Small-Scale Water Supply Allocation Process
Willamette River Basin

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Portland District, U.S. Army Corps of Engineers
and
Oregon Water Resources Department

US Army Corps of Engineers ®
Portland District

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PURPOSE

The U.S. Army Corps of Engineers (Corps) operates a system of 13 dams and reservoirs in Oregon's Willamette River Basin that provide many benefits to the region and Nation. The purpose of this report is to document the processes necessary for a small-scale preliminary allocation of up to 499 acre-feet of reservoir (conservation) storage for municipal and industrial (M&I) water uses. This report addresses the current status of the technical and policy issues associated with the use of this conservation storage for meeting short- and long-term M&I water supply needs in the Willamette Basin. The resulting small-scale preliminary allocation would be used to assist the Corps, Oregon Water Resources Department (WRD), Bureau of Reclamation, League of Oregon Cities, special districts, and others in making decisions on how to move forward to address future M&I water supply needs. In addition, water providers purchasing storage to help meet their M&I water supply needs will benefit the Nation by returning revenues to the U.S. Treasury.

Although the Willamette Basin covers less than 14% of the state's total land mass, more than 70% of Oregon's residents reside in it. It is the heart of the state's economy. The Willamette River and its tributaries make it possible to support today's population, high levels of agricultural productivity, and a healthy natural environment. Water is the key to sustaining cities and reliable jobs. Water for irrigation enhances the principal role that agriculture plays in Oregon's economy and keeps farming as a feasible vocation for future generations. Fish, vegetation, and wildlife require adequate, clean water to support all aspects of their natural life cycle. In communities near the reservoirs, recreational uses are an important contribution to local economies. Because water is so important to every resident of the basin, and to other residents in Oregon who rely on a strong economy in the Willamette Valley, the stewardship of its water resources is critical to Oregon's future.

The thirteen federal projects in the middle and upper Willamette Basin were authorized for construction beginning in the late 1930s. Of the thirteen projects, two are re-regulation projects which do not provide significant storage. With a combined summer conservation storage capacity of about 1.6 million acre-feet, the Willamette Project provides important benefits for flood damage reduction, navigation, hydropower, irrigation, water supply, flow augmentation for pollution abatement and improved fishery conditions, and recreation. Of the 1.6 million acre-feet of conservation storage, 80,000 acre-feet of water is currently contracted through Reclamation for irrigation (Corps 2007). About 536,700 acre-feet is used during an average conservation season to maintain minimum reservoir releases and summer flows on the mainstem at Albany and Salem. Annual visitation to the reservoirs includes 3.6 million recreation visits to Corps-managed areas, in addition to an estimated 700,000 visits to areas managed by the Forest Service, areas managed by the state of Oregon (including Detroit State Park), and to county parks located on the reservoirs (Corps 2000), which benefits the economy in many nearby communities. Population growth, increasing development, expanding irrigation, and the listing of Upper Willamette River Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*O. mykiss*), Oregon chub (*O. crameri*) and bull trout (*Salvelinus confluentus*) under the Endangered Species Act (ESA) are placing new demands on the Willamette reservoirs and could affect project operations.

