact leaves to the states the power to determine how to allocate the water to the various beneficial purposes. As we stated in our Letter of Advice dated September 21, 1988, to William H. Young (OP-6268) at 10, the Compact "creates neither a state nor a federal obligation to grant a hydroelectric permit, or a water right for hydroelectric generation. Nor does it create a preference for hydroelectric uses over other uses." The Compact's recognition of hydroelectric generation as a beneficial use does not impair the WRC's authority to set a stream aside for recreational and fishery purposes, nor its authority to prohibit any project within the scenic waterway area in furtherance of those uses. The city's argument thus confuses authority with duty.

William Young
Page 8
July 28, 1989

Moreover, the WRC's rule prohibiting it from accepting an application for a project in a scenic waterway is plainly within the WRC's statutory authority.

In sum, nothing in the Klamath Compact, the Scenic Waterways Act, or the WRC's Salt Caves 11 order is contrary to the conclusion we reach in this opinion.



Division of State Lands

1600 STATE STREET, SALEM, OREGON 97310 PHONE 378-3805

OREGON STATE LAND BOARD

VICTOR ATIYEH
Governor

BARBARA ROBERTS
Secretary of State

BILL RUTHERFORD
State Treasurer

S T A T E L A N D B O A R D

Regular Meeting
December 18, 1986

Agenda Item 2

SUBJECT

Ownership of the bed and banks of the Klamath River.

ISSUE

Whether the State Land Board should assert sovereign ownership of the bed and banks of the Klamath River from Keno to the California border.

POLICY

ORS 274.025

BACKGROUND

Historically, the State Land Board has actively asserted sovereign ownership of the beds and banks of navigable waters only when presented with a competing ownership claim, or a request to use the submerged and submersible lands. In this case, the question of sovereign ownership arose as a result of a proposal to construct a hydroelectric facility on the Klamath River, in an area known as Salt Caves. The proposal was formalized in 1985, when the city of Klamath Falls filed license applications for the project with the state Water Resources Department and Energy Facility Siting Council. So that timely comments could be contributed to the regulatory review process, the Land Board approved a

preliminary ownership determination on July 22, 1985. The action was taken upon advice from the Attorney General's office that there is no required process for the board to follow in asserting an ownership claim. A copy of the letter of advice is included as Appendix A.

The action was factually based upon preliminary evidence documenting the division's position that the river was navigable-in-fact for commercial purposes at the time of Oregon statehood. In approving the preliminary determination, the board instructed staff to continue the factual investigation, and to consult further with the Department of Justice concerning the legal basis for an ownership claim.

In February 1986, the division completed the factual investigation and prepared a draft report of the findings, which was forwarded to the Attorney General's office for review and legal analysis. A copy of the final report is included as Appendix B. Assistant Attorney General Mary Feldbruegge-Hedrick will be present at the Land Board meeting to discuss the report and her conclusions. A copy of the draft report was also sent to the attorneys representing the city of Klamath Falls in matters relating to the proposed hydroelectric project. To date, the division has received no comments from the city.

RECOMMENDATION

Based upon the division's factual investigation of the Klamath River, and the legal analysis by the Attorney General's office, the Division of State Lands recommends the State Land Board assert sovereign ownership of the bed and banks of the Klamath River from Keno to the California border.

APPENDICES

- A. Letter of advice, dated July 11, 1985
- B. Staff report on navigability

STATE OF OREGON
COUNTY OF KLAMATH
DRAFT CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

STATE OF OREGON
WATER RESOURCES DEPARTMENT
SALEM, OREGON 97310

confirms the right to use the waters of KLAMATH RIVER, a tributary of the PACIFIC OCEAN, in the KLAMATH BASIN to maintain an instream flow for the purpose of PROVIDING FOR RECREATIONAL BOATING, SCENIC ENJOYMENT, STATE SCENIC WATERWAY PROTECTION AND FISH LIFE AND FISH HABITAT.

The right is for flows to be maintained FROM THE CONFLUENCE OF THE J. C. BOYLE POWERHOUSE TAILRACE AND THE NATURAL CHANNEL AT RIVER MILE 220.4 WITHIN THE NW 1/4 NW 1/4 IN SECTION 13, T 40 S, R 7 E, W.M. TO THE OREGON/CALIFORNIA BORDER AT RIVER MILE 209.3 WITHIN THE NW 1/4 NE 1/4 OF SECTION 13, T 41 S, R 5 E, W.M..

The right is established under Oregon Revised Statutes 537.346.

The date of priority is OCTOBER 13, 1989.

The right is limited to not more than 1500 CUBIC FEET PER SECOND FOR RECREATIONAL BOATING AND SCENIC ENJOYMENT AND 550 CUBIC FEET PER SECOND FOR FISH LIFE AND FISH HABITAT.

Witness the signature of the Water Resources Director affixed this XXX day of XXXXXXXXX

Water Resources Director

Recorded in State Record of Water Right Certificates number XXXX.

70094B

DAVE FROHNMAYER
ATTORNEY GENERAL

WILLIAM F. GARY
DEPUTY ATTORNEY GENERAL

**DEPARTMENT OF JUSTICE**

GENERAL COUNSEL DIVISION

Justice Building

Salem, Oregon 97310

Telephone: (503) 378-4620

July 11, 1985

Mr. Ed Zajonc, Director
Division of State Lands
1445 State Street
Salem, OR 97310

Re: Salt Caves Ownership Question

Dear Ed:

You asked our office to review the issue of the ownership of the Klamath River at the site of the proposed Salt Caves hydroelectric project. In addition you asked that we outline the process for the State Land Board's determination of ownership and participation in the Energy Facility Siting Council (EFSC)/Water Policy Review Board (WPRB) and FERC process.

The first issue to be addressed is whether the state has an ownership interest in the Klamath River at this location. We have reviewed the facts demonstrating both actual and potential use of the river between the John Boyle Dam and the California border, and have studied the legal criteria for asserting ownership. We have now completed a draft, and are prepared to issue an Attorney General's opinion concluding that there is sufficient legal basis to assert sovereign ownership of the river throughout the area under study. However, this is not a situation where an easy decision can be made that it is or is not navigable. The Land Board must make a legal/policy judgment as to whether this is a case in which it wishes to assert ownership. Obviously, unless all parties agree to the state's ownership, the matter will only be settled finally by a court decision.

At present, there is no required procedure for determinations of navigability by the division or the board. As you know, ORS 274.029 to 274.035, which formerly did establish a process for determining navigability, were repealed. Thus, general principles of administrative law will govern the division and

Mr. Ed Zajonc
July 11, 1985
Page two

board's actions regarding navigability. The determination of navigability does not meet the definition of an administrative rule. Thus, formal rulemaking procedures would not be required. Nor would such a determination be a contested case order. Rather, the action of the board would be classified as an order in other than a contested case. The proceedings for such an order are within the discretion of the board or division. Public hearings on the issue are not required, but the board or division may hold public hearings if they should so choose. The form of the hearings would also be at the option of the board or division.

As you know, this particular determination of navigability is complicated because the state review process conducted by the WPRB and EFSC, as well as the FERC process are now underway. Thus, it is imperative that division and Land Board action be taken in time to allow them to participate effectively in the state and federal processes.

The regulations of EFSC, WPRB and FERC all require that the applicant identify the status of ownership of lands to be occupied by the project and the applicant's plans to acquire necessary property rights. None of the documents submitted by the City of Klamath Falls to WPRB, EFSC or FERC identify the state as the owner of the submerged land on which the project is to be located. All of the decision-makers also require estimates of project costs. It does not appear that the cost of acquisition of these lands from the state has been included. Thus, if the division is going to assert ownership of the land, they should advise these decision-making bodies of the state's interests.

Although we believe the decision making bodies should be advised of the state's claim of ownership, we do not believe the Land Board and division will be bound by any decision of the joint EFSC/WPRB hearing with respect to ownership or proprietary interests in the river bed. As will be discussed in our forthcoming Attorney General's Opinion, although ORS 469.400(5) provides that EFSC's decision is binding on other state agency's regulatory authority, we do not believe EFSC's issuance of a site certificate would bind the State Land Board in its role as a landowner. Further, we do not believe the state or federal process may serve as a forum for a determination of navigability. Thus, the role of the Land Board in the state and federal process is not to seek a determination of the state's ownership, but to put the applicant and the decision-makers on notice that this is an issue that needs to be resolved. The Land Board could request that if these agencies approve the project, they should include a condition in the approval that the applicant obtain appropriate permission from the Land Board as a property owner.

Mr. Ed Zajonc
July 11, 1985
Page three

Of course, the immediate question is what action the division and Land Board need to take at this time. In our opinion, there are three available alternatives:

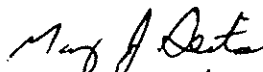
(1) The division could determine that the factual basis on which to assert ownership is not sufficient to justify such action, and therefore recommend against claiming ownership. In that case, no further action would be necessary and no participation in the state and federal processes would be necessary.

(2) The division could determine that, based on the draft Attorney General's opinion and the division's factual research, there is a basis to assert ownership. The division could then recommend to the Land Board that the board find the state does own the property and direct the division to take all necessary legal action to establish that ownership and to advise EFSC, WPRB and FERC of the state's claim.

(3) The division could determine that based on the draft Attorney General's opinion and the division's factual research, there is a sufficient basis to recommend that the Land Board make a preliminary determination of state ownership of the property and direct the division to undertake appropriate procedures to obtain further information on the issue. The board could also direct the division to advise EFSC, WPRB and FERC of its preliminary determination.

