

Oregon DEQ Division 33 Review Summary Sheet



Application Information

Applicant Name:	Tony Langdon, Langdon Farms	Application Number:	R-88393
Basin & Sub-basin:	Mary's Creek Basin, Little Muddy Sub-basin	Requested Water Amount:	109.4 acre-feet
Nearest Surface Water:	Runoff, Little Muddy Creek, Putnam Creek	Nearest Receiving Waterbody:	Bishop Creek, Putnam Creek, and an unnamed creek, tributaries of Little Muddy Creek
Proposed Use:	Irrigation, wildlife, recreation, and aesthetics	Requested Period of Use:	November 1 through June 30

Division 33 Geographic Area

☒ Lower Columbia ☐ Upper Columbia ☐ Statewide	
Upper and Lower Columbia Basins only: Based upon the review completed below, does the proposed use comply with existing state and federal water quality standards or may conditions be applied to bring the use into compliance?	☐ No ☒ Yes ☐ Insufficient data
Statewide: Will the proposed use result in water quality impacts that will cause either "loss" or "net loss" of essential habitat of sensitive threatened or endangered (ST&E) fish species? (Note: the presence of ST&E fish species is determined by Oregon Department of Fish and Wildlife.)	☐ No ☐ Yes ☐ Insufficient data

Recommended Pre-Proposed Final Order Actions

1.
2.
3.
Mitigation Obligation ☒ No ☐ Yes
Prior to issuance of a Proposed Final Order, the applicant shall submit a mitigation proposal that is of no less volume and rate than the permitted use. The proposal shall include water that is sourced upstream of the point of diversion or appropriation, or the uppermost point on the stream at which the potential for surface water interference occurs. If a surface water right is used for mitigation, it shall be instream for the <u>[month – month]</u> time period and of similar water quality. The applicant should contact their OWRD caseworker to discuss flow mitigation options.

Recommended Permit Conditions

1. Water Quality: All water use under this permit shall comply with state and federal water quality laws. The permittee shall not violate any state and federal water quality standards, shall not cause pollution of any waters of the state, and shall not place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means. The use may be restricted if the quality of source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards.
2. Agricultural Water Quality Management Area Rules: The permittee shall comply with basin-specific Agricultural Water Quality Management Area Rules described in Oregon Administrative Rule Chapter 603-

095. The permittee shall protect riparian areas, including through irrigation practices and the management of any livestock, allowing site capable vegetation to establish and grow along streams, while providing the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.

3. Limit Rate: Water withdrawal shall be limited to 109.4 acre-feet per year.

4. Limit Period of Use: Water use shall be limited to the period: November 1 to February 28 or 29.

5. Off-Channel Stored Water Releases: The permittee shall not release polluted water from this off-channel reservoir into waters of the state except when the release is directed by the State Engineer to prevent dam failure.

6. Live Flow: Once the allocated volume has been stored, permittee shall pass all live flow downstream at a rate equal to inflow, using methods that protect instream water quality.

Additional Reviewer comments ☐ No ☒ Yes

The water user proposes to irrigate 145 acres of land with 109.4 acre-feet of water each year. The area to be irrigated are croplands in the sense that they are used to grow crops, however they differ from most croplands because they are surrounded by dikes that are 20-25 feet wide and less than six feet tall. The purpose of these dikes is to contain irrigation water within their boundaries. Given the volume of water requested and the acreage to be irrigated, the resulting reservoirs would have a maximum average depth of approximately 9 inches. The 9 inch average depth would be reached when the soils were fully saturated, and the maximum permitted volume is taken. It is possible that rainfall and a high water table could add depth to the water contained within the dikes. The proposed uses are: irrigation, wildlife, recreation, and aesthetics. Water is requested eight months of the year, from the beginning of November through the end of June.

Water will be contained within a series of dikes, and the WRD requires a reservoir permit for this type of use. If the WRD decides to issue a permit, water will be diverted to fill 26 reservoirs (also referred to as rice ponds or paddies), but no additional water would be diverted past the fill point to "maintain" the reservoirs, i.e., to keep the reservoirs at a certain depth to replace water lost to evaporation and seepage. All water stored under this permit is intended to be used within the footprint of the 26 reservoirs, and water cannot legally be used outside of these reservoirs. Irrigation of adjacent cropland will require a secondary permit (ORS 537.400). The applicant does not contemplate using any of the stored water outside of these reservoirs (e.g., for irrigating hazelnut groves), ORS 537.400(2).

The DEQ consulted with the ODFW, ODA, and WRD regarding water quality concerns. A water availability analysis shows that water is available in the highest quantities during winter months. Winter is also the time of year when temperature stressors on stream biota are at their lowest point. The DEQ was concerned that water from the rice fields would be drained into nearby streams. The applicant clarified (in a June 17, 2019 email) that dewatering occurs by a combination of infiltration and evaporation, and that no water from these fields would be discharged into any waterway.

The DEQ requests a reduced period of time for reservoir filling: November 1 through February 28/29. This will allow four full months for filling these reservoirs. The DEQ agrees with the WRD's permit condition requiring "large" water use reporting. The large water use reporting condition requires that the permit holder have a water meter at each point of diversion (POD) and that water use be reported yearly at each POD. If implemented, this condition would necessitate 26 individual monthly water measurements that would be submitted to the WRD each year. The DEQ requests notification from the WRD if alternative measuring and reporting procedures are submitted by the applicant.

Relevant portions of the Willamette Basin Program (OAR 690-502-0040) under which this application falls read as follows:

(a) Unless expressly prohibited by statute, order or administrative rule, the surface waters of the Willamette River and tributaries are classified for storage from November 1 to June 30. A storage permit may be issued for a shorter time period and/or conditioned based on water availability or compatibility with other uses and needs;

(c) Water legally stored may be released or used at any time for any beneficial purpose, such as domestic, livestock, irrigation (during the irrigation season as specified in section (6) of this rule), agricultural, commercial, municipal, industrial, power, mining, recreation, fish life, wildlife, pollution abatement, wetland enhancement, public instream uses and uses allowed under a limited license.

(7) Conservation: The Department shall require that special conservation and water use efficiency conditions be employed when permitting the use of water from the Columbia River Basalt Group, low-yield aquifers and water quality limited streams.

On Wednesday, May 1, 2019, this reviewer and Steve Mrazik visited this site to view the proposed ponds. The vantage point for the photos that follow is the lower left (Southeast) corner of the following Google Map image, shown with an orange arrow below:





View from southeast



View from Southeast



View from Southeast



View from Southeast



Muddy Creek looking North



Muddy Creek looking North

Interagency consultation: Summarized in emails as follows:

From: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>
Sent: Monday, October 7, 2019 2:25 PM
To: CREUTZBURG Brian; KOHANEK Ron C * WRD
Cc: TUGAW Heather; GRAHAM Elisabeth A * WRD
Subject: RE: Division 33 staffing change & loose ends - Q on R-88393

Hi Brian, I'm copying Heather here, in case you are long gone for Division 33. I'm sorry this email slipped through the cracks. I was out a lot during the month of September.

I think the distinction between storing water (via a reservoir permit) and using additional water to maintain reservoir levels (via a surface water permit for the use of "pond maintenance.") is described in statute. Emphasis in red text.