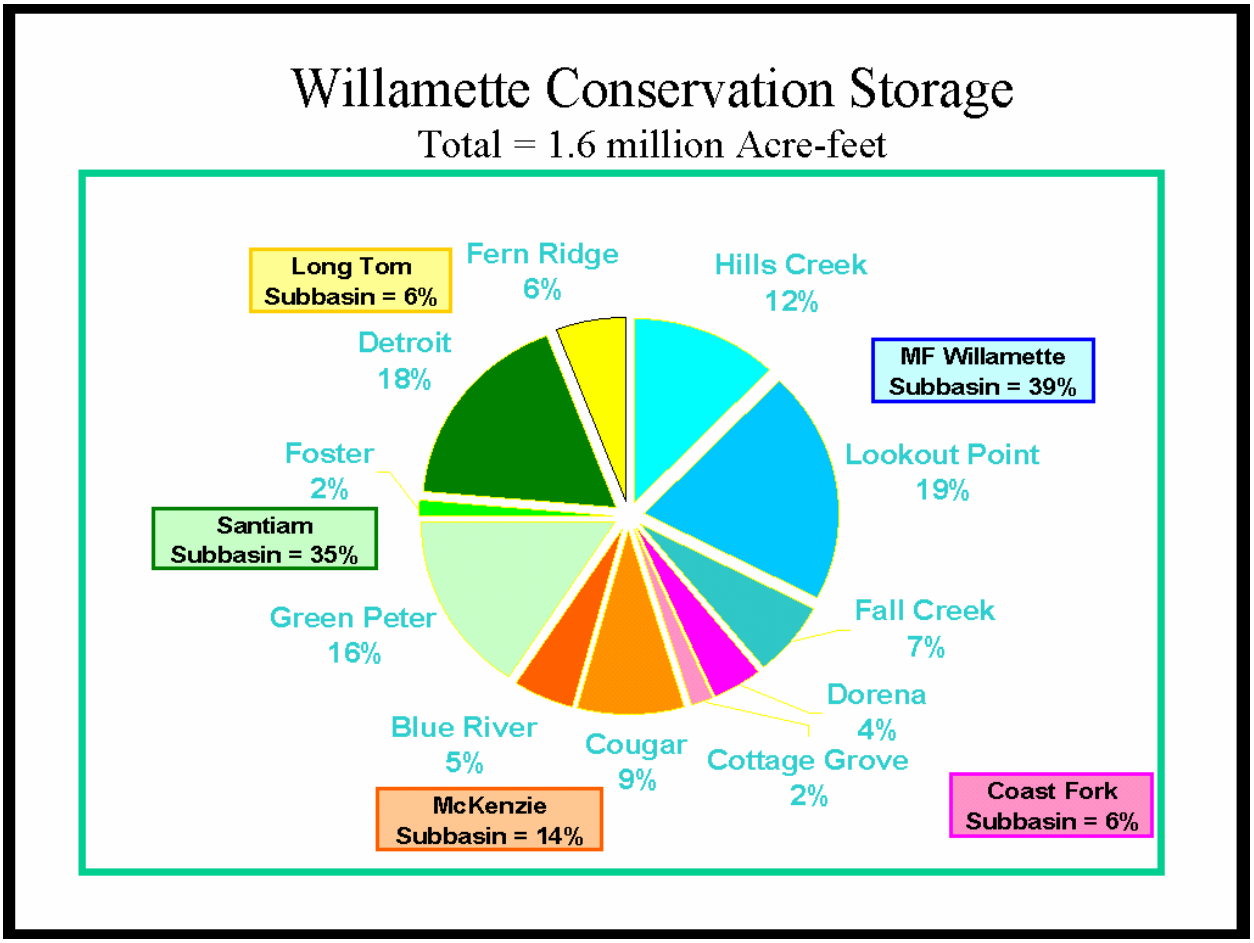
The Willamette River Basin

BACKGROUND

Willamette Valley Project

The Willamette Valley Project was authorized by the Flood Control Acts of 1938, 1950, and 1960. The 1938 Act led to the construction of Fern Ridge, Dorena, Cottage Grove, Detroit and Lookout Point dams. The 1950 Act greatly expanded the Willamette Project both in the number of projects and scope, with the Willamette Basin the subject of Volume 5 of the 8-volume Columbia River Basin-wide authorization document (House Document 531). The 1950 Act reauthorized the earlier dams, including Green Peter that had not been started, and added the following dams: Big Cliff Dam on the North Santiam River, Cougar and Blue River dams on the McKenzie River, Hills Creek and Dexter dams on the Middle Fork Willamette River, and Fall Creek Dam on Fall Creek. The 1950 Act also authorized four other dams that were never built: Cascadia on the South Fork of the Santiam River, Holley on the Calapooia River, and Gate Creek and Strube (re-regulating dam for Cougar) on the McKenzie River.

The 1960 Flood Control Act substituted a larger Foster Dam for two dams on the Middle Fork Willamette and South Santiam rivers. The Water Resources Development Act of 1990 added environmental protection as a primary purpose at all Corps water resource projects. The Cougar temperature control tower was authorized by the Water Resources Development Act of 1996 and was reauthorized in the Water Resources Act of 1999. Although there are multiple project authorities pertaining to development of the Willamette Project, House Document 531 remains the overall guiding legislation and provides the basic authorization for balancing operations of the system to meet authorized purposes.