The timing of the presentation of this matter to the Land Board depends on which option is pursued. If the board is to make a determination of ownership or a preliminary determination of ownership, we believe this should be done as soon as possible. We would also recommend that the board's consideration of this matter be done in executive session.

Sincerely,


Mary J. Deits
Attorney-in-Charge
Natural Resources Section

mlm:l5:Zajonc1

cc: Pat Amedeo
Bob Moore
Patricia McCaig
Martha Pagel

Agenda Item 2
Appendix A
Page 3 of 3

SALT CAVES CHRONOLOGY

February 1980. Pacific Power and Light Co. applies to FERC for preliminary permit to study Salt Caves hydro project. 140 megawatts capacity. \$140 million. Estimated to begin building in 1985.

★ February 1983. City of Klamath Falls files application with the Oregon Water Resources Department (WRD) for a state water permit.

May 1984. City's consultants begin talking to state agencies about proposed Salt Caves project as part of FERC consultation. City has FERC preliminary permit. City plans to get license from FERC, then come to State for state permits. Project would have 80 megawatt capacity and use high dam and create large reservoir on the river.

June 1984. Oregon Energy Facility Siting Council (EFSC) tells City that State must conduct public review of the project and develop a State position in order to make meaningful comment to FERC. State must do this before FERC makes its decision. Asks for complete information and a schedule that will allow state review before FERC action.

July 1984. City, at EFSC request, asks FERC to agree to give State enough time to review project before FERC deadline for comment closes. FERC is unresponsive.

October-November 1984. State prepares for joint EFSC/Water Resource Commission (WRC) review; informs City of standards that hydro projects must meet under state law and rules.

October 1984. EFSC conducts its regular public meeting in Klamath Falls.

December 1984. EFSC and WRC issue joint notice of contested case hearing on the Salt Caves project. Notice sets February for prehearing conference and April for public comment hearings, both in Klamath Falls.

January 1985. City submits draft license application to FERC (Salt Caves "1").

February 1985. City files with EFSC a pre-application and a petition for a declaratory ruling on whether EFSC requirements are preempted by FERC. City says it is willing to defer the formal declaratory ruling until after the joint review is over. City submits draft FERC application in support of its EFSC application.

February-October 1985. EFSC and WRD conduct a joint contested case hearing on the Salt Caves project. Over 25 individuals and organizations, including the state departments of Fish and Wildlife, Environmental Quality, Parks and Recreation Division, and State Lands Division, and major environmental and conservation groups are admitted as parties. Hearing involves complex series of motions, petitions, responses. It becomes clear that there is major concern over, and opposition to, proposed Salt Caves project.

April 1985. City agrees to defer declaratory ruling and to allow pre-application to be treated as an application for a site certificate. EFSC issues public notice of filing of a site certificate application.

April 1985. FERC identifies deficiencies in City's application and gives City 90 days to provide needed information.

June 1985. Oregon Department of Environmental Quality (DEQ) issues public notice of its review of project's compliance with water quality standards.

June 1985. Oregon Department of Energy (ODOE) identifies deficiencies in City's application and asks City for more information.

June 1985. Oregon Legislature adopts new legislation (House Bill 2990) that sets strict standards for hydroelectric development due to wide-spread public concern over hydro's adverse impacts on fish and other natural resources. New law exempts Salt Caves project.

June 1985. Several state natural resource agencies file compliant with FERC stating that City has not provided additional information on FERC application as required by FERC rules. Agencies ask that FERC hold revised application in abeyance until agencies are allowed time for required consultation and comment. Agencies ask FERC to give City more time to consult with them.

August 1985. State petitions FERC to extend deadline to intervene in FERC's Salt Caves proceeding to allow state adequate time to review "complete" application and provide comments.

August 1985. City renews its request for a declaratory ruling on FERC preemption of EFSC requirements. City revokes its consent for EFSC to consider pre-application as an application and to conduct hearings on that application. City declines to participate in joint EFSC/WRD cross-examination hearing on its application. In the alternative to the above, City moves that the hearing schedule be delayed until January 1986. City includes August 26, 1985 letter from FERC that notes

"extraordinary circumstances" and provides additional time for City to make up deficiencies and for agencies to review and comment.

August 1985. City challenges WRC jurisdiction over its proposed project claiming that this field has been preempted under the Federal Power Act. City demands that the WRC make a declaratory ruling on this issue.

September 1985. City responds to State's petition to FERC to allow more time. City does not object.

September 1985. Joint EFSC/WRC hearing officers issue order delaying cross-examination until January 1986 as requested by City.

October 1985. DEQ notifies City that its application for water quality certification is still not complete.

October 1985. City withdraws request for declaratory rulings from EFSC and WRC on preemption because the hearings were delayed as requested.

October 1985. City withdraws its license application to FERC with intent to refile in May 1986. City withdraws its water quality application to DEQ, with intent to refile in early 1986. City also withdraws its site certificate application to EFSC, with intent to refile in May 1986. City does not withdraw its application for a state water permit from the WRC.

November 1985. City motions WRC for an interim order to delay the WRC review of the project to allow City to do more studies.

January 1986. WRC issues interim order to delay the hearing for up to six months.

January 1986. City introduces revised Salt Caves project with smaller dam and reservoir sited further upstream (Salt Caves "2").

January 1986. City asks DEQ to exempt Salt Caves "2" from new DEQ rules adopted to implement new state law (HB 2990).

February 1986. City withdraws water right application from WRC and replaces it with a new application for Salt Caves "2". WRD tells parties to Salt Caves "1" joint review that the review is over.

March 1986. DEQ denies City's petition to change rules.

July 1986. City submits draft license application to FERC for Salt Caves "2". State given 60 days to comment. City does not apply to EFSC as expected.

August 1986. City applies to DEQ for water quality certification for Salt Caves "2".

September 1986. DEQ advises City that its application is incomplete.

October 1986. State agencies submit comments to FERC on the draft application for Salt Caves "2".

October 1986. Electric Consumers Protection Act becomes law. It requires FERC to consider consistency with state comprehensive waterway plans.

September-November 1986. State still expects City will apply for state approvals and go through state review process. State agencies and state Attorney General's (AG) office prepare for this review of the revised Salt Caves project.

November 1986. City submits license application to FERC for Salt Caves "2".

March 1987. DEQ advises City that its application for water quality certification is complete.

March 1987. FERC staff advise City that its application for FERC license is incomplete.

April 1987. AG issues final opinion stating that revised Salt Caves project (Salt Caves "2") is exempt from requirements of new law (HB 2990).

April 1987. DEQ issues public notice of its review of City's application for water quality certification and requests public comments.

July 1987. FERC staff accepts City's application for filing, but asks for more information. FERC gives 60 days for public to comment and petition to intervene.

August 1987. City provides copies of its FERC application to State.

August 1987. DEQ completes its review and denies City's request for water quality compliance certification. DEQ finds that project would not meet federally-approved state standards for temperature and antidegradation.

September 1987. City appeals DEQ decision, and demands contested case hearing before the Environmental Quality Commission (EQC). Several environmental groups file a cross-appeal.

October 1987. State files motion to intervene in FERC's proceedings by and through the state Strategic Water Management Group (SWMG). State takes no position on the project, but raises a number of concerns. State also requests an extension of time to file comments and recommendations.

October 1987. State files preliminary comments and recommendations on the Salt Caves project with FERC.

October 1987. FERC issues final rule defining comprehensive waterway management plans.

November 1987. FERC staff grant State until March 13, 1988 to comment on the project. This is because City has until January 1988 to provide FERC with additional information requested by FERC.

November 1987. Governor goes to Klamath Falls and tells City that he opposes building the Salt Caves project.

December 1987. FERC asks City to clarify situation on its state water quality certification.

★ January 1988. WRD asks City about status of City's application to WRC for a state water permit. Advises City that its application is incomplete and asks when City will complete its application.

February 1988. City files application for a site certificate with EFSC.

February 1988. City requests DEQ water quality certification on modified Salt Caves "2" that leaves more water in the river. The new application refers to, but supplements, the previous Salt Caves "2" application.

March 1988. FERC staff requests more information about Salt Caves "2" and gives City 180 days to provide it.

March 1988. ODOE and WRD each complete reviews of respective applications, and identify for the City what additional information is needed before a joint hearing can begin.

April 1988. FERC issues order on rehearing of its rules regarding comprehensive waterway plans.

July 1988. DEQ completes its analysis of the City's application for water quality certification; finds that the project would meet requirements under specified conditions; and issues certification with conditions.

August 1988. City provides ODOE and WRD with additional information each had requested.

September 1988. AG issues opinion on relationship of the Klamath River Basin Compact and possible state and/or federal river management actions. Opinion concludes that the Compact does not affect Congressional authority to designate the river as wild and scenic.

September 1988. SWMG submits Oregon's Comprehensive Waterway Management Plan to FERC.

October 1988. ODOE and WRD each advise the City that their respective applications are complete and ready to go to joint hearing. EFSC and WRC issue a joint public notice of a joint contested case hearing. Set pre-hearing conference for November 15, 1988.

October 1988. FERC notifies Oregon that it has received and accepted its state comprehensive waterway management plan.

October 1988. Congress adopts the Omnibus Oregon Wild and Scenic Rivers Act of 1988 which directs the BLM to study the eligibility and suitability of the upper Klamath River for inclusion into the National Wild and Scenic Rivers System.

November 1988. Voters approve Ballot Measure 7 to designate a number of rivers, including the upper Klamath River, as state scenic waterways as provided by state law. Scenic Waterways Act prohibits dams and diversions on state scenic waterways.

November 1988. WRD notifies FERC that state waterway management plan must be updated to reflect new state scenic waterways designated by voters.