ORS 537.400(2):

Whenever application is made for permit to store water in a reservoir or pond for any beneficial use which does not contemplate future diversion of the stored water except by livestock drinking from stock water ponds, the extent of utilization thereof may be included in the reservoir permit and no secondary permit shall be required. However, in cases where water from a stream is **required to maintain a reservoir or pond by replacing evaporation and seepage losses, or is required to maintain suitable fresh water conditions for the proposed use and to prevent stagnation, the applicant for permit to store water in such reservoir or pond shall also file an application for permit to appropriate the waters of the stream.**

As a side-note, all of our reservoir permits include this language as a standard condition:

This permit allows an annual appropriation (not to exceed the specified volume). This permit does not provide for the appropriation of water for out-of-reservoir uses, the maintenance of the water level or maintaining a suitable freshwater condition. If any water is to be used for out-of-reservoir purposes, a secondary water right is required. If any additional live flow is to be appropriated to maintain either the water level or a suitable freshwater condition, an additional water right is required.

Kim French is the new caseworker for G-18591. She started vacation today, but will be back on the 21st. I can ask her for a status update. Should I ask her to send that information along to Heather?

Alyssa

From: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Sent: Wednesday, September 11, 2019 9:34 AM
To: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>; KOHANEK Ron C * WRD <Ron.C.Kohanek@state.or.us>
Subject: Division 33 staffing change & loose ends

Hi Alyssa and Craig,

I just wanted to give you a quick update about a staffing change for the western region Division 33 reviews. On approximately September 17, Heather Tugaw will be taking these over. I've really enjoyed working with y'all and getting reacquainted with my former colleagues at Water Resources.

In reviewing my tracking spreadsheet, I have a couple of reviews that I was trying to wrap up: G-18591 and R-88393.

- For G-18591, I sent y'all an email on 8/15 about this application, since it was one of Scott Grew's files. Basically, I need to find out whatever updates there are, but I don't have a way to find out who the new caseworker is.
- For R-88393 (rice ponds) y'all mentioned that there was a distinction between filling and maintaining the reservoirs that negated the need for a secondary permit. If you're able, could you give me some kind of written characterization for this? I don't feel comfortable writing this for my review. It might be easiest if someone can answer my email from 5/23 about this, since I'll need to include this email chain in the interagency consultation portion of my review.

Many thanks for all your help! Have a great day, Brian

Brian Creutzburg

Oregon Department of Environmental Quality
Resource Assessment & Technical Support
Laboratory & Environmental Assessment Division
7202 NE Evergreen Parkway, Suite 150
Hillsboro, OR 97124
Office: (503) 693-5742
Email: creutzburg.brian@deq.state.or.us

From: CREUTZBURG Brian
Sent: Thursday, August 29, 2019 8:38 AM
To: 'Paul Measeles'; FAUCERA Danette L
Cc: Michael Powers; FARRAND Alex; WOOLVERTON Priscilla; Margaret A Matter
Subject: RE: R-88393 in-reservoir rice irrigation application

Good Morning,

I'm trying to move forward with my work on this application. As I mentioned during our call last week, one of the reasons I've tried to look at this situation more closely is that it is similar to a pair of applications that ended up being contested by the applicant: R-88284 and S-88285. Those were also in the Muddy Creek Drainage. Because of their location, a shortened period of use was recommended (and eventually included in the final permit). During the settlement discussion for the contested case, the ODFW position was:

- ODFW agrees to authorization of surface runoff as long as available, and direct diversions from Pierce Creek and Tub Run from October 15th through end of February (28th or 29th); this is based on the presence of four sensitive fish species Chinook salmon, cutthroat trout, Oregon chub, and Western Brook Lamprey in the Muddy Creek drainage. This condition is to ensure no net loss to essential habitat of sensitive species per OAR-690-033-0330(2)(b) and (3).

The passage above was copied from the settlement discussions. I'm interested in knowing if the ODFW will be pursuing a similar restricted period of use for the Langdon Farms application, and also if the ODA has an opinion. The requested period of use is currently November 1 through June 30 of each year.

The WRD explained that this reservoir permit would allow the applicant to fill the reservoirs, but not "maintain" them. 7 months sounds like more time than necessary to fill the reservoirs.

Thank you, Brian

From: Paul Measeles <pmeaseles@oda.state.or.us>

Sent: Tuesday, June 25, 2019 3:37 PM

To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>

Cc: Michael Powers <mpowers@oda.state.or.us>; FAUCERA Danette L <Danette.L.Faucera@state.or.us>;

FARRAND Alex <Alex.Farrand@state.or.us>; WOOLVERTON Priscilla <Priscilla.Woolverton@state.or.us>;

Margaret A Matter <mmatter@oda.state.or.us>; Paul A Measeles <pmeasele@oda.state.or.us>

Subject: Re: R-88393 in-reservoir rice irrigation application

Hi everybody,

At last I have a chance to weigh in on this! I agree the applicant would need a secondary permit to divert any surface water to the rice ponds. It would be a consumptive use, because the water would infiltrate and evaporate, so only a fraction would be returned to live flow of the stream.

^^

Paul Measeles, R.G.

Hydrologist

(503) 986-4778

pmeaseles@oda.state.or.us

On Jun 18, 2019, at 8:13 AM, CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us> wrote:

Good Morning,

I wanted to pass on some information that I just received from Alyssa. Rather than forward her email, I cut and pasted it below to help keep all of this in a single email chain. The .png image is some revised point of diversion labeling. Overall this information suggests that the applicant intends for the rice ponds to dry out via evaporation and by letting water infiltrate, without taking measures to actively drain them. The DEQ will be requesting a condition that specifies that **no return flows to muddy creek are allowed**. If other agencies (ODFW and ODA) are in agreement with this condition, please include it in your review.

The issue of a secondary permit remains unresolved. The ORS 537.400, WRD guidance documents, and internal memo on rice growing all state that a secondary permit is required for the water use to be legal. I've been asking them about the secondary permit (because I want to review it simultaneously with the reservoir permit) for a few months, but haven't gotten anything showing why this isn't the case.

I was wondering if the ODFW and ODA agree with us (the DEQ) that a secondary permit is required? If someone from each of those agencies could email me back, it would be helpful in crafting my response to Alyssa.

Any other thoughts?

Brian

Brian Creutzburg

Oregon Department of Environmental Quality

Resource Assessment & Technical Support

Laboratory & Environmental Assessment Division

7202 NE Evergreen Parkway, Suite 150
Hillsboro, OR 97124
Office: (503) 693-5742
Email: creutzburg.brian@deq.state.or.us

Begin forwarded message:

Brian, some information back from the applicant for R-88393.

Alyssa

From: "GRAHAM Elisabeth A * WRD" <Elisabeth.A.Graham@oregon.gov>
To: "MUCKEN Alyssa M * WRD" <Alyssa.M.Mucken@oregon.gov>, "KOHANEK Ron C * WRD" <Ron.C.Kohanek@oregon.gov>
Cc: "BLAKELY Lanaya F * WRD" <Lanaya.F.Blakely@oregon.gov>, "EASTMAN Jeana M * WRD" <Jeana.M.Eastman@oregon.gov>
Subject: FW: File R-88393

Here is the response from the applicant.