North Santiam Subbasin

Detroit and Big Cliff dams were constructed on the North Santiam River. Detroit Dam, near the community of Detroit, is a multi-purpose storage project that operates to meet the authorized purposes. The dam is 450-feet high and situated in the steep, rocky slopes of North Santiam Canyon. The dam is a concrete gravity structure with a gated spillway containing six spillbays and four regulating outlets. The powerhouse has two generating units that produce a total of 100 megawatts (MW) of power. Detroit Lake is popular for water-related recreation activities in summer. Pertinent project information is shown in Table 1. Big Cliff is a re-regulating dam with a small reservoir located nearly 3 miles downstream from Detroit Dam. Big Cliff is used to smooth out the power generation water releases from Detroit Dam and to control downstream river level fluctuations. The volumes held in the pool are not available for contracts. Big Cliff has a 172-feet high concrete dam and the powerhouse has one 18 MW generating unit. Pertinent project information is shown in Table 2.

Table 1. Detroit Project Pertinent Information

Date Completed	1953
Stream	North Santiam River
River Mile	60.9 (from Santiam mouth)
Drainage Area (square miles)	438
Dam Height (feet)	450
Dam Crest MSL	1,579.0
Maximum Pool	1574.0 feet (472,600 acre-feet)
Full Pool	1569.0 feet (455,100 acre-feet)
Maximum Conservation Pool	1563.5 feet (436,000 acre-feet)
Spillway Crest	1541.0 feet (363,200 acre-feet)
Minimum Conservation Pool	1450.0 feet (154,400 acre-feet)
Minimum Power Pool	1425.0 feet (115,000 acre-feet)
Turbines	Two 50 MW Francis (4,300-5,300 cfs combined hydraulic capacity)*
Spillway Gates	Six radial tainter gates (176,000 cfs combined hydraulic capacity)
Upper Regulating Outlets	Two at elevation 1340 feet (13,050 cfs combined capacity)
Lower Regulating Outlets	Two at elevation 1265 feet that are not used

* Flow rates depend on the height of the pool; Corps 2009.
Elevations listed in mean sea level.

Table 2. Big Cliff Project Pertinent Information

Date Completed	1953
Stream	North Santiam River
River Mile	58.1 (from Santiam mouth)
Drainage Area (square miles)	452
Dam Height (feet)	172
Dam Crest (elevation feet MSL)	1,212.0
Maximum Pool	1,210.0 feet (5,300 acre-feet)
Full Pool	1,205.0 feet (4,700 acre-feet)
Minimum Power Pool	1,182.0 feet (2,300 acre-feet)
Turbines	One 18 MW Kaplan (2,800-3,200 cfs hydraulic capacity)*
Spillway Gates	Three radial tainter gates (179,000 cfs combined hydraulic capacity)

* Flow rates depend on the height of the pool; Corps 2009.
Elevations listed in mean sea level.

An economic summary for North Santiam projects is shown in Table 3.

Table 3. Economic Summary, North Santiam Subbasin

Category	Specific Criteria	Current Status
Economic	Flood damage reduction*	$0 - $23.5 million
	Hydropower	299,000 MW hours generated in 2007
	Recreation	202,000 recreation visits to Detroit in 2006
	Water supply (irrigation only)	9,500 acre-feet in North Santiam River; 1,500 acre-feet d/s of confluence of North & South Santiam River

* Range is shown for 2001 and 2007 as representative range of benefits; Corps 2009.

South Santiam Subbasin

Green Peter and Foster dams were constructed in the South Santiam subbasin. Green Peter Dam is a multi-purpose storage project that operates to meet authorized purposes. Green Peter Dam is located on the Middle Santiam River and is 380 feet high. The dam is a concrete structure with a gated spillway, powerhouse, and two regulating outlets. The powerhouse has two generating units that can produce a total of 80 MW of power. Green Peter Lake is popular for water-related recreation activities in summer. Pertinent project information for Green Peter is shown in Table 4.

Table 4. Green Peter Project Pertinent Information

Date Completed	1967
River Mile/Stream	4.7 Middle Santiam River
Drainage Area (square miles)	277
Dam Height (feet)	380
Dam Crest (elevation feet MSL)	1,020.0
Maximum/Full Pool	1,015.0 feet (430,000 acre-feet)
Maximum Conservation Pool	1,010.0 feet (410,000 acre-feet)
Spillway Crest	967.8 feet (275,800 acre-feet)
Minimum Conservation Pool	922.0 feet (160,000 acre-feet)
Minimum Power Pool	901.0 feet (120,000 acre-feet)
Turbines	Two 40 MW Francis (3,600-4,400 cfs combined hydraulic capacity)*
Spillway Gates	Two radial tainter gates (110,000 cfs combined hydraulic capacity)
Regulating Outlets	Two (13,000 cfs combined hydraulic capacity)

* Flow rates depend on the height of the pool; Corps 2009.
Elevations listed in mean sea level.