November 1988. Hearing Officer for EFSC/WRC hearing tells parties that the effect of scenic waterway status on the project must be decided before EFSC/WRC hearing may proceed.

November 1988. Hearing Officer issues draft proposed order that tentatively concludes that neither EFSC nor WRC may approve the project because that would violate state law.

November 1988. FERC issues public notice of intent to prepare an EIS on the Salt Caves project.

December 1988. FERC conducts Salt Caves EIS scoping meetings in Oregon. FERC introduces revised project developed by FERC staff called "no-dam" alternative (Salt Caves "3").

★ January 1989. Hearing Officer issues proposed orders rejecting applications (Salt Caves "2") because of state scenic waterway designation. City and other parties file responses.

★ February 1989. EFSC and WRC, at a joint meeting, each unanimously adopt Hearing Officer's proposed orders and reject their respective applications for the Salt Caves project because it is in a state scenic waterway and therefore contrary to state law and rules.

City contests EFSC and WRC actions on grounds that they violate the Klamath Compact and that the Compact is superior to state law. City files appeals in State Court of Appeals and State Supreme Court. Appeals are consolidated in the State Supreme Court.

February 1989. BLM begins its study on eligibility and suitability of upper Klamath River for designation as federal Wild and Scenic River.

March 1989. Governor's Scenic Waterway Advisory Council recommends that State take action to protect scenic, cultural, natural and recreational values along the river.

June 1989. City attempts to file application for state water permit with WRD for Salt Caves "3" which has a new point of diversion at the tailrace of the existing J.C. Boyle powerhouse.

WRD Director asks for AG opinion on whether new project is still exempt from new hydro legislation (HB 2990).

July 1989. AG issues opinion that the further revised Salt Caves project (Salt Caves "3") is a new project under state law and is not exempt from new hydro legislation (HB 2990) as were previous versions of the project. Under that law and rules, WRC may not accept hydro applications in a scenic waterway. AG concludes that WRC may not accept the City's June 1989 water permit application because it is in a state scenic waterway.

★ July 1989. WRD rejects City's water permit application for Salt Caves "3".

July 1989. City appeals WRD rejection of its June 1989 water permit application to Klamath County Circuit Court on grounds that project is still exempt from law and that state law is preempted by Klamath Compact and federal law.

July 1989. FERC staff issue Draft EIS on Salt Caves Project. It finds that the City's proposal (Salt Caves "2") is flawed. It finds that the FERC-developed "no-dam" alternative (Salt Caves "3") is the preferred alternative to develop hydro. It recommends that the Commission license the no-dam alternative.

September 1989. DEQ determines that new FERC-proposed project (Salt Caves "3") is so different from City-proposed project (Salt Caves "2") that it needs a new water quality review and approval. DEQ advises FERC that City needs to file a new application with DEQ for Salt Caves "3".

October 1989. State completes its review of the DEIS and submits extensive comments to FERC. State finds that the "no-dam" alternative (Salt Caves "3") is inconsistent with state and regional plans, is illegal under state law, would have significant adverse impact on fish, wildlife, recreation, scenic and other values. State finds that the DEIS is deficient in treating alternatives and cumulative impacts.

October 1989. State Parks and ODFW file a joint application with the WRD for an in-stream water right on the Klamath River to preserve adequate water flow to maintain uses consistent with state scenic waterway designation.

October 1898. City asks State Supreme Court to dismiss its review of EFSC and WRC rejections of City's proposed project (Salt Caves "2").

November 1989. State Supreme Court dismisses City's appeal.

November 1989. BLM issues draft study on the upper Klamath River. It concludes that the project stretch qualifies for federal designation as Scenic River.

December 1989. Senator Hatfield and others ask FERC chair not to consider licensing the project until Congress has time to review the final BLM wild and scenic river study.

December 1989. Chair of FERC agrees not to consider Salt Caves license until Congress has had time to review final BLM study and final FERC EIS.

December 1989. State provides preliminary comments to BLM on draft study of upper Klamath River.

December 1989. State files motions with FERC to deny license, or stay its proceedings.

January 1990. State submits comments to BLM on its draft study of the river. State agrees with BLM findings that the river is eligible and suitable for federal designation.

January 1990. Klamath County Circuit Court denies City's motion seeking summary judgement that state water laws are preempted by Klamath River Basin Compact.

April 1990. BLM issues final study report on the upper Klamath River. It finds the river to be eligible and suitable for scenic classification in the National Wild and Scenic Rivers System.

June 1990. FERC issues Final EIS on Salt Caves Project. Its conclusions and recommendation are essentially the same as the DEIS. FEIS recommends that "no-dam" alternative be licensed.

June 1990. City applies to DEQ for water quality certification for the "no-dam" project.

July 1990. DEQ issues public notice of its review of City's application and requests comments.

August 1990. Klamath County advises DEQ that Salt Caves project is not consistent with county Land Development Code because of state scenic waterway designation of the Klamath River.

APPENDIX B

KLAMATH RIVER NAVIGABILITY DIVISION OF STATE LANDS Staff Report

NOTE: In 1983, the city of Klamath Falls filed preliminary documents with the Federal Energy Regulatory Commission (FERC), seeking federal authority to construct a hydroelectric project on the Klamath River, near the Salt Caves. In 1985, similar regulatory applications were filed with the State Water Resources Department and Energy Facility Siting Council. As a result of these requests to develop the river, the State Land Board must address the issue of whether the bed and banks of the river, in the reaches affected by the project, are subject to sovereign ownership. Such determination would be made upon evidence that the river were navigable in fact, or susceptible of navigation for commercial uses at the time of statehood. To assist in this determination, staff of the Division of State Lands have reviewed historical and physical facts concerning early uses and characteristics of the river. The results of that staff review are compiled in this report. The report does not constitute a legal analysis of the state's ownership claim to the riverbed, but rather a compendium of information to form the basis of such analysis. The report has been submitted to the Department of Justice for further legal review.

INTRODUCTION:

The 1983 Report and Recommendations on the Navigable Waters of Oregon recommends the Klamath River be declared navigable from Klamath Falls to the town of Keno¹ (river mile 250 to 233). In California, the State Lands Commission has declared the Klamath River navigable from its mouth to the mouth of the Shasta River (upstream of Yreka, CA).² Both the Oregon and California claims are based on commercial boat traffic. The river stretch between Keno and the California border was not discussed in the 1983 report; it was, however, covered in the 1980 Klamath Basin Rivers Navigability Report. In the 1980 report, this stretch was described as not sufficient, successful, or unaided enough to establish a claim of navigability.³ Based on the substantial economic effect this project could have on both the Common School Fund and the citizens of this state, staff undertook a review of the two navigability reports.⁴

Using historical accounts, personal communication with historians, hydrological information,⁶ and several on-site inspections,⁷ the staff review examined the issue of whether the river was susceptible of commercial navigation at the time of statehood.⁵ The review noted some discrepancies between the published Klamath Falls Echo, Salt Caves Hydroelectric Project Archeological Report and the historical accounts contained in the 1980 navigability report. These discrepancies, plus the rulings in the McKenzie River case, led to a more detailed review than would normally be conducted.

HISTORICAL REVIEW:

Cultural resource studies indicate there was human use of the project area dating back at least 7,000 years.⁸ The first recorded Euroamerican passage through the area was the Ogden exploration party in 1827.⁹ By 1846 the Applegate trail established the first regular crossing of the Klamath River near Spencer Creek, and by 1857 traders were active in the Klamath Falls area. During the year 1863, the U. S. Army created the first sawmill in the county.¹⁰ This was followed in 1869 with the first private sawmill on Spencer Creek, built by Granville Naylor and John Hockinghouse.¹¹

By 1870 the California-Oregon Stageline established the Linkville-Yreka stageline between Klamath Falls and Yreka, which ran along the south rim of the river canyon from the Oregon border to the current Highway 66 Bridge.¹² This road served as an important freight line between Montague and Klamath Falls from 1884 to 1909.¹³

General Land Office patent records indicate the first land patents in the area were issued in 1889.¹⁴ State Land Board deed records reveal settlement occurred on the north end of the study area as early as 1875.¹⁵ At the southern end of the project area, historians estimate the Klamath Hot Springs at Beswick were first homesteaded around 1860.¹⁶

These early patent records reflect the official dates of title; it may be assumed settlers were in the area prior to the issuance of these patents. Klamath County deed records reveal land conveyances in the study area as early as 1880.¹⁷ The BLM field notes from the 1883 survey indicate the presence of homesteaders in the area.¹⁸ The majority of the project area passed from the public domain in 1893 through a series of railroad grants to the Oregon-California Railroad;¹⁹ however, by 1916 these were all revested under the Chamberlain-Ferris Act.²⁰

Concurrent with the arrival of settlers and miners, the Klamath River Lumber and Improvement Company established the town of Klamath City in 1888²¹ with a sawmill and log dam. While construction of the mill and dam was commenced in 1888 they were not operational until 1892.²²

The Klamath River Lumber and Improvement Company was relatively shortlived, being bought out in 1891 by the Cook-Pardee Company.²³ The Cook-Pardee Company operations were drastically impacted by the "Panic of 1893," which resulted in operations being curtailed for several years.