From: Tony Langdon <langdongrass@gmail.com>
Sent: Monday, June 17, 2019 12:03 PM
To: GRAHAM Elisabeth A * WRD <Elisabeth.A.Graham@oregon.gov>
Subject: Re: File R-88393

Lisa,

Typically the ponds or paddies dry up about the middle of July- August. We do not drain them, they permeate through some of the clay soils and add to the irrigation streams but the wild rice that we built these ponds for uses some of the water and the rest is usually evaporated. If we were going to reintroduce water into the irrigation Channels we would not have adequate water to grow wild rice.

Which by the way is not rice but a grass seed that grows in water.

Tony Langdon
Langdon&Sons
LangdonFamilyFarms
LangdonDucks
541-743-3318

On Jun 17, 2019, at 10:04 AM, GRAHAM Elisabeth A * WRD <Elisabeth.A.Graham@oregon.gov> wrote:

Hi Tony,

I have been asked by the review team to contact you on some questions and clarifications about this application.

When reading the file it doesn't say what you are going to do with the water when it is evacuated from the ponds. Could you give an explanation about the operations? In particular, the part of operations in preparation for harvest. If you are using modern methods, how will the water that drains from the shallow reservoirs be handled?

If there are plans to use this water for irrigation, then, a secondary right will be required. If not, then, if the water is to be removed from the reservoirs during harvest, the Agency would like to know your plans so the permit can be issued accordingly.

Additionally, the impoundment of water will be limited to the fill season, this request does not include a maintenance right, and any runoff outside of the fill season must be passed along through the reservoir.

Is there any type of recreation planned in post-harvest? If so, what is planned?

Once these questions are explained and answered your application can move forward.

If you have any questions or concerns please do not hesitate to contact me.

Sincerely,

Lisa Graham | Water Right Application Specialist

Water Resources Department | 725 Summer St. NE, Suite A | Salem, Oregon 97301

Ph: 503 986-0808 | Fax: 503 986-0901

Email: Elisabeth.A.Graham@oregon.gov | Web: <http://www.wrd.state.or.us>

From: Tony Langdon <langdongrass@gmail.com>

Sent: Tuesday, January 22, 2019 10:06 AM

To: GRAHAM Elisabeth A * WRD <Elisabeth.A.Graham@oregon.gov>

Subject: Re: File R-88393

I see the issue now. There are two sets of POD 16, 17, 18. There should not be a 1 in front of any of those.

Sent from my iPhone

On Jan 22, 2019, at 9:53 AM, GRAHAM Elisabeth A * WRD <Elisabeth.A.Graham@oregon.gov> wrote:

Hello Tony,

I am processing this application and have had a chance to look over the revised map and am not seeing the Points of Diversion for 6, 7 and 8.

Would you like to revise the map to include these PODs or remove them from the application?

Please reach out with any questions.

Thank you,

Lisa Graham | Water Right Application Specialist

Water Resources Department | 725 Summer St. NE, Suite A | Salem, Oregon 97301

Ph: 503 986-0808 | Fax: 503 986-0901

Email: Elisabeth.A.Graham@oregon.gov | Web: <http://www.wrd.state.or.us>

<image001.png>

From: Tony Langdon [<mailto:langdongrass@gmail.com>]
Sent: Monday, July 10, 2017 2:34 PM
To: GRAHAM Elisabeth A * WRD
Subject: File R-88393

Lisa

Here is an amended map showing the locations of each measurement to each other 26 ponds

It also should clarify all of the Locations of the PODs.

Thank you for your assistance and please let me know via email at

LangdonGrass@gmail.com

or feel free to call me

541-743-3318

All of the additional paperwork sent with the original map will still accurately depict locations of PODS and Ponds.

Thanks again

Tony Langdon

From: CREUTZBURG Brian

Sent: Friday, May 31, 2019 9:08 AM

To: 'Michael Powers' <mpowers@oda.state.or.us>; FAUCERA Danette L <Danette.L.Faucera@state.or.us>;

FARRAND Alex <Alex.Farrand@state.or.us>

Cc: 'WOOLVERTON Priscilla' <Priscilla.Woolverton@state.or.us>; Margaret A Matter <mmatter@oda.state.or.us>

Subject: RE: R-88393 in-reservoir rice irrigation application

Good Morning,

I just wanted to send out a quick update on this application. As I mentioned at the beginning of this process, I had been looking for the secondary permit that the applicant needed to use the water they store in these 26 reservoirs. Eventually, the WRD provided me this memo (attached) that they use specifically for water rights involving "wild" rice.

The conditions that an applicant would need to meet to forgo a secondary permit were clearly not met by this applicant. Specifically:

From the memo: "A secondary water use permit is required if water other than rainfall is used to maintain the rice paddy."

From the application question # 2, asking how the reservoir will be filled: "Rain water and diversions from creeks and ditches."

Still awaiting a response from Alyssa and Craig about how they're planning to proceed about the secondary permit. They also said that they would be pursuing information from the applicant about where the water drained from these fields would go.

Priscilla, I'll plan to keep working on this one, unless I hear differently from you.

Many thanks! Brian

From: CREUTZBURG Brian

Sent: Friday, May 03, 2019 9:07 AM

To: 'Michael Powers' <mpowers@oda.state.or.us>; FAUCERA Danette L <Danette.L.Faucera@state.or.us>; FARRAND Alex <Alex.Farrand@state.or.us>

Subject: RE: R-88393 in-reservoir rice irrigation application

Good Morning,

I apologize for the size of attachments to this email.

But I wanted to mention that Steve Mrazik and I did a site visit to this location on Wednesday. We were only able to get to the NW corner, to view the rice fields (referred to as reservoirs in the application). As you can see from the pictures, the fields are currently flooded. The last two pictures are taken of Little Muddy Creek. There is a large (about 5 foot diameter) corrugated metal pipe that apparently drains the irrigation water from these fields into Little Muddy Creek.

I will try to get better pictures the next time I'm travelling between Salem and Eugene.

Brian

From: Michael Powers <mpowers@oda.state.or.us>

Sent: Tuesday, April 16, 2019 4:23 PM

To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>

Subject: Re: R-88393 in-reservoir rice irrigation application

Thanks Brian.

We have sent a few questions to Craig at OWRD to perhaps clarify a few things. We'll get back to you soon. I may give you a call for further discussion.

Cheers.

Mike

On Apr 16, 2019, at 2:19 PM, CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us> wrote:

Agreed. We have tried to come up with a way to not do the full review in cases where the WRD has proposed to deny in their IR. The sticking point appears to be that if the case is contested, the WRD is on the hook to substantiate that decision (using the ODFW, DEQ, and ODA reviews). As it stands now, the applicant would need to be able to see the Division 33 reviews in order to determine whether or not to contest the WRD decision. We haven't found a workaround, so we attempt to describe as many contingencies in the review as possible, and include conditions for those contingencies.

From: Michael Powers <mpowers@oda.state.or.us>
Sent: Tuesday, April 16, 2019 2:04 PM
To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Cc: Margaret A Matter <mmatter@oda.state.or.us>
Subject: Re: R-88393 in-reservoir rice irrigation application

Brian:

I just reviewed S-88681 and sent it over to Margaret.