Foster Dam, near the community of Sweet Home, is located on the South Santiam River just downstream from the mouth of the Middle Santiam River. Foster Dam re-regulates the flow from Green Peter Dam and also acts as a storage project. Foster Dam is a rockfill structure with a concrete-gated spillway. The powerhouse contains two generating units that can produce a total of 20 MW of power. Foster Lake is popular for water-related recreation activities in summer. Pertinent project information for Foster is provided in Table 5.

Table 5. Foster Project Pertinent Information

Date Completed	1967
River Mile/Stream	38.5 South Santiam River
Drainage Area (square miles)	494
Dam Height (feet)	126
Dam Crest (elevation feet MSL)	646.0
Full/Maximum Pool	641.0 feet (60,800 acre-feet)
Maximum Conservation Pool	637.0 feet (55,900 acre-feet)
Minimum Conservation Pool	613.0 feet (31,100 acre-feet)
Minimum Power Pool	609.0 feet (27,600 acre-feet)
Turbines	Two 10 MW Kaplan (2,700-3,400 cfs hydraulic capacity)*
Spillway Gates	Four radial tainter gates (200,000 cfs combined hydraulic capacity)

* Flow rates depend on the height of the pool; Corps 2009.
Elevations listed in mean sea level.

An economic summary for South Santiam projects is shown in Table 6.

Table 6. Economic Summary, South Santiam Subbasin

Category	Specific Criteria	Current Status
Economic	Flood damage reduction*	$0 - $40.4 million at Green Peter $0 - $16.1 million at Foster
	Hydropower	308,000 MW hours generated in 2007
	Recreation	203,000 recreation visits to Green Peter in 2006 536,000 recreation visits to Foster in 2006
	Water supply (irrigation only)	1,100 acre-feet in South Santiam River; 1,500 acre-feet d/s of confluence of North & South Santiam River.

* Range is shown for 2001 and 2007 as representative range of benefits; Corps 2009.

McKenzie River Subbasin

Cougar and Blue River dams were constructed in the McKenzie River subbasin. Cougar Dam, on the South Fork of the McKenzie River, is a multi-purpose storage project that operates to meet authorized purposes. The dam is a rockfill structure with a powerhouse and concrete spillway with two tainter gates and two slide gate regulating outlets. The dam is about 450 feet tall with top of dam at elevation 1,705 feet. A water temperature control structure began operation in May 2005. A diversion tunnel used during construction of the temperature control structure is an additional outlet but is not designed for routine use. All outflow is typically released through the powerhouse and regulating outlets. The powerhouse contains two generating units producing a total of 25 MW of power. Cougar Lake is popular for water-related recreation. Pertinent project information is shown in Table 7.

Table 7. Cougar Project Pertinent Information

Date Completed	1963
River Mile/Stream	4.4 on South Fork McKenzie River
Drainage Area (square miles)	208
Dam Height (feet)	452
Dam Crest (elevation feet MSL)	1,705.0
Maximum/Full Pool	1,699.0 feet (200,000 acre-feet)
Maximum Conservation Pool	1,690.0 feet (189,000 acre-feet)
Spillway Crest	1,656.8 feet (151,200 acre-feet)
Minimum Conservation Pool	1,532.0 feet (52,200 acre-feet)
Minimum Power Pool	1,516.0 feet (43,500 acre-feet)
Turbines	Two 12.5 MW Francis (1,200-1,860 cfs combined hydraulic capacity)*
Spillway	Two radial tainter gates (76,140 cfs combined hydraulic capacity)
Regulating Outlets	Four (12,050 cfs combined hydraulic capacity)

* Flow rates depend on the height of the pool; Corps 2009.
Elevations listed in mean sea level.

Blue River Dam is a multi-purpose storage project and has no powerhouse. The dam is a rockfill structure with a gated concrete spillway with two tainter gates, two slide gate regulating outlets, and two emergency slide gate regulating outlets. All outflow is typically released through the regulating outlets. The dam is about 270 feet tall with top of dam at elevation 1,362 feet. Blue River Lake is a popular destination for recreation. Pertinent project information is shown in Table 8.