By 1897 the company was leased to Harvey Lindsey. Due to the extreme low water experienced during the summer and winter of 1897, Lindsey's company was unable to obtain the necessary logs to operate the mill at capacity. With the lack of production, the Cook company ousted the lessee from the mill and brought suit to recover the company.²⁴ While the ensuing lawsuit was not resolved until 1902, the company was able to continue to operate. By 1900 the company was cutting over 125,000 feet of logs per day.²⁵

The town of Klamath City essentially ceased to exist when a disastrous fire destroyed the sawmill, two box factories and the major part of the town on October 13, 1902.²⁶ With the fire and completion of the railroad from Weed, California to Klamath Falls, the Cook and Lindley companies were again in financial trouble. By 1906 the Weyerhaeuser group had purchased the interests of both companies. Following the Weyerhaeuser acquisition, timber harvesting in the project area ceased. With the combined impacts of the railroad entering Klamath Falls, the fire and the Weyerhaeuser acquisition, Klamath City was dismantled in 1908.

Prior to 1908, Klamath City served as a major transportation link into Klamath County. The Southern Pacific line to Klamath City was the closest railroad line to the Klamath basin. Material was shipped by rail to Klamath City, then by wagon along the Linkville-Yreka wagon road and then by ferry to Klamath Falls. With the arrival of the Week Railroad from California direct into Klamath Falls, the usefulness of Klamath City as a shipping point was eliminated.²⁷

NAVIGATION HISTORY:

During the period from 1888 to 1902, the Klamath River from Keno to the I-5 Bridge in California was a major avenue of commerce. From Klamath City to the I-5 Bridge, lumber rafts²⁸ were used to ship lumber downstream to the gold fields. Extensive log driving occurred from the Oregon border to Klamath City and in a more limited extent from the Highway 66 Bridge to the Oregon border.²⁹ In 1902, log driving ceased to be a mode of transportation as a result of the injunction obtained by miners downstream of Klamath City. However, from 1888 to 1902, millions of feet of timber were successfully floated to the mills at Klamath City. The vast majority of this timber was floated from the Pokegamma log chute,³⁰ two miles south of the Oregon border. However, a substantial amount appears to have been floated from within the study area.

The earliest known record of log rafting within the area was recorded in the Yreka Weekly Journal of December 23, 1888:

"To test the matter of getting logs down the river, 134 were thrown in at the Oregon boundary line, and 119 reached the locality of Klamath City, without any further attention, the river being now at its lowest stage."

The test was seen as a success with the editor commenting "In Michigan and Wisconsin the floating to mill of 90 percent of the logs is considered very good."

Upon completion of this testing, the Klamath River Improvement Company obtained log driving franchises from the Siskiyou County Commissioners (December 1888) and Klamath County Commissioners (April 9, 1889). Prior to the issuance of the franchise, the Klamath County Commissioners declared the river from Keno to the California border a highway for the floating of logs. In making this determination, the Klamath County Court found the river had "not been declared navigable by law, that the said streams are not navigable in fact for commercial purposes, that it is to the interest of the public that said streams shall be declared to be public highways for the floating and transportation of logs, timber and lumber...."³¹ The contract with Klamath County granted the Klamath River Improvement Company a right to use "the Klamath River between the mouth of Spencer Creek or Wetas Creek to a point where said Klamath River crosses the state line between the states of Oregon and California as a public highway for the purpose of floating logs, timber and lumber thereon for the term of twenty years from the date hereof."³² A second contract granted the company a right to use the river from Spencer Creek/Wetas Creek to Keno.³³

As part of the agreement, the Klamath River Improvement Company was to "...improve the said stream as to successfully float all floatable logs, timber and lumber that may be offered for transportation...."³⁴

The franchise granted by the Siskiyou County Supervisors "...was a right to widen, deepen, straighten, remove obstructions and otherwise improve the stream for rafting and floating lumber, but no such privilege shall in any manner interfere with the private rights or privileges of riparian owners, miners or others...."³⁵

To fulfill the conditions of these agreements, the company built splash dams near river mile 224.4 (approximately one-fourth mile below Highway 66 Bridge)³⁶ and at Klamath City. The main dam at Klamath City was not operational until 1892, two years after the original dam was washed-out by the floods in February 1890.³⁷

While timber was being cut in the project area as early as 1888, the first record of log driving from within the project area is found in the Yreka Journal of December 23, 1891:

"...A great number of saw logs cut by the old company nearly three years ago are ready to be floated down...

"...The Company will start down some 25,000,000 feet expecting to secure at the mill about 10,000,000 feet, the balance going to rear in blocking up the stream at various points, so as to form a good practical log channel for floating logs. When the stream is thus banked and leveled by logs lodging there will be no trouble in sending down plenty of timber for milling to advantage."

Exactly where these logs were cut is unknown. However, records indicate that prior to the Pokegamma log chute being built in 1892, logs were cut on the south side of the river around the Kirwin³⁸ and Frain³⁹ ranches, below the foot of Topsy grade. To get the logs to the river, a small log chute was built from the lower side of the Kirwin place, down a draw to the river.⁴⁰ According to Bill Hoover, an early resident of the area, logs were also placed into the river above his ranch.⁴²

The Yreka Journal of May 4, 1892, recorded that "...The log contractors have great quantities of logs in readiness to dump into the stream at various points clear up to Keno..." awaiting the drive to Klamath City.⁴³

In the same newspaper it was noted that J. E. McLoughlin and Matt Frain had a contract for a million feet of logs "...in the neighborhood of Jenny Creek and Chase's. As soon as the upper dam is cut at Chase's, the logs are expected to make the trip all the way to the mill dam at Klamath City without any great trouble."⁴⁴

The last record of log driving within the project area is the Yreka Journal article of February 1, 1893:

"Mr. Marsh has a force of twenty men driving McLoughlin's 1,700,000 feet of logs down the Klamath from the foot of the big grade. He has moved them a distance of four miles by doing some blasting, and it now looks as though Cook's log-driving venture on the Klamath will be a perfect success."

While log driving was actively carried out for a ten-year period, it was not without its hazards. At least four men lost their lives while driving logs in California.⁴⁵ In spite of the peril, log driving continued from the Pokegama Log Chute to Klamathon from 1892 to 1902, with interludes during the Panic of 1893 (1893-1894) and the dry season of 1897.

While the Klamath Improvement Company foresaw a potential for log driving through the study area, the presence of the Oregon-California Railroad holdings and the shift to the upper plateaus resulted in limited river usage. With the opening of the Pokegama chute in 1892 the large sugar pine holdings of Cook and Pardee Company on the plateau were accessible. The company built a logging railroad to move logs to the chute, where they were sent down to the river. From this chute to Klamath City, the river was the major route of commerce.

The use of the chute and log driving within this area came to an end in 1902 as a result of the miners' injunction prohibiting the use of the splash dam.⁴⁶ During its existence, log driving was very successful with records revealing that in the early 1900's between 70,000 to 80,000 feet of logs were dumped into the river every day.⁴⁷

While the majority of the log driving occurred below the Pokegama Log Chute in California, records indicate at least two drives occurred from within the study area. The few log drives from within the study area may be attributed to the limited amount of private timber available, the company's extensive timber holdings on the Plateau, and the convenience of logging on the plateau.

Currently the river is used for rafting purposes with 1,500 people floating the river in 1985. Ninety-five percent of these were associated with commercial trips.⁴⁸

SUSCEPTIBILITY OF COMMERCIAL NAVIGATION:

Because of the limited evidence of actual historical use of the river, staff also reviewed the river under the "susceptibility" test of navigation.

To establish sovereign ownership under the susceptibility test, a) a river must have been navigable in fact at the time of statehood, based on actual use (this may be shown by subsequent use)⁴⁹; b) the river must have been navigable in its ordinary condition, however "wing dams" and other improvements used to deepen the river or remove obstructions are permissible. (Further, a river need not be absolutely free of impediments to navigation, such as sandbars, falls or rapids⁵⁰); and c) the river must have been used as, or be susceptible of being used as, a highway of commerce (commercial navigation by rowboats, canoes, logs, barges and, recently, recreational boating have all been recognized to show a river susceptible of commercial use, although not commercial in themselves).⁵¹

In applying these tests, the reviewer must also consider physical characteristics of the river, such as gradient, volume of water and regularity of flow. In the study area of the Klamath River, the water volume and regularity are strictly controlled by the John Boyle Dam.⁵² In addition to the impacts of the John Boyle and Keno dams, the river flows have been altered by the reclamation and irrigation practices of the Klamath Basin. These factors were recognized and taken into consideration during the staff's field inspection.

The onsite inspection indicated that the stretch from the dam to the lower end of the Frain Ranch may be susceptible of navigation based on the slope, distance between rapids, location of pools, and the obstructions present. This observation was supported by the Whitewater rafting classifications of the various rapids in the area. This stretch was rated predominately as easy, with no major obstructions, to medium difficulty.⁵³ Only one rapid was listed as dangerous.⁵⁴ The area immediately below the Frain Ranch is a stretch of rapids known as the "caldera." The "caldera" extends for about 100 yards, with steep slopes and strong hydraulics (class 5 rapids). Below the "caldera" are a series of class 3 rapids covering a total distance of one-half mile,⁵⁵ ending at the point where Rock Creek

enters the river.⁵⁶ Below this stretch, the river has a series of rapids of difficulty varying from class 1 to 3 extending past the Salt Cave.⁵⁷ After the Salt Cave, the river flattens out and becomes similar in character to the stretch above the Frain Ranch.⁵⁸

SUMMARY:

The Klamath River from the Highway 66 Bridge to the Oregon border was found to be non-navigable by the Klamath County Commissioners in 1888. However, in making this finding, the commissioners awarded a contract authorizing the Klamath Improvement Company to make the river navigable for log driving purposes. Through the use of a splash dam and placement of logs along the river banks, the company did achieve that purpose. At least two log drives occurred from within the project area.