The OAR you quoted certainly makes it appear that OWRD cannot approve this application. I am hoping that the IRT can come up with a process to let applicants know early that the chances of approval are nil to almost nil. I understand that right now the process does not really allow for that.

Thanks.

Mike

On Apr 16, 2019, at 10:24 AM, CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us> wrote:

Sounds great. I'm still waiting on Craig's answers to my questions, and I'll let you know when I hear back from him

Also, I was wondering if you were planning to comment on S-88681. In that case the use isn't allowed. The WRD is proposing to deny, but it might be good to have the ODA's written concurrence with the DEQ and WRD's finding.

From: Michael Powers <mpowers@oda.state.or.us>
Sent: Monday, April 15, 2019 3:16 PM
To: CREUTZBURG Brian <brian.creutzburg@state.or.us>
Cc: Margaret A Matter <mmatter@oda.state.or.us>
Subject: Re: R-88393 in-reservoir rice irrigation application

Hey Brian:

Just wanted to reply and let you know we're actively working on this and a few other applications.

Thanks.

Mike

On Apr 11, 2019, at 9:24 AM, CREUTZBURG Brian <brian.creutzburg@state.or.us> wrote:

Hi Michael,

I attached a draft review to this email. I think this application is especially important because it may set a precedent.

I have attached pictures that may help with your review. First, an aerial view of the fields.

Second, the language from a similar permit regarding where the water goes after it's pumped from the fields. It's notable that the permit asks for an outlet pipe (standard WRD reservoir permit language), something we may ask for them to exclude if a permit is issued in this case.

Some additional background: I spoke to Craig Kohanek a couple of days ago, and am waiting on his response to these questions:

- Flood irrigation may be a better description of the water use proposed under this application. The water user proposes to store 109.4 acre-feet of water that will cover 145 acres of land. The resulting reservoirs will therefore have an average depth of approximately 9 inches. I'm not aware of a minimum depth for reservoir applications, but would the WRD issue a permit for a reservoir that is 6 inches deep? 3 inches?
- No secondary permit has been received with this reservoir application. It is not clear that the applicant can legally use the water stored under this permit without a secondary permit (ORS 537.400). Is there a precedent for this, or an example of a permit the WRD has issued wherein an applicant has used a reservoir application to get an all-in-one storage and irrigation right?
- Rice harvest are highest when fields are under water for months at a time. Flooding also suppresses the growth of weeds. However, rice fields must be drained prior to harvest. Where is this water going to be drained to? There is no discussion of this in the application.

Regardless of the answers to the above questions, I'd be interested in getting your perspective on this. Feel free to give me a call or we can discuss this application during an IRT meeting.

Thank you, Brian

From: CREUTZBURG Brian
Sent: Monday, February 25, 2019 2:52 PM
To: 'Michael Powers' <mpowers@oda.state.or.us>
Cc: Margaret A Matter <mmatter@oda.state.or.us>
Subject: RE: upcoming in-reservoir rice irrigation application

You'll be getting our review within a week. It had been on the back burner for a while at the WRD while they waited for an updated map, etc.

There were a pair of similar applications R-88284 and S-88285 that we recommended denial on, were subsequently protested, then had permits issued about a year ago. We're trying to figure out what happened with those. Let me know if you want to discuss further.

From: Michael Powers <mpowers@oda.state.or.us>
Sent: Monday, February 25, 2019 2:22 PM
To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Cc: Margaret A Matter <mmatter@oda.state.or.us>
Subject: Re: upcoming in-reservoir rice irrigation application

Hey Brian:

Thanks for the heads up. I think this has been around a while. Where are we in the process for this one?

Mike

On Feb 25, 2019, at 1:17 PM, CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us> wrote:

Good Afternoon Mike and Margaret,

I wanted to mention an unusual review that will be coming your way soon. R-88393 is a reservoir application where the reservoirs are to be used for rice growing, something that may be better characterized as flood irrigation. The application proposes storage in reservoirs that will cover 145 acres at an average depth of 9 inches of water, for irrigation, wildlife, and recreation. From what I see on the WRD website, there isn't an associated irrigation (surface water right) application along with this reservoir application. Craig mentioned this during the IR meeting last week, to the effect that they will not be requiring a separate application to use the water, as is typically the case.

Thank you, Brian

Brian Creutzburg
Integrated Water Resources Specialist
Water Quality, Northwest Region
Oregon Department of Environmental Quality
700 NE Multnomah Street
Portland, OR 97232
Office: (503)229-6819

From: CREUTZBURG Brian
Sent: Thursday, May 23, 2019 10:10 AM
To: 'MUCKEN Alyssa M * WRD'
Cc: KOHANEK Ron C * WRD
Subject: RE: R-88393 Rice Farming

Thank you very much for passing this along! Yes, Friday of next week will be the last day I'll be working on these full time. It's been a pleasure working with both of you and reconnecting with some of my former colleagues at the WRD.

Shifting gears to this application, I read the memo, and if we agree with the reasoning therein, it's clear to us (the DEQ) that a secondary permit is needed.

From the memo: "A secondary water use permit is required if water other than rainfall is used to maintain the rice paddy."

From the application question # 2, asking how the reservoir will be filled: "Rain water and diversions from creeks and ditches."

Let me know if the WRD views this differently.

Thinking way back to how my review of this application became drawn out—my original question to Elizabeth was to locate the secondary application so that I could process it together with the reservoir permit.

Regarding the water quality part: I think that the answer to your question (below) is the only other information we would need to proceed with our review.

Thanks again for your help with this! Brian

From: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>
Sent: Thursday, May 23, 2019 8:24 AM
To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Cc: KOHANEK Ron C * WRD <Ron.C.KohaneK@oregon.gov>
Subject: RE: R-88393 Rice Farming

Thanks for letting me know about these. Attached is the rice paddy memo I mentioned on the phone. I'm going to ask the caseworker to contact the applicant to ask the following question that came from our Field Services Division:

I read the file and it doesn't say what they're going to do with the water when they evacuate it from the ponds. This info would be helpful in determining whether or not a secondary is required. If you/Lisa G could find out their plan and let us know, we can get back to you with an answer.

We'll pass that information along to you, assuming you're still around. You're moving on at the end of this month, correct?

Alyssa

From: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Sent: Wednesday, May 22, 2019 9:42 AM
To: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>; KOHANEK Ron C * WRD <Ron.C.KohaneK@state.or.us>
Subject: R-88393 Rice Farming

Hi Alyssa,

As I mentioned in our call earlier today, there were a couple of similar applications (a reservoir permit and secondary permit) that ended up in a contested case hearing. Those applications were R-88284 and S-88285. Those were reviews where ODFW and DEQ recommended denial, then the applications were protested. Permits were issued about a year ago.

Long story short, the permits contain language about land application of water, and not discharging from the fields. It might be the case that this is the intent of the applicant as it stands now, so some clarification on that point might move this process along toward a resolution.

Thanks for all your help! Brian

From: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>
Sent: Thursday, May 09, 2019 9:54 AM
To: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>; KOHANEK Ron C * WRD <Ron.C.KohaneK@state.or.us>
Subject: RE: Need some information from WRD for my Division 33 Review for S-88757

Hi Brian, I started working in responses to the rice paddy questions, and like some other agency Q's, it's gotten buried under other work priorities. I apologize.