Table 8. Blue River Project Pertinent Information

Date Completed	1968
River Mile/Stream	1.8 on Blue River
Drainage Area (square miles)	88
Dam Height (feet)	270
Dam Crest (elevation feet MSL)	1,362.0
Full/Max Pool	1,357.0 feet (89,500 acre-feet)
Maximum Conservation Pool	1,350.0 feet (82,800 acre-feet)
Spillway Crest	1,321.0 feet (58,000 acre-feet)
Minimum Conservation Pool	1,180.0 feet (4,000 acre-feet)
Spillway	Two radial tainter gates (53,220 cfs combined hydraulic capacity)
Regulating Outlets	Four (8,400 cfs combined hydraulic capacity)

Corps 2009.
Elevations listed in mean sea level.

An economic summary for McKenzie projects is shown in Table 9.

Table 9. Economic Summary, McKenzie River Subbasin

Category	Specific Criteria	Current Status
Economic	Flood damage reduction*	$0 - $42.4 million at Cougar $0 - 30.6 million at Blue River
	Hydropower	113,000 MW hours generated in 2007 at Cougar
	Recreation	134,000 recreation visits to Blue River in 2006 88,000 recreation visits to Cougar in 2006
	Water supply (irrigation only)	1,600 acre-feet in McKenzie River

* Range is shown for 2001 and 2007 as representative range of benefits; Corps 2009.

Middle Fork Willamette River Subbasin

Hills Creek, Lookout Point, Dexter, and Fall Creek dams were constructed in the Middle Fork Willamette subbasin. Hills Creek is a multi-purpose storage project that operates to meet authorized purposes. The dam is an earthfill structure with gated concrete spillway containing three tainter gates. Maximum dam height is about 300 feet with top of dam at elevation 1,548 feet. There are two slide regulating gates and two emergency regulating gates. The powerhouse has two generators that can produce a total of 30 MW. The project is operated using the generators and regulating outlets, if needed. Pertinent project information is shown in Table 10.

Table 10. Hills Creek Project Pertinent Information

Date Completed	1961
River Mile/Stream	47.8 Middle Fork Willamette River
Drainage Area (square miles)	389
Dam Height (feet)	304
Dam Crest (elevation feet MSL)	1,548.0
Maximum/Full Pool	1,543.0 feet (355,600 acre-feet)
Maximum Conservation Pool	1,541.0 feet (350,000 acre-feet)
Spillway Crest	1,495.5 feet (242,200 acre-feet)
Minimum Conservation Pool	1,448.0 feet (155,400 acre-feet)
Minimum Power Pool	1,414.0 feet (106,700 acre-feet)
Turbines	Two 15 MW Francis (1,900 cfs combined hydraulic capacity)
Spillway	Three radial tainter gates (141,000 cfs combined hydraulic capacity)
Regulating Outlets	Four (10,760 cfs combined hydraulic capacity)

Corps 2009. Elevations listed in mean sea level.

Lookout Point is a multi-purpose storage project and has three hydropower units capable of producing 50 MW each. The dam is earth and gravel-fill with a concrete-gated spillway. The spillway has five spillbays and four regulating outlets operated by tainter gates. The reservoir is heavily used for recreation. Pertinent project information is shown in Table 11. Dexter is a re-regulation project located downstream of Lookout Point and is used to control water levels created by peak hydropower generation at Lookout Point. By holding back water released from Lookout Point then releasing it slowly, Dexter regulates downstream river fluctuations. There is one hydropower unit at Dexter that produces 15 MW of power. The dam is earth and gravel-fill with a concrete gated spillway that has seven tainter gate operated spillbays. Dexter Lake is heavily used for recreation and hosts various boating events. Pertinent project information is shown in Table 12.

Table 11. Lookout Point Project Pertinent Information

Date Completed	1954
River Mile/Stream	19.9 Middle Fork Willamette River
Drainage Area (square miles)	991
Dam Height (feet)	250
Dam Crest (elevation feet MSL)	941.0
Maximum Pool	934.0 feet (477,700 acre-feet)
Full Pool	929.0 feet (456,000 acre-feet)
Maximum Conservation Pool	926.0 feet (443,000 acre-feet)
Spillway Crest	887.5 feet (293,500 acre-feet)
Minimum Conservation Pool	825.0 feet (118,800 acre-feet)
Minimum Power Pool	819.0 feet (106,600 acre-feet)
Turbines	Three 40 MW Francis (9,300 cfs combined hydraulic capacity)
Spillway	Five radial tainter gates (270,000 cfs combined hydraulic capacity)
Regulating Outlets	Four (24,424 cfs combined hydraulic capacity)

Corps 2009.
Elevations listed in mean sea level.