Apparently as a result of changes in business practices and land ownership, combined with droughts and an economic depression, timber harvesting shifted away from the project area. All log driving was stopped by the issuance of an injunction, obtained by miners in California, to prevent further use of the splash dam. Based on these events it may be concluded that, with minor improvements, the river was susceptible of commercial use for log driving at the time of statehood. The termination of log driving was not a result of physical inability to use the river, but rather the result of a series of extraneous factors, including an injunction.

FOOTNOTES

1. Page 66
2. California State Lands.
3. 1980 Klamath Basin Rivers Navigability Report, P. 23
4. The 1983 Legislature declared the 1983 reports "shall not constitute a determination of navigability ... nor shall the report change, create or relinquish any right." The Legislature left the determination of navigability to the State Land Board.
5. State of Oregon v. Riverfront Protection Association. A river is navigable when it is used or susceptible of use in its ordinary condition as a highway for commerce over which trade and travel are or may be conducted in the customary modes of trade and travel at the time of statehood.
6. USGS Archives, PP&L dam records and Prof. Klingiman's records
7. June 24-26, 1985; October 9-10, 1985; February 6-7, 1986; March 11, 1985; October 28-30, 1985.
8. Application for license, Salt Caves Hydroelectric Project. Vol. II, Section 4.0, P. 7 (Jan. 1985)
9. *ibid*, P. 33
10. Lumbering in Klamath, W. E. Lanm, P. 6
11. The Naylor and Hockenhouse mill was later sold to H. E. Spencer who operated it until 1886. Other mills located in the vicinity were the Gordon mill, one mile west of Keno built in 1875; the Cooper Brothers mill located 3 miles west of Keno which was built before 1880; and the Connolly mill built in 1895 one mile below the Highway 66 Bridge. Sawmills of the Keno Vicinity, Devere Helfrich, P. 65-66.
12. There are discrepancies in historical accounts as to when this road was built. The Salt Caves report notes the California-Oregon Stageline reached Beswich in 1870; however, the first Topsy road was not reported as being completed until 1873.
The earliest reported use of the road places its use as early as 1857. Alice Hessig, Looking Back, P. 45, 1978.
13. Follensbee and Pollack, P. 183.
14. Major Overton received a homestead patent in 1889 to the N²SE, NESW, SWSE of Sec. 2, T41S, R6E.
15. George Chase received a state deed on Nov. 16, 1887, to the SESW Sec. 29, NENW Sec. 32, S²NW, NWSW Sec. 33 all in T39S, R7E. Henry Eddings received a state grant to the N²SW Sec 29, lot 5 Sec. 30 and lot 6 Sec. 31 all in T39S, R7E on April 21, 1887. The earliest state deed was issued to W. E. Spencer on August 9, 1875 to the SESW Sec. 20, T39S, R7E.

16. Alice Hessig, Looking Back, P. 33, 1978.
17. An 1880 conveyance records a transfer of the SW⁴, Sec. 9, T41S, R6E from Mr. Otting to Mr. Forbes.
18. Rufus Moore 1883 Survey, Bureau of Land Management, Portland, Oregon
19. Bureau of Land Management Patent Records, Railroad Grants March 3, 1893; December 3, 1894; May 14, 1895.
20. Chamberlain-Ferris Act of June 9, 1916 (37 STAT 218). Under the Fulton Resolution, the O&C Railroad was on notice as early as 1908 that these lands were subject to forfeiture. (35 STAT 57).
21. Klamath City, California, was located in T47N, R6W Sec. 23 downstream of the current COPCO Dam. The city was known by several different names: Klamath City (1888), Extensive Enterprize (1888), Manistee (1889), Cadillac (1889) Klamathon (1890), May Rose (1892) and Pokegama (1892). Siskiyou Pioneer, Vol. 5, #5, 1977. Note, there was also a Pokegama located in Oregon (approximately seven miles north of Copco Lake).
22. Siskiyou Pioneer Vol 1 #3, (1948) P. 2. The main dam at Klamath City washed out during the Winter of 1889-1890. Yreka Journal, Dec. 23, 1891.
23. Yreka Journal, Dec. 9, 1891.
24. Klamath Echos, Volume 1, #3, P. 4.
25. The Columbia River and Oregon Timberman, May 1900, Vol. 1, #7, P. 17.
26. Klamath Echos, Vol. 1, #3, P. 5
27. After leasing the Cook interest, Harvey Lindley attempted to build the Klamath Lake Railroad from Klamathon to Klamath Lake. By May 1, 1903, the first train reached Pokegama. The railroad went into receivership and was eventually bought by Weyerhaeuser November, 1905. Rails in the Shadow of Mount Shasta, John Signor (1982). Noteworthy, the Klamath Lake Railroad was not the first railroad in the area. As early as 1892 the Cook firm built a short logging railroad to connect the Pokegama log chute to the logging camp at Snow (aka Cook's Camp). Klamath Lake Railroad Historical Summary, J. Rock. unpublished
28. The Siskiyou Pioneer, Vol. 4, #7 (1979).
29. Log drives are recorded from the vicinity of the Kerwin and Hoover ranches, and a comment in the Yreka Journal of May 4, 1892, indicates logs further up toward Keno. The occurrence of a log drive from above the Frain ranch is reported by Vera Frain Hutchinson.
30. The Pokegama log chute (1892-1902) is a major part of the local history and can still be seen today.

31. Commissioner's Journal, Vol. 1, PP. 417-418.
"Now at this time came on to be heard the application of D. P. Thompson and James Lotan and also the applications of C. S. and R. S. Moore that this court may declare the Klamath River from the Town of Keno to the south boundary of the State of Oregon; and Link River and other streams public highways for the floating and transportation of logs, timber and lumber, and the Court having fully considered the same and being fully advised in the premises; does hereby find and adjudge that the said applicants are interested in the premises; that said streams have not been declared navigable by law; that said streams are not navigable in fact for commercial purposes; that it is to the interest of the public that said streams shall be declared to be public highways for the floating and transportation of logs, timber and lumber pursuant to the provisions of an Act entitled An Act Authorizing The County Court of The Several Counties of The State to Declare Unnavigable Streams Highways for the Floating of Logs and Timber and Providing for The Improvement and Use of The Same; That said streams are lying within the County of Klamath and State of Oregon; Therefore this Court in consideration of the premises does hereby adjudge and declare the said Link River from the bridge across the same at Linkville to its source and the Klamath River from the Town of Keno to the south boundary line of the State of Oregon public highways for the purpose of the floating and transportation of logs, timber and lumber." From this review it may be assumed the river from Keno to the Oregon border was not the subject of commercial navigation prior to this date.
32. Klamath County Commissioners Journal, Vol. I, Pages 420-425.
33. Klamath County Commissioners Journal, Vol. I, Pages 420-425.
34. Klamath County Commissioners Journal, Vol. I, Pages 420-425.
35. The non-interference restriction within the franchise may have been the legal basis upon which the miners were able to obtain an injunction stopping the floating of logs.
36. On the old road it is located 300 to 400 yards downstream from the present Highway 66 Bridge. The highway bridge is at the site of the old McCollum Mill aka the Ellingson's Mill. The dam was constructed of log cribs filled with rock and with the front face planked. Construction of the dam commenced in 1889, later a bridge was constructed on top of the dam.
Klamath Echos, Vol. 1:3 (1966) Page 11.

37. Klamath Echos, Vol 1:3 (1966) P. 12.
38. Hugh Kirwin owned the NW⁴, Sec. 24 of T40S, R6E (U.S. Patent 12-13-1906) and a tract situated south of the Frain Ranch at T41S, R6E, Sec. 16, Lot 4 and Sec. 9 SW⁴. The tract located in T41S, R6E is referred to as the Kirwin ranch. This property was acquired from J. T. Forbes on May 22, 1888. Forbes acquired it from J. C. Otling on May 19, 1880. The original U.S. patent was issued to John Otling on July 24, 1911. On June 27, 1911 Hugh Kerwin sold to Manuel Raymond (Bk. 33, P. 176, Klamath County Records).
The parcel in Sec. 24 was sold to H. E. McKenney on December 13, 1906 (Bk. 21, P. 602, Klamath County Records). While Hugh Kirwin owned property above the current John Boyle Powerhouse, the parcel where the timber was removed was most likely the parcel in Sec. 9 & 16.
39. The Frain ranch was situated in Sections 3 and 10 of Township 41, Range 6 E.
40. An early photo of this log chute was published in the Klamath Echos, Vol. 1:3.
41. Klamath Echos, Vol. 1:3
42. The Bill Hoover Ranch was located in Sec. 12, T41S, R5E. Jefferson Hoover received the E²E² of Sec. 12 by U.S. Patent in 1894.
43. Vera Frain Hutchinson recalls her father mentioning a drive occurring from above the Frain ranch. Personal communication.
44. Chase's operated a ranch and stagecoach station near the present Highway 66 Bridge. The Chase Station was established in the early 1880's by George Chase and Abe Giddings. This station was also known as the Spencer Station. Klamath Echos, Vol. 1, P. 46.
45. Three men died at the Hessig Sand Bar and one died at a site unknown, Yreka Journal, Feb. 19, 1893, Looking Back, Alice Overton Hessig, P. 42, 1978.
46. Klamath Echos, Vol 1:3.
47. Fred Tomlins, BLM.
48. U.S. v. Utah 283 U.S. 9, 82 (1931)
49. Oregon v. Riverfront Protection. 672 F.20 792, 795-796 (1982)
50. U.S. v. Utah supra, North Dakota v. Andrus 671 F.20 272 (1982)
51. Perry Lumley's conversations with dam operators and white water rafters
52. The majority of rapids were classed as Class I and Class II rapids, which are defined as having no major obstructions, Handbook to the Klamath River Canyon, P. 34

53. This rapid was classed as a Class III rapid, which is defined as having medium to high streamflows, obstructions may be present, powerful hydraulics may be present.