I'll carve out time tomorrow to see if I can finish that up.

Alyssa

From: CREUTZBURG Brian <Brian.CREUTZBURG@state.or.us>
Sent: Thursday, May 09, 2019 9:51 AM
To: MUCKEN Alyssa M * WRD <Alyssa.M.Mucken@oregon.gov>; KOHANEK Ron C * WRD <Ron.C.KohaneK@state.or.us>
Subject: RE: Need some information from WRD for my Division 33 Review for S-88757

Thank you Alyssa,

One other thing I'd like to mention is getting answers to some questions I've talked to Craig about regarding R-88393. I have been discussing this application with ODFW and ODA. We aren't able to move forward until we understand this situation better. Here's a summary of our questions:

- Flood irrigation may be a better description of the water use proposed under this application. The water user proposes to store 109.4 acre-feet of water that will cover 145 acres of land. The resulting reservoirs will therefore have an average depth of approximately 9 inches. I'm not aware of a minimum depth for reservoir applications, but would the WRD issue a permit for a reservoir that is 6 inches deep? 3 inches?
- No secondary permit has been received with this reservoir application. It is not clear that the applicant can legally use the water stored under this permit without a secondary permit (ORS 537.400). Is there a precedent for this, or an example of a permit the WRD has issued wherein an applicant has used a reservoir application to get an all-in-one storage and irrigation right?
- Rice harvest are highest when fields are under water for months at a time. Flooding also suppresses the growth of weeds. However, rice fields must be drained prior to harvest. Where is this water going to be drained to? There is no discussion of this in the application.

As an aside, Mike Powers read this in the Capitol Press regarding re-use of the water from the rice fields:

In addition to planting hazelnuts on ground that was previously used to grow grass seed, the Langdons have also diversified into growing wild rice. That decision was made because, accordingly to the Langdons, there's no other farm in their area growing the crop so there is no oversupply of it and because the same water can be used on both rice paddies and the adjacent hazelnut trees.

"You can be more efficient with your water," John Langdon said.

Here's the link:

https://www.capitalpress.com/specialsections/orchard/hazelnut-conversion-couldn-t-happen-too-soon/article_8f495926-3497-11e9-8e32-87ec569c64e8.html

Thanks again, Brian

Brian Creutzburg
Integrated Water Resources Specialist
Water Quality, Northwest Region
Oregon Department of Environmental Quality
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Portland, OR 97232
Office: (503)229-6819
Email: creutzburg.brian@deq.state.or.us

DEQ review prepared by: Brian Creutzburg	Date complete: 10/21/2019

ODA Review Request

ODA review requested: ☐ No ☒ Yes	Date review sent to ODA: 10/21/2019
ODA reviewer: Paul Measeles	ODA review date: 10/25/2019
ODA comments ☒ No ☐ N/A ☐ Yes	
From Paul Measeles email: I'm fine with the way this is written. No more relevant comments on my end...	

Antidegradation Policy:

The purpose of DEQ's Antidegradation Policy (OAR 340-041-0004(1)) is to guide decisions that affect water quality to prevent unnecessary further degradation from new or increased point and nonpoint sources of pollution, and to protect, maintain, and enhance existing surface water quality to ensure the full protection of all existing beneficial uses. Oregon's Antidegradation Policy allows exemptions and conditions for new or increased water use.

1. Temporary Use or Net Benefit

Does the applicant propose a temporary use in response to an emergency, a restoration activity that the DEQ has determined provides a net ecological benefit, or a temporary (lasting less than six months) use to protect human health and welfare, for which the applicant has demonstrated that they will minimize adverse effects to threatened and endangered species? ☒ No ☐ Yes

If yes, recommend approval of the application and identify conditions necessary to protect water quality for the habitat of ST&E fish species. You may skip to Question 7.

2. Outstanding Resource Water

Does the applicant propose withdrawing directly from an **Outstanding Resource Water** with critical habitat for ST&E fish species? ☒ No ☐ Yes

If yes, then prior to permit issuance, the applicant must provide suitable flow mitigation. You may skip to question 7.

3. Water Quality Limited

Is this source **Water Quality Limited** or a tributary to a water quality limited water body? Note: limit downstream review to 6th field HUC for parameters that diminished flow can affect (temperature, dissolved oxygen, pH, etc.). ☐ No ☒ Yes

Integrated Report 303(d) List Summary Table

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status
Little Muddy Creek	0 to 12.2	Temperature	Year Round (Non-spawning)	Salmon and trout rearing and migration: 18.0 degrees Celsius 7-day-average maximum	Salmon and trout rearing and migration	Cat 4A: Water quality limited, TMDL approved
Little Muddy Creek	0 to 12.2	Biological Criteria	Year Round	Biocriteria: Waters of the state must be of sufficient quality to support aquatic	Aquatic life	Cat 5: Water quality limited,

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status
				species without detrimental changes in the resident biological communities.		303(d) list, TMDL needed
Muddy Creek	0 to 56.1	Iron	Year Round	Table 20 Toxic Substances	Resident fish and aquatic life; Anadromous fish passage; Drinking water; Aquatic life; Human health	Cat 3B: Insufficient data, potential concern
Muddy Creek	0 to 56.1	Manganese	Year Round	Table 20 Toxic Substances	Resident fish and aquatic life; Anadromous fish passage; Drinking water; Human health	Cat 3B: Insufficient data, potential concern
Muddy Creek	0 to 33.4	Temperature	Year Round (Non-spawning)	Salmon and trout rearing and migration: 18.0 degrees Celsius 7-day-average maximum	Salmon and trout rearing and migration	Cat 4A: Water quality limited, TMDL approved
Muddy Creek	0 to 56.2	Biological Criteria	Year Round	Biocriteria: Waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.	Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed
Muddy Creek	0 to 33.4	Biological Criteria	Year Round	Biocriteria: Waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.	Aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed
Willamette River	0 to 186.6	Mercury	Year Round	Table 40 Human Health Criteria for Toxic Pollutants	Human health	Cat 5: Water quality limited, 303(d) list, TMDL needed
Willamette River	0 to 24.8	Biological Criteria	Year Round	Biocriteria: Waters of the state must be of sufficient quality to support aquatic species without detrimental changes in the resident	Resident fish and aquatic life	Cat 5: Water quality limited, 303(d) list, TMDL needed

Water Body (Stream/Lake)	River Miles	Parameter	Season	Criteria	Beneficial Uses	Status
				biological communities.		
Willamette River	0 to 186.6	Alkalinity	Year Round	Table 20 Toxic Substances	Aquatic life	Cat 3B: Insufficient data, potential concern
Willamette River	0 to 186.5	Phosphate Phosphorus	Summer	Total phosphates as phosphorus (P): Benchmark 50 ug/L in streams to control excessive aquatic growths	Aquatic life	Cat 3B: Insufficient data, potential concern
Willamette River	0 to 50.6	Temperature	Year Round (Non-spawning)	Salmon and steelhead migration corridors: 20.0 degrees Celsius 7-day-average maximum	Salmon and steelhead migration corridor	Cat 4A: Water quality limited, TMDL approved
Willamette River	0 to 186.4	E. Coli	FallWinterSpring	30-day log mean of 126 E. coli organisms per 100 ml; no single sample > 406 organisms per 100 ml	Water contact recreation	Cat 4A: Water quality limited, TMDL approved
Willamette River	0 to 186.6	Alkalinity	Year Round	Table 20 Toxic Substances	Aquatic life	Cat 3B: Insufficient data, potential concern