Table 12. Dexter Project Pertinent Information

Date Completed	1955
River Mile/Stream	16.8 Middle Fork Willamette River
Drainage Area (square miles)	996
Dam Height (feet)	95
Dam Crest (elevation feet MSL)	702.5
Maximum Pool	697.5 feet (29,700 acre-feet)
Full Pool	695.0 feet (27,300 acre-feet)
Minimum Power Pool	690.0 feet (22,500 acre-feet)
Turbines	One 15 MW Kaplan (4,200 cfs hydraulic capacity)
Spillway	Seven radial tainter gates (267,000 cfs combined hydraulic capacity)

Corps 2009.
Elevations listed in mean sea level.

Fall Creek is a multi-purpose storage project and has no powerhouse. Fall Creek dam is a rockfill structure with a gated concrete spillway with two tainter gate operated spillbays. There are two regulating outlets and a special regulating outflow structure collectively called the fish horn. The scenic lake with its 22 miles of forested shoreline provides many opportunities for outdoor recreation and is heavily used. Pertinent project information is provided in Table 13.

Table 13. Fall Creek Project Pertinent Information

Date Completed	1965
River Mile/Stream	7.9 Fall Creek
Drainage Area (square miles)	184
Dam Height (feet)	205
Dam Crest (elevation feet MSL)	839.0
Max/Full Pool	834.0 feet (125,100 acre-feet)
Maximum Conservation Pool	830.0 feet (117,800 acre-feet)
Spillway Crest	791.5 feet (60,500 acre-feet)
Minimum Conservation Pool	728.0 feet (9,600 acre-feet)
Minimum Pool	673.0 feet (0 acre-feet)
Spillway	Two radial tainter gates (82,400 cfs combined hydraulic capacity)
Regulating Outlets	Four (7,800 cfs combined hydraulic capacity)

Corps 2009. Elevations listed in mean sea level.

An economic summary for Middle Fork Willamette projects is shown in Table 14.

Table 14. Economic Summary, Middle Fork Willamette Subbasin

Category	Specific Criteria	Current Status
Economic	Flood damage reduction*	$0 - $822.1 million at Hills Creek $0 - $1,131.2 million at Lookout Point $0 -$558.8 million at Fall Creek
	Hydropower	156,000 MW hours produced at Hills Creek in 2007 437,000 MW hours produced at Lookout Point/Dexter in 2007
	Recreation	6,000 recreation visits to Hills Creek 93,000 recreation visits to Lookout Point 655,000 recreation visits to Dexter 225,000 recreation visits to Hills Creek
	Water supply (irrigation only)	240 acre-feet in the Middle Fork Subbasin

* Range is shown for 2001 and 2007 as representative range of benefits; Corps 2009.

Coast Fork Willamette and Long Tom Subbasins

Cottage Grove and Dorena dams were constructed in the Coast Fork Willamette subbasin. Cottage Grove is a small multi-purpose storage project on the Coast Fork of the Willamette River and has no powerhouse. The earthfill dam has a concrete spillway. Cottage Grove Lake is popular for water-related recreation in summer. Pertinent project information is shown in Table 15.

Table 15. Cottage Grove Project Pertinent Information

Date Completed	1942
River Mile/Stream	29.7 Coast Fork Willamette River
Drainage Area (square miles)	104
Dam Height (feet)	95
Dam Crest (elevation feet MSL)	808.0
Maximum Pool	802.6 feet (48,000 acre-feet)
Spillway Crest	791.0 feet (32,900 acre-feet)
Maximum Conservation Pool	790.0 feet (31,800 acre-feet)
Minimum Conservation Pool	750.0 feet (2,880 acre-feet)
Spillway	Uncontrolled concrete gravity, ogee (40,800 cfs hydraulic capacity)
Regulating Outlets	Three (3,860 cfs combined hydraulic capacity)

Corps 2009. Elevations listed in mean sea level.