Handbook to Klamath River Canyon P. 34

54. Handbook to Klamath River Canyon, P. 46

55. Shortly below Rock Creek is where staff estimates the Kirwin log chute entered the river.

56. Handbook to Klamath River Canyon, P. 47-48

57. Handbook to Klamath River Canyon, P. 49-50

RECORD OF THE STATE OF OREGON REVIEW
OF THE SALT CAVES PROJECT

Since 1985, the State has done many analyses of the proposed Salt Caves hydropower project. The State extensively reviewed each of the three major project designs proposed in 1985, 1986, and 1989, respectively. (TAB A). The State has found serious flaws with each, including the most recent "no-dam" alternative.

SALT CAVES "1"

In 1985, the City of Klamath Falls applied for a Federal Energy Regulatory Commission (FERC) license, a water quality (401) certification from the Oregon Department of Environmental Quality (DEQ), a site certificate from the Oregon Energy Facility Siting Council (EFSC) and a state water right from the Water Resources Commission (WRC). The original Salt Caves project featured a high dam and large reservoir. (TAB B).

During formal joint hearings of the EFSC and WRC, state agencies argued that the project would degrade water quality, drastically cut the wild trout population, eliminate exceptional whitewater rafting and flood important archaeological sites. Further, project power was not needed and the project failed to comply with local land use plans. (TAB C).

In October 1985, the City withdrew its applications from FERC, EFSC and DEQ. Later, it withdrew its application for a water right from the WRC.

SALT CAVES "2"

In 1986, the City reapplied for a water right from WRC, a water quality (401) certification from the Oregon Department of Environmental Quality (DEQ), and a license from FERC. The City's revised project featured a smaller dam and reservoir at a new, upstream location. (TAB D). Both FERC and the State requested more information on the project and its operation before beginning their reviews. DEQ accepted the City's application as complete in March 1987. FERC accepted the City's application as complete in July 1987.

In August 1987, DEQ rejected the City's application for a 401 water quality certificate. (TAB E). The DEQ found that the project as proposed failed to meet water temperature standards.

In October 1987, Oregon state agencies submitted comments on the accepted FERC application. (TAB F). The State identified a number of major flaws. These included:

- An anticipated 30 to 50 percent reduction in wild trout population because of migration barriers and reservoir impoundment.
- Elimination of outstanding whitewater rafting.
- Loss of two native Indian sites.
- A 10 to 30 percent reduction in deer habitat as well as other wildlife, grazing, and land use impacts.

- Lack of needed state permits and approvals required under state law.

In November 1987, Governor Goldschmidt announced his opposition to the project. (TAB G). The Governor said that the project had "serious, perhaps permanent and irreversible environmental trade-offs" that outweighed the uncertain power and economic benefits.

In February 1988, the City applied to EFSC. Joint EFSC/WRC hearings began in fall, 1988. Shortly thereafter, Oregonians passed Ballot Measure 7 making the Salt Caves project stretch a state scenic waterway. In February 1989, the EFSC and WRC rejected the City's second proposal because of the state scenic designation. (TAB H).

SALT CAVES "3"

In late 1988, FERC staff began an environmental impact statement (EIS) review. As part of their review, FERC staff crafted a third project design -- a "no-dam" alternative. This alternative diverts water from the outflow of the J.C. Boyle powerhouse before it returns to the river. This water is then carried by a 10 mile system of pipes, canals and tunnels to the proposed Salt Caves powerhouse (Final EIS p. 2-10; TAB I). In July 1989, FERC staff issued a Draft EIS on the Salt Caves project. The Draft EIS recommended that FERC license the "no-dam" alternative. After a careful review by a dozen state agencies, the State said, in formal comments to FERC, that: "the no-dam alternative would unacceptably and irreversibly harm the outstanding fish and wildlife, recreation, and other environmental values of the Klamath River." The State opposed licensing of the Salt Caves project. (TAB J).

The City also applied to WRC for a state water right for the "no-dam" alternative. Based on the advice of the Attorney General, WRC rejected the application. (TAB K).

In the June 1990 Final EIS, FERC staff recommended approval of the "no-dam" alternative for licensing. To date, the project has neither FERC Commission approval nor any of the necessary state approvals.

Specifically:

- The Oregon DEQ has not approved a 401 water quality certification.
- The Oregon Division of State Lands has not granted a lease or easement for project facilities.
- The Oregon Energy Facility Siting Council has not granted a state site certificate.
- The Oregon Water Resources Commission has rejected a state water right.

STATE POSITION ON PROJECT

The Washington D.C. FERC staff's "no-dam" proposal tries to correct the problems identified by local and State experts on earlier project designs. While it is an improvement over earlier designs, it stills falls short.

The State opposes the proposed Salt Caves project for two reasons. First, the project is contrary to state law and state and regional resource plans. Second, the project poses unacceptable environmental costs. Therefore, federal designation or other action to halt the project is necessary and consistent with the State's position.

The project is contrary to state law and state and regional resource plans.

In 1988, Oregonians approved Ballot Measure 7 to make the Klamath River stretch a state scenic waterway. The project would violate the Scenic Waterways Act by requiring construction of a diversion facility, canal, penstock, powerhouse, road, powerlines, and other facilities within the designated 1/4 mile state scenic waterway corridor. (TAB L). Further, under state law, the Water Resources Commission cannot grant a state water right for the project. (TAB K, Attorney General Opinion).

Allowing the Salt Caves project to be constructed contrary to state law would continue the usurpation of states' authority embodied in the Supreme Court's recent "Rock Creek" decision (Calif. vs. FERC No. 89-333, May 21, 1990).

The project is also contrary to local, state and federal resource plans. These plans include:

- The state comprehensive waterway plan, the Klamath River Trout Management Plan, the state trout management plan, the Oregon Non-game management plan, and the Statewide Comprehensive Outdoor Recreation plan. These plans would

be violated by the project's adverse impact on wild trout, wildlife, whitewater rafting, and other current uses of the canyon. (TAB J, pp. 57 to 64; TAB M).

- The Klamath County comprehensive land use plan calls for no hydropower development in the Klamath River Canyon. (TAB J, p. 62; TAB N).
- The Northwest Power Planning Council fish and wildlife, and power plans, designate the Klamath River stretch a "protected area" from hydropower development. (TAB J, p. 61; TAB O).
- The Klamath River Basin Compact requires compliance with state water law, and ranks recreation, fish and wildlife uses higher than hydropower development. (TAB J, p. 60; TAB P).
- BLM management plans for the area aim to enhance the canyon's scenic values and promote whitewater rafting, wild trout fishing and camping. FERC staff acknowledged that the project is largely inconsistent with BLM plans (Final EIS, p. 5-18).

The Federal Power Act requires FERC to consider all of these plans in its decision to license the project. (16 USC section 80(a)(1,2)). Because the project is inconsistent with all these plans, FERC should not license this project.

Last, the project is contrary to state and regional energy policies and plans.

Although new power resources will be needed soon, Salt Caves power is not needed because of unacceptable environmental trade-offs. The 1985 Oregon Legislature passed House Bill 2990 to set standards for hydro plants. The 2990 standards -- which apply to the "no-dam" alternative, (TAB K, Attorney General Opinion) require that no new hydropower plant can be built if it causes a net loss in wild game fish or important recreational activities such as whitewater rafting. (TAB Q). The "no-dam" alternative degrades both the fisheries and the rafting.

Further, the Northwest Power Planning Council determined that the proposed dam is not an acceptable new power resource option to meet regional power needs. (TAB R).

The project poses unacceptable environmental costs.

Keeping the affected Klamath River stretch as it is now is the best use of the resource. The proposed Salt Caves reach is the last significant stretch of free-flowing river remaining on the Upper Klamath.

The stretch is a major wild trout fishery. Oregon State Parks says that the sizes and numbers of trout per mile compare favorably to internationally ranked streams in Montana and Wyoming. The rate of catch and large size of trout attracts anglers throughout the west.

According to local and state fishery experts, the no-dam project would reduce both the size and number of wild trout. Mitigation will only

partly offset the loss from less food availability and reduced habitat for fry, juvenile, and adult fish. (TAB J, p. 52; TAB M).

The stretch also offers outstanding whitewater rafting in terms of challenge and aesthetic qualities. It has more rapids than most other rivers of comparable length in the United States. Several of its rapids are classified as class IV and V -- denoting whitewater difficulty and challenge. Further the Klamath is the only river in Oregon with class III to class V runs available and used on a year-round basis.

Whitewater rafting on the Klamath is growing by 7 percent a year (FIES, p. 3-73). The proposed Salt Caves project would allow only 32 days of summer rafting, for six hours a day. The project would not only reduce use and trips but also diminish the rafting experience because of visual impacts and crowding. (TAB J, p. 64; FEIS, p. 3-73).

The stretch and canyon supports other wildlife and fish species -- including a major winter deer herd and several threatened and endangered fish and wildlife species. The proposed project would adversely affect habitat for many of these species (TABS J, M).

The proposed site of the project is a secluded and semi-primitive river canyon. It is an area of archaeological and cultural significance to Native Americans. It supports fishing, hunting, camping, hiking and other outdoor recreation in a remote and undisturbed setting. For some Oregonians, the uniqueness of the river canyon has value that does not have a market price.

The project would mar the character of the canyon by building a canal, powerhouse, penstocks, and other facilities within the canyon. The project would require extensive cut and fill, and the disposal of 1.2 million cubic yards of waste rock and soil within the canyon (FEIS, p. 2-19). These disturbed areas would require decades to recover, and would destroy the remote, isolated character of the canyon. Moreover, the project would divert most of the water from the river and leave it a small creek in an otherwise dry river bottom.