Analysis: Streamflow rates are known to strongly influence temperature, bacteria and hydrogen ion (measured as pH) concentrations. When streamflow rates are lowered, the remaining flow will have a lower heat capacity. Oxygen is less readily dissolved in warm water, and cooler water tends to have higher amounts of dissolved oxygen. Species that are adapted to cold water environments tend to require higher levels of dissolved oxygen. High water temperatures combined with low dissolved oxygen concentrations are among the strongest stressors to aquatic life. Temperature and dissolved oxygen impairments will be exacerbated by any stream-flow reduction associated with the proposed withdrawal. The capacity of a waterway to assimilate pollution is also flow dependent. In summary, reduced flows can harm or stress stream biota, increase the concentrations of bacteria, and extirpate cold-adapted species from areas where they have occurred historically.

Recommended Conditions: **Water Quality, Agricultural Water Quality Management Area Rules, Limit Rate, Limit Period of Use, Off-Channel Stored Water Releases, Live Flow**

4. Total Maximum Daily Load Summary

Are there TMDLs established for parameters identified as being affected by flow modification? ☐ No ☒ Yes

Analysis: Willamette Basin TMDL. Relevant chapters include Chapter 2: Willamette Basin Bacteria TMDL; Chapter 3: Willamette Basin Mercury TMDL; Chapter 4: Temperature-Mainstem TMDL and Subbasin Summary; Chapter 10: Upper Willamette Subbasin TMDL.

The Temperature-Mainstem TMDL for the Willamette extends from the confluence of the Coast Fork Willamette and Middle Fork Willamette Rivers, which join to form the mainstem Willamette, downstream to the Columbia River. These TMDLs include all surface waters that affect the temperatures of 303(d) listed water bodies because stream temperature is affected by heat loads from upstream as well as local sources. Water quality standards include designation of beneficial uses of water, numeric and narrative criteria for individual parameters to protect those uses, and antidegradation policies to protect overall water quality. Implementing the TMDL is intended to achieve compliance with water quality standards.

Waters of the Upper Willamette Mainstem are warmer than is necessary to protect salmonid rearing and spawning. Lack of riparian vegetation and impacts from dams and water withdrawals are major contributors to high stream temperatures. Temperature data have been collected by local, state and federal agencies throughout the Willamette Basin. Approximately 1,200 miles of stream in the Willamette Basin are included on the 303(d) list of impaired waters because of temperature concerns.

The mainstem Willamette River from its confluence with the Columbia River mouth upstream to approximately the City of Newberg (RM 0 to RM 50) has been designated as a salmon and steelhead migration corridor. The numeric temperature criteria for this use is 20°C (68°F) and applies throughout the year. In addition, narrative criteria for the migration use calls for cold water refugia that are sufficiently distributed so that salmon and steelhead migration can occur without significant adverse effects from higher water temperatures elsewhere in the river.

Muddy Creek is listed on the 303(d) list for exceeding the water temperature criteria during the summer season. The temperature criterion for salmon and trout rearing and migration is 18.0 °C. Numeric and narrative water quality criteria are applied to protect the most sensitive beneficial uses. The most sensitive beneficial uses to temperature in the Upper Willamette Subbasin are:

- Resident fish and aquatic life
- Salmonid spawning, rearing and migration
- Anadromous fish passage

At a minimum, beneficial uses are considered attainable wherever feasible or wherever attained historically. The waterbody's beneficial use for salmonid spawning, rearing, and migration were based on new fish use designations established by the Oregon Department of Fish and Wildlife.

Riparian vegetation, stream morphology, hydrology (including groundwater interactions), climate, and geographic location influence stream temperature. While climate and geographic location are outside of human control, riparian condition, channel morphology and hydrology are affected by land use activities.

Bacteria problems have been identified (i.e., streams placed on the 303(d) list of water quality impaired waterbodies) in the urbanized and agricultural portions of the Willamette Basin. People can become sick if they ingest water that is contaminated with bacteria when they are swimming, recreating or in contact with the water. Bacteria are typically carried into streams and rivers as part of stormwater runoff in agricultural areas. The Willamette River has fish consumption advisories due to elevated levels of mercury found in some fish species. General sources include air deposition and erosion of soils that contain mercury from natural and anthropogenic sources.

Recommended Conditions: Water Quality, Agricultural Water Quality Management Area Rules, Limit Rate, Limit Period of Use, Off-Channel Stored Water Releases, Live Flow

5. Cumulative Withdrawals Effects

Is it likely that the proposed activity, together with existing withdrawals in the OWRD's Water Availability Basin (WAB), will lower water quality and impair aquatic life? ☐ No ☒ Yes

Water Availability Summary Table

Percent of natural flow = (consumptive use/natural stream flow)*100. See Appendix for additional instructions.

[Water Availability Basin]: MUDDY CR > MARYS R - AB EVERGREEN CR

Watershed ID	Exceedance Level	Month	Natural Stream Flow	Consumptive Use	Expected Stream Flow	Instream Requirement	Net Water Available	Percent of Flow
30200320	50	JAN	388	3.39	385	0	385	0.9
30200320	50	FEB	340	3.06	337	0	337	0.9
30200320	50	MAR	286	2.72	283	0	283	1.0
30200320	50	APR	170	1.93	168	0	168	1.1
30200320	50	MAY	69.6	4.71	64.9	0	64.9	6.8
30200320	50	JUN	34.5	8.27	26.2	0	26.2	24.0
30200320	50	JUL	21.2	13.8	7.43	0	7.43	65.1
30200320	50	AUG	9.7	11.1	-1.37	0	-1.37	114.4
30200320	50	SEP	7.9	5.76	2.14	0	2.14	72.9
30200320	50	OCT	11.7	0.943	10.8	0	10.8	8.1
30200320	50	NOV	59.3	1.1	58.2	0	58.2	1.9
30200320	50	DEC	352	3.15	349	0	349	0.9
30200320	50	ANN	388	3.39	385	0	385	0.9

Monthly flow in Cubic Feet per Second (CFS). Annual flow in Acre Feet (AF). Highlight months that exceed 20% of percent of flow.

6. Flow Modification Compliance with State and Federal Water Quality Standards

Based on responses to questions 3, 4, and 5, is the use in compliance with state and federal water quality standards or can compliance with state and federal water quality standards be assured, and ST&E habitat loss prevented by limiting the amount diverted, period of use, or by imposing permit condition(s)?

☐ No ☒ Yes

- If yes:

Recommended Conditions: **Water Quality, Agricultural Water Quality Management Area Rules, Limit Rate, Limit Period of Use, Off-Channel Stored Water Releases, Live Flow**

- If no, can **flow mitigation** ensure compliance with state and federal water quality standards and prevent loss of ST&E habitat? ☐ No ☐ Yes

7. Compliance with other State and Federal Water Quality Standards

ORS 468B.025 prohibits pollution of waters of the state. Are there additional water quality impairments that would result from this proposed used by degrading surface water or groundwater quality?