Federal designation or other action to halt the project is necessary and consistent with the State's position.

The decision on the Salt Caves project is not a close call. It would violate state law. It would overturn Oregonians vote on the best use of this valuable resource. The project poses serious environmental costs; it promises uncertain economic benefits at best.

BLM, in its Final Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study (March, 1990) found that the Salt Caves reach has:

"many diverse outstandingly remarkable values that equal or surpass similar resource values on other designated rivers (recreational, wildlife, fish, prehistoric, historic, and scenic values, and the unique Native American traditional use of the canyon)." (p. 5-27).

BLM concluded:

"the upper Klamath River is suitable for designation and would make a worthy addition to the National Wild and Scenic Rivers System." (p. 5-27).

The State agrees with BLM's findings and conclusions. (TAB S).

Recently, both the BLM director and the City raised concerns about the economic impacts of designation. (TAB T). A report commissioned by the City predicts losses of \$1.5 to \$2.8 billion should the Klamath River stretch be designated a federal Wild and Scenic River.

The State evaluated the concerns raised. Our analysis shows they are unfounded, except for the questionable economic impact from loss of the Salt Caves project. Specifically, federal designation would not restrict the following uses beyond state law and federal management plans already in place: existing water rights; future upstream storage projects; future irrigation projects; federal power land withdrawals; local power rates; timber harvests; and existing power operations. (TAB U).

RECORD OF THE STATE OF OREGON REVIEW
OF THE SALT CAVES PROJECT

LIST OF ATTACHMENTS

- TAB A. Salt Caves Chronology.
- TAB B. January 1985 License Application to FERC: Project Maps. Notice of Joint Hearing before Oregon Energy Facility Siting Council (EFSC) and Water Resources Commission (WRC), December 1984.
- TAB C. 1985 Testimony: Oregon Department of Environmental Quality (DEQ); Oregon Department of Fish and Wildlife (ODFW); Oregon State Parks and Recreation Division; Oregon Division of State Lands.
- TAB D. July 1986 Draft License Application to FERC: Project Map. Notice of Joint Hearing before EFSC and WRC, October 1988. Map titled "Redesigned Development, Salt Caves Project."2
- TAB E. Letter from Director, DEQ, to William Miller, Project Director, dated August 19, 1987. Evaluation Report and Findings on the Application for Certification for the Proposed Salt Caves Hydroelectric Project, prepared by DEQ, dated August 17, 1987.
- TAB F. Preliminary Comments of the State of Oregon on FERC Project No. 10199-000, Salt Caves, under cover letter dated October 14, 1987. Supplementary Comments of the State of Oregon on FERC Project No. 10199-000, Salt Caves, under cover letter dated March 10, 1988. State Motion to Intervene in FERC Proceedings, October 7, 1987.
- TAB G. Statement of Governor Goldschmidt on the Salt Caves Project, November 12, 1987, Klamath Falls, Oregon, with News Release dated November 12, 1978. Untitled briefing for Governor Goldschmidt, undated (prepared November 1987), 20 pp.
- TAB H. EFSC Opinion and Final Order Rejecting Application, dated February 16, 1989. WRC Opinion and Final Order Rejecting Application, dated February 16, 1989.
- TAB I. Figure 2-5, "No-dam alternative general plan".
- TAB J. State of Oregon Comments on Draft Environmental Impact Statement (DEIS) for Salt Caves Project, dated October 25, 1989, under cover letter dated October 23, 1989, with News Release dated October 25, 1989. State of Oregon Motion to Deny FERC License, December 12, 1989.

- TAB K. Letter from Wayne Overcash, Water Resource Department (WRD), to George Flitcraft, Mayor of Klamath Falls, dated July 28, 1989. Attorney General Opinion OP-6334, to Director, WRD, dated July 28, 1989.
- TAB L. Oregon Revised Statutes 390.805 to 390.925 "Scenic Waterways."
- TAB M. Comments of ODFW on the Final EIS for the Salt Caves Hydroelectric Project, dated August 10, 1990.
- TAB N. Letter from Klamath County Planning Department to DEQ, dated August 15, 1990. DEQ letter to City regarding water quality certification, July 11, 1990, plus attachments.
- TAB O. Letters from Executive Director, Northwest Power Planning Council, to FERC, dated November 8, 1989 and May 2, 1989.
- TAB P. State Attorney General Opinion OP-6268, and OP-6268A, on Effect of Klamath River Basin Compact, September 21, 1988 and May 18, 1989.
- TAB Q. House Bill 2990 as passed by the Oregon Legislature.
- TAB R. Protected Areas Amendments and Responses to Comments, Northwest Power Planning Council, September 14, 1988, under cover letter dated September 20, 1988.
- TAB S. State of Oregon comments on BLM Draft Eligibility and Suitability Report for the Upper Klamath Wild and Scenic River Study, dated January 12, 1990.
- TAB T. Statement of Cy Jamison, Director, BLM, before the Subcommittee on National Parks and Public Lands, Committee of Interior and Insular Affairs, on H.R. 4728, dated June 28, 1990. Letter from Cy Jamison, Director, BLM, to the President of the Senate, dated April 2, 1990.
- TAB U. Economic Impacts of Federal Scenic Designation of the Upper Klamath River, prepared by the Oregon Department of Energy, August 1990.

DOCUMENTS NOT CITED

- TAB V. Oregon Department of Fish and Wildlife and Oregon Division of Parks and Recreation Joint Application for Instream Water Right on the Klamath River, October 13, 1989.
- Oregon Department of Fish and Wildlife letter to City, November 21, 1989.
- Oregon Department of Fish and Wildlife memo to Governor's staff, November 30, 1989.
- Oregon Department of Fish and Wildlife letter to City, December 21, 1989.
- Oregon Department of Fish and Wildlife letter to FERC, February 21, 1990.
- Oregon Department of Fish and Wildlife letter to FERC, March 7, 1990.
- Oregon Department of Fish and Wildlife letter to FERC, May 18, 1990.
- Oregon Department of Fish and Wildlife letter to DeFazio, August 1, 1990.
- TAB W. Selected Oregon Department of Fish and Wildlife documents on the Salt Caves Project from 1985 to 1990.

Court denies permit for Salt Caves

■ The decision by the state's highest court may end the effort for a controversial power project on the Upper Klamath River

By KATHIE DURBIN
of The Oregonian staff

The Oregon Supreme Court on Thursday upheld the denial of a permit for the Salt Caves hydroelectric project, a decision that may kill the controversial proposal to divert water from the Upper Klamath River.

The court unanimously said the state Environmental Quality Commission acted within its authority when it rejected a permit for the project on the basis that it would increase the Klamath's water temperature, with potentially harmful effects on trout.

"No further showing of adverse effect on trout is required before a violation is made out," the court said in an opinion by Justice Ed Fadeley.

The long-delayed project cannot go forward unless the state certifies that it meets water quality standards and protects fish habitat and clean drinking water.

A jubilant Fred Hansen, director of the Department of Environmental Quality, said Thursday's ruling means "the factual basis on which we made that determination is absolutely sound."

Although the city hopes to modify its plan and try again for state certification, the project's fate now may

rest with U.S. Interior Secretary Bruce Babbitt. Oregon Gov. Barbara Roberts asked Babbitt a year ago to place a 20-mile stretch of the river under the protection of the Federal Wild and Scenic Rivers Act, which would prohibit the power project.

Last month, the National Park Service recommended including an 11-mile section of the river near the Oregon-California border in the protected-river system. Citizens have until April 15 to comment on the proposal.

"This thing has had more lives than a cat, but I think finally that we can pronounce it dead," said Rep. Peter DeFazio, D-Ore. "... This linked with the proposed wild and scenic river designation should assure us that the Salt Caves project is finally dead."

But Klamath Falls Mayor Todd Kellstrom said the city is not giving up on the project, for which \$250 million in bonds have been sold.

"We anticipated this action, and we have a modified action plan to meet the water temperature standards," Kellstrom said. "The project is still feasible."

The city wants to divert water from an existing power facility on the river downstream by way of a conduit to a new powerhouse, then return the water to the river.

It hopes the project will generate 96 megawatts of electricity and raise more than \$1 million annually to pay for business development in Klamath Falls.

The new plan would involve re-

SALT CAVES

■ **WHAT'S AT STAKE:** The city of Klamath Falls has been trying for nearly 10 years to build a hydroelectric project on the Upper Klamath River to raise money for local economic development. The river stretch is popular with white-water rafters and is an important salmon and trout stream.

■ **WHAT'S HAPPENED?** On Thursday, the Oregon Supreme Court upheld a decision by the Environmental Quality Commission, which refused to certify that the project complies with state and federal clean water laws. The commission said the project would raise the temperature of the river, potentially harming trout.

■ **WHAT'S NEXT?** Klamath Falls officials say the city will propose a modified project that would not affect the river's temperature. But that proposal still would have to obtain state certification. Meanwhile, the National Park Service has proposed designating an 11-mile stretch of the Upper Klamath for federal protection that would preclude the Salt Caves project.

leasing more water from the upstream J.C. Boyle Reservoir to dilute the Klamath River and keep its water cooler, Kellstrom said.

The project, promoted by the city since 1985, is opposed by Roberts, most state agencies, the Northwest Power Planning Council, white-water rafters who run the Upper Klamath and a majority of Oregon's congressional delegation. Sen. Mark

O. Hatfield, R-Ore., and Rep. Bob Smith, R-Ore., have been its chief champions.

In its court challenge, the city argued that the increase in water temperature the project would cause would not harm fish and that the state commission should have to prove that fish would be harmed before denying the permit.