☐ No ☒ Yes

If water quality can be protected by applying permit conditions, then select all appropriate conditions from the standardized menu of conditions.

Recommended conditions: **Water Quality, Agricultural Water Quality Management Area Rules, Limit Rate, Limit Period of Use, Off-Channel Stored Water Releases, Live Flow**

PRE-PROPOSED FINAL ORDER ACTIONS

DEQ recommends that the applicant provide suitable replacement water as mitigation for anticipated impacts to water quality and more specifically the habitat of sensitive, threatened, and endangered fish species. Additional mitigation may be required from other Interagency Review Team members (for example: OWRD may require mitigation for periods when water is not available). Surface water flow mitigation is unlikely to provide the same benefit that groundwater can provide to gaining stream reaches. However, if groundwater mitigation is unavailable within the same aquifer, surface water mitigation may provide suitable mitigation.

Flow Mitigation Obligation:

Prior to issuance of a Proposed Final Order, the applicant shall submit a mitigation proposal that is of no less volume and rate than the permitted use. The proposal shall include water that is sourced upstream of the point of diversion or appropriation, or the uppermost point on the stream at which the potential for surface water interference occurs. If a surface water right is used for mitigation, it shall be instream for the *month - month time period* and of similar water quality. The applicant should contact their OWRD caseworker to discuss flow mitigation options.

Riparian: If the riparian area is disturbed in the process of developing, modifying or repairing a point of diversion under this water use permit, the permittee shall be responsible for restoration and enhancement of such riparian area in accordance with the Oregon Department of Fish and Wildlife's Habitat Mitigation Policy described in Oregon Administrative Rule OAR Chapter 635-415. Prior to development, modification or repairs at the point of diversion, the permittee shall submit, to the Oregon Water Resources Department, either a Riparian Mitigation Plan approved in writing by Oregon Department of Fish and Wildlife (ODFW) or a written declaration from ODFW that riparian mitigation is not necessary. The permittee shall maintain the riparian area for the life of the permit and subsequent certificate per the approved Riparian Mitigation Plan. The permittee is hereby directed to contact the local Oregon Department of Fish and Wildlife Fish Biologist prior to development of the point of diversion.

Water Storage Construction: The applicant shall locate the reservoir outside of the stream's natural channel. *identify waterbody and set back to prevent stream capture and justification for distance selected.*

(Note to reviewer: The 1200C permit requires a 50-foot setback, which is cited from the National General Construction Permit OAR-660-023-0090(5). Requiring the storage reservoir to be outside of the mapped 100 year floodway may also be a protective buffer.)

STANDARIZED MENU OF CONDITIONS

Water Quality: All water use under this permit shall comply with state and federal water quality laws. The permittee shall not violate any state and federal water quality standards, shall not cause pollution of any waters of the state, and shall not place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means. The use may be restricted if the quality of source stream or downstream waters decrease to the point that those waters no longer meet existing state or federal water quality standards.

Agricultural Water Quality Management Area Rules: The permittee shall comply with basin-specific Agricultural Water Quality Management Area Rules described in Oregon Administrative Rule Chapter 603-095. The permittee shall protect riparian areas, including through irrigation practices and the management of any livestock, allowing site capable vegetation to establish and grow along streams, while providing the following functions: shade (on perennial and some intermittent streams), bank stability, and infiltration or filtration of overland runoff.

Flow Restrictor: The permittee shall install a flow control valve on the diversion system to limit use to the permitted rate. The valve shall be in place, functional, and verified by the Certified Water Rights Examiner before a certificate is issued. The valve or a suitable replacement shall remain in place for the life of the water right.

Limit Rate: Water withdrawal shall be limited to *Enter CFS or AF for the defined period, or a month by month rate or volume.*

Limit Period of Use: Water use shall be limited to the period: *start date through end date.*

(Note to reviewer: Do not split the irrigation season. Require mitigation if water is not available during the requested time period.)

Limit Diversion: The permittee shall not divert water under this water use permit unless streamflow in the *waterbody name* is at or above *CFS* cubic foot per second, as determined at Gaging Station ID .

Off-Channel Stored Water Releases: The permittee shall not release polluted water from this off-channel reservoir into waters of the state except when the release is directed by the State Engineer to prevent dam failure.

On-Channel Reservoir: The permittee shall design and operate the water storage facility such that all waters within and below the reservoir meet water quality criteria. The permittee shall develop a reservoir operations plan that details how water quality criteria and standards will be met. A Certified Water Rights Examiner shall verify that the reservoir operations are consistent with the plan before a certificate is issued. The reservoir operator shall maintain a copy of the plan and make it available for review upon request.

Restrict Reservoir Release: To prevent pollution downstream, the permittee shall not release water from the reservoir when the flow at Gaging Station ID (*gage name*) is below the Mean Daily Discharge of *CFS* (discharge which was equaled or exceeded for 90% percent of the time) except when the release is directed by the State Engineer to prevent dam failure.

Live Flow: Once the allocated volume has been stored, permittee shall pass all live flow downstream at a rate equal to inflow, using methods that protect instream water quality.

Lining: The permittee shall line the reservoir with *include material or allowable infiltration rate* to minimize seepage and protect groundwater quality per Oregon Administrative Rule 340-040. The liner is to be in place, inspected, and approved by the Certified Water Rights examiner prior to storage of water.* If the liner fails, the water user shall replace it within one calendar year.

Site-Specific Condition: The permittee shall

* OAR 690-410-0010(2)(a), OAR 690-310-0120, OAR 690-310-0140

Appendix: General Overview, Instructions for Water Availability Analysis, and Process Flow Chart

General Overview

The purpose of OAR Chapter 690, Division 33 is to aid the Oregon Water Resources Department (OWRD) in determining whether a proposed use will impair or be detrimental to the public interest with regard to listed sensitive, threatened, or endangered (ST&E) fish species. Oregon's stream temperature, dissolved oxygen (DO), pH and several other water quality standards are based on the life cycle needs of salmonids and other resident fish and aquatic life. Exceeding the standards can disrupt the life cycle of a ST&E fish species and may cause death. In addition, OWRD must consider water quality impacts as part of a public interest review, OAR 690-310-0120. Water quality impacts and conditions unrelated to ST&E species should be noted as "Division 310" in the recommendations to OWRD. The DEQ's Water Right Application Review Procedures document contains a full description of the review process.

The two main categories of Division 33 reviews are based on the geographic distribution of ST&E fish species:

- **For Proposed Uses in the Columbia River Basin**, reviews must determine whether a proposed use complies with existing state and federal water quality standards. Upper Columbia applications specifically require applicants to provide evidence that the proposed use complies with existing state and federal water quality standards. Geographic scope: Columbia River Basin (includes all waters that ultimately drain into the Columbia River).
- **For Proposed Uses Statewide**, review is conducted under the "Statewide review" procedure. Statewide reviews must determine whether a proposed use may affect ST&E fish species habitat. The statewide review procedure is intended to identify permit conditions that can prevent the "loss" or "net loss" of essential habitat of ST&E fish species. When permit conditions cannot be identified that meet this standard, then the DEQ recommends denial of the permit. Geographic scope: all areas outside the Columbia River Basin where OWRD determines ST&E fish species are present.

Instructions for Populating the Water Availability Summary Table using data from OWRD's WAB (Section 5)

- Open OWRD's Water Availability Reporting System.
- Search for the water availability basin of interest. Select 50% exceedance. The 50% exceedance stream flow is the stream flow that occurs at least half of the time.
- The water availability analysis will display a nested list of watersheds that contain the POD. Select the highest nesting order WAB that contains the POD.
- Download to an Excel spreadsheet. Percent of flow is calculated using this equation:

$$\text{Percent of Flow} = \frac{\text{Consumptive Use}}{\text{Natural Stream Flow}} * 100$$

You may choose to add the proposed rate (or storage amount) to the consumptive use.

Instructions for Water Availability Analysis

To complete Section 6, review and consider the cumulative impact of consumptive withdrawals using the **OWRD WAB**. All water withdrawals and the following factors should be considered when conducting a water availability analysis.

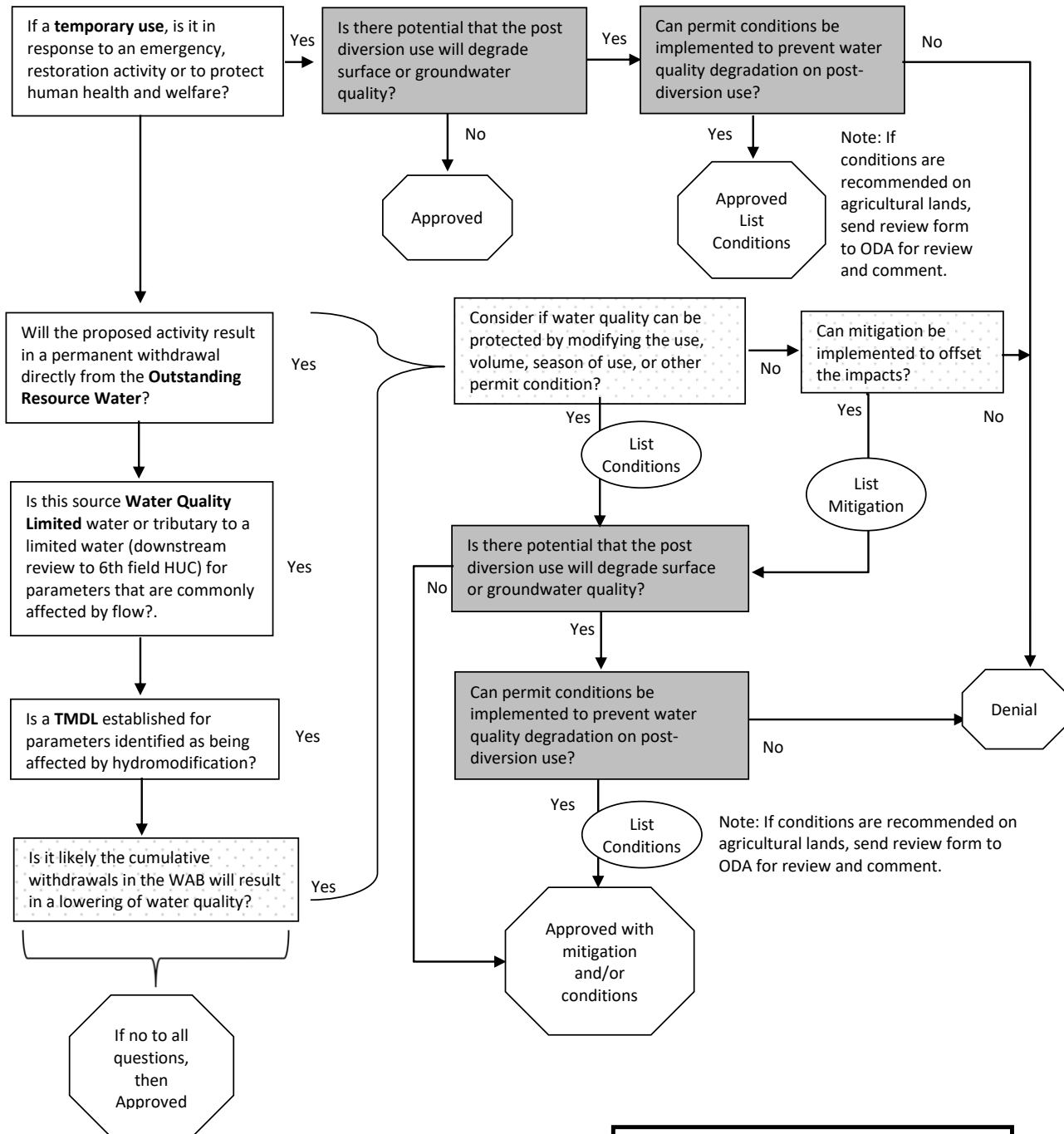
- **Instream Flow**: Consider the percent of natural flow left instream in each month (see right-most column in Table 1). Based on best professional judgment, evaluate if the cumulative withdrawal is likely to cause

impairment to aquatic life or water quality. Water quality standards are established to protect aquatic life. In scientific literature, researchers have identified ecological harm occurring when flows are reduced by [>6-35% of daily flow](#)¹. Consider the seasonality of any listings and season of withdrawal to determine impact for each month of the year.

- **Antidegradation:** Rule 340-041-0004 applies: withdrawals cannot cumulatively increase a waterbody's temperature by more than 0.5 degrees Fahrenheit or cause a 0.1 mg/l decrease in dissolved oxygen from the upstream end of a stream reach to the downstream end of the reach so long as it has no adverse effects on threatened and endangered species. See OAR [340-041-0004\(3\)-\(5\)](#) for a description in rule of activities that do not result in lowering of water quality.
- **Flow modification:** Consider if cumulative withdrawals are contributing to flow modification and a likely limiting factor in the waterbody at certain times of the year. Temperature and dissolved oxygen are flow-related parameters. When streamflow is reduced, assimilative capacity is reduced. As a waterbody heats up, dissolved oxygen concentrations decline. Reduced stream flows (including groundwater inputs to streamflow), exacerbate temperature and/or dissolved oxygen impairments.
- **Temperature:** Increases in temperature or a reduction in dissolved oxygen adversely impacts ST&E fish. Fish require different temperature and concentrations of dissolved oxygen based on species and life history stage. Oregon's temperature and dissolved oxygen limits are based on the most sensitive species and the life history stage of those species at the location and season of concern. Additional heat or reduction in dissolved oxygen concentrations will further impact these species habitat. Reduced flows can also increase the concentrations of phosphorous, bacteria, pesticides and metals.

¹ Richter BD, Davis MM, Apse C, Konrad C. 2011. *Short Communication, A Presumptive Standard For Environmental Flow Protection*. River Research and Applications. Published online in Wiley Online Library (wileyonlinelibrary.com), DOI: 10.002/rra.1551

DEQ Water Right Review Flow Chart



Each yes will need to be explained by how the use does not comply with existing state and federal water quality standards and how the use may affect sensitive, threatened or endangered fish species habitat.

Note: Review based on DEQ's anti-degradation rule (340-041-0004).