Portland lawyer Karl Anuta, who represented six environmental groups opposing licensing of the hydroelectric project, said the ruling makes an important statement about the right of states to have a say in the licensing of federal projects.

"The Supreme Court reaffirmed that agencies in Oregon have the right to take more than minimum environmental precautions if they think it's appropriate," Anuta said.

"They affirmed that the agencies have discretion to interpret their regulations as long as that interpretation is consistent with the authorizing statutes" — in this case, the federal Clean Water Act and the state's own water quality statutes, Anuta said.

Jim Middaugh, spokesman for the Oregon Natural Resources Council, said it's time for the city to give up on Salt Caves.

"This should be the last nail in the project's coffin, but the city of Klamath Falls probably has some more bond money to waste," Middaugh said.

"It's ridiculous that the city is pinning any hopes at all on finishing this project."

Anthropologist dies at age 96

■ The professor's discovery of held beliefs of when prehistoric

By BARNES C. ELLIS
and HOLLY DANKS
of The Oregonian staff

EUGENE — Luther Sheele Cressman, a retired professor known as the father of Oregon anthropology for work that punched holes in the prevailing theory of prehistoric Northwest, has died at the age of 96.

Cressman died of complications from anemia Monday in the Eugene home he donated to the University of Oregon Foundation. The school's anthropology department is planning a memorial service.

His discovery of 9,000-year-old sandals in a cave near Fort Rock forced scientists to more than double their estimates of how long ago the first man came to the Pacific Northwest. The discovery formed the basis of Cressman's book, "The Sandal and the Cave."

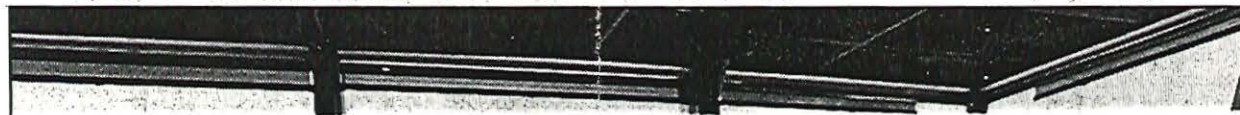
"He established, against what was the received opinion of the day, that Oregon was not simply a backwater in the archaeological history of the Pacific Northwest, but that it had been very early occupied by the first Oregonian," said Theodore Sterling, professor emeritus of anthropology in the department Cressman founded at the University of Oregon.

The discovery of the Fort Rock sandals "pretty well put a hole in the prevailing thought," said Sterling, who was hired by Cressman in 1930 and worked with him almost daily for 15 years.

Cressman firmly believed that

Tri-Met gets \$10 million for westside rail

■ The funds will enable the agency to proceed with the line without borrowing cash against



APPLICATION PROCESSING OUTLINE

Basin: _____

Sub-basin: _____

Fees paid: _____ Examination fee: _____

Recording fees: _____

Total: _____

Application No. ^{INS}

70094

Permit No. _____

RATE AND DUTY _____ for irrigation

1. Check for minimum information (OAR 690-11-020)

yes no

----- Name and mailing address of the applicant.
 ----- Source of the water.
 ----- Quantity of water to be appropriated.
 ----- Location of point of diversion to 1/4 1/4
 ----- Section.
 ----- Nature and place of use.
 ----- Name and mailing address of all legal owners
 ----- of the properties involved.
 ----- Signature of the applicant
 ----- Examination fees.

If minimum information not supplied, excepting legal owner information, then return to applicant with letter explaining deficiencies.

yes no

----- Water Resources Commission classification
 ----- limits or restrictions -- If yes, note:

----- State Engineer's withdrawals -- If yes, note:

----- Legislative withdrawals -- If yes, note:

----- If policy statement is unclear check with Resources
 ----- Management Division.

----- Scenic Waterway: _____
 ----- on _____ up-stream _____ w/in 1/4 mile

----- Notify Parks and Recreation Department
 ----- Out-of-basin diversion

----- Need to route to Geology Section due to:
 ----- well within one mile of a stream
 ----- well within restricted surface water area
 ----- wells with request for greater than 5 cfs
 ----- well is for heating &/or cooling
 ----- well constructed by land owner
 ----- well is artesian
 ----- artificial ground water recharge project
 ----- ground water area under study

----- Within Irrigation District: _____
 ----- Notify _____ Need excerpt from District

----- Legal description of property

----- Ownership statement

----- Other parties to Notify: _____

----- Water Resources Commission review if:

----- Request for greater than 5 cfs
 ----- Dam height greater than 10 feet
 ----- Storage of more than 9.2 acre-feet
 ----- Out-of-basin diversion
 ----- within or above a scenic waterway
 ----- conditional uses under basin programs
 ----- requests for larger rate or duty than allowed
 ----- ground water recharge project
 ----- other substantial public interest issues
 ----- requests for review by an agency or person

----- Watermaster comment form sent with copy of
 ----- application and map.

----- Watermaster comments received _____

----- Hydrographic section comments requested _____

----- Hydrographic section comments received _____

----- O.D.F.W. sent copy of application and map(except
 ----- groundwater) requesting comment _____

----- O.D.F.W. comments received _____

----- Report from D.E.Q. received _____

----- Publish application information in weekly public
 ----- notice.

----- Notify other owners of development

----- PROTESTED

----- filed _____
 ----- resolved _____

Stretch of Klamath River called most endangered stream in U.S.

By ROBERTA ULRICH

of The Oregonian staff

WASHINGTON — A 19-mile stretch of the Klamath River in Oregon topped a list of the nation's most endangered stream released Wednesday by a conservation group called American Rivers.

Rep. Peter DeFazio, D-Ore., appearing at the organization's news conference, said the Klamath is endangered by the city of Klamath Falls' plan for a hydroelectric project that would divert water from a 10-mile stretch of the stream.

The city's Salt Caves proposal is under consideration by the Federal Energy Regulatory Commission, which has agreed to delay a final decision until Congress has an opportunity to consider placing the Klamath in the National Wild and Scenic Rivers System.

The Bureau of Land Management said in a preliminary report late last year that the Klamath would be suitable for wild and scenic designation, and DeFazio said Wednesday he expects the final report to confirm the finding in that draft report.

Bob Johns, spokesman for BLM, said the report will be issued in late April.

DeFazio said as soon as the report is released he will consult with the rest of the Oregon congressional delegation and introduce a bill to put the Klamath into the National Wild and Scenic Rivers System.

In 1988 Oregon voters put the Klamath in the state's wild and scenic rivers system, but the state designation does not protect it from hydroelectric development, which comes under the jurisdiction of the Federal Energy Regulatory Commission.

"We like to call Oregon the wild and scenic rivers capital of the world," DeFazio said, "but we can't claim that title if we lose the Klamath."

American Rivers, which lobbies to add rivers to the National Wild and Scenic Rivers System and to win state protection for other rivers, listed the Klamath River among the 10 most endangered rivers last year.



Michael Hartfield, a Salt Caves project spokesman, said the rivers group consists mainly of whitewater rafting groups that are using politics to kill the project.

"A handful of white-water rafters are manipulating the process in a masterful way," he said. "They are expert lobbyists and media manipulators."

The Klamath, which rises from Klamath Lake, flows south and west into California and across the state to the Pacific Ocean. It is protected from development through most of its length. The stretch targeted by the rivers group is home to wild rainbow trout and one of the best white-water rafting runs in the West. Part of the river in Oregon is already dammed.

This year's list, which does not rank streams below the "most endangered" category, also includes the Bruneau and Jarbridge rivers in southwestern Idaho, where the Air Force seeks a 1 million-acre expansion of a 100,000-acre bombing range. Tom Cassidy, public lands counsel for American Rivers, said the Bruneau and Jarbridge flow through "one of the largest unroaded areas in the United States."

Bombing the area would disrupt a spectacular landscape of canyons and plateaus and affect the wildlife, which includes bighorn sheep, bobcats, mountain lions and golden ea-

gles, he said. An Air Force environmental impact statement will be completed in about a year, Cassidy said.

American Rivers also named 15 streams it considers "threatened," including the Smith River in the Siskiyou Mountains in northwestern California. Although 311 miles of the Smith are in the National Wild and Scenic Rivers System, the clear-cutting of redwoods along its banks is causing erosion and sedimentation, the organization said. The North Fork of the Smith arises in Oregon.

In a separate announcement Wednesday, the Oregon Rivers Council listed the Upper Klamath as the state's most endangered watershed. Bob Doppelt, the group's executive director, said at a Portland news conference that the group wants to protect entire river basins and that it is no longer enough to protect mere river segments.

"Not only do healthy watersheds provide adequate supplies of clean water critical to public health, but they also are essential for our social and economic well-being," Doppelt said.

Forestry, agricultural and mining practices are damaging the state's watersheds, he said. The group's list of troubled watersheds includes the Klamath, Elk, Malheur, Umatilla, Crooked, Rogue, Willamette, John Day, Lower Columbia and Tillamook.

House panel passes measure on drilling, hydroelectric projects

The Associated Press

WASHINGTON — Measures to prevent oil drilling off the Northwest coast and kill the Salt Caves hydroelectric project in southern Oregon cleared a House committee Thursday.

The measures were part of a sweeping energy bill endorsed by the House Interior Committee.

One provision would halt oil drilling off Oregon, Washington and Northern California until 2002.

Another would prohibit the U.S. Department of Energy from authorizing any hydroelectric projects on rivers designated as wild and scenic.

5/16/90 — AG Ken Burns
Walt Perry

No pending projects according to AG

∴ it appears to process & no
forwarded appl.