Dorena is a multi-purpose storage project on the Row River and has no powerhouse. The dam is earthfill with a concrete spillway. The dam controls the Row River and reduces flooding downstream on the Willamette River. Dorena Lake is popular for water-related recreation in summer. Pertinent project information is shown in Table 16.

Table 16. Dorena Project Pertinent Information

Date Completed	1949
River Mile/Stream	7.5 Row River
Drainage Area (square miles)	265
Dam Height (feet)	145
Dam Crest (elevation feet MSL)	865.7
Maximum Pool	860.0 feet (131,000 acre-feet)
Full Pool/Spillway Crest	835.0 feet (77,500 acre-feet)
Maximum Conservation Pool	832.0 feet (71,900 acre-feet)
Minimum Conservation Pool	770.5 feet (7,000 acre-feet)
Spillway	Uncontrolled concrete gravity, ogee (97,500 cfs hydraulic capacity)
Regulating Outlets	Five (9,275 cfs combined hydraulic capacity)

Corps 2009. Elevations listed in mean sea level.

In the Long Tom subbasin, Fern Ridge is a multi-purpose storage project on the Long Tom River and has no powerhouse. The dam is earthfill with a gated concrete spillway. The dam controls the Long Tom River and reduces flooding downstream on the Willamette River. Fern Ridge Lake is extremely popular for water-related recreation in summer. Pertinent project information is shown in Table 17.

Table 17. Fern Ridge Project Pertinent Information

Date Completed	1941
River Mile/Stream	23.6 Long Tom River
Drainage Area (square miles)	275
Dam Height (feet)	49
Dam Crest (elevation feet MSL)	379.5 main earth embankment
Maximum/Full Pool	375.1 feet (111,400 acre-feet)
Maximum Conservation Pool	373.5 feet (97,300 acre-feet)
Minimum Flood Control Pool	353.0 feet (2,800 acre-feet)
Spillway	Six radial tainter gates (47,200 cfs combined hydraulic capacity)
Regulating Outlets	Four sliding gates, one sluice gate (8,440 cfs combined hydraulic capacity)

Corps 2009. Elevations listed in mean sea level.

An economic summary for Coast Fork and Long Tom projects is shown in Table 18.

Table 18. Economic Summary, Coast Fork and Long Tom Subbasins

Category	Specific Criteria	Current Status
Economic	Flood damage reduction*	$0 - $335.3 million at Cottage Grove $0 - 864.2 million at Dorena $0 - $47.7 million at Fern Ridge
	Hydropower	None
	Recreation	367,000 recreation visits to Cottage Grove 426,000 recreation visits to Dorena 676,000 recreation visits to Fern Ridge
	Water supply (irrigation only)	1,300 acre-feet in Coast Fork Willamette Subbasin 24,000 acre-feet in Long Tom Subbasin

* Range is shown for 2001 and 2007 as representative range of benefits; Corps 2009.

Operation of the Willamette Project

As recognized in the authorizing documents for the Willamette Project, it is the annual weather patterns in the Pacific Northwest and the runoff characteristics of the Willamette Basin that allow the system to be operated to balance the range of authorized purposes. The well-defined limits of the flood season and planned use of storage space after the flood season allows for the impoundment of spring runoff. From mid-April until the end of November, stored water is either retained in the conservation pool for recreation or is released downstream to meet other authorized purposes. Starting after Labor Day, water is released from the reservoirs to bring them back down to their minimum flood damage reduction pool elevations in order to provide storage for the winter flood season.

Seasonal regulation of each Willamette reservoir is guided by the water control diagram for each reservoir. The function of the water control diagram is to show how much storage space a reservoir should reserve for flood damage reduction at any given time of the year. There are three defined reservoir control periods in a year: flood damage reduction (winter), conservation storage (spring), and conservation holding and release (summer). The dates of these seasons vary slightly by project. The Willamette Project is operated as a system and the Corps has a high degree of operational flexibility in determining how to meet the authorized purposes. Even though water may be withdrawn directly downstream of a specific project, it is necessary to coordinate releases elsewhere in the system to meet minimum flow requirements at Albany and Salem.

Since the 1999 ESA-listing of spring Chinook salmon and winter steelhead, the Corps has worked with other federal and state resource management agencies to develop a flow management strategy for the Willamette Basin. This strategy established a framework for meeting mainstem Willamette River flow objectives as recommended by the National Marine Fisheries Service and the Oregon Department of Fish

and Wildlife based on the mid-May system-wide storage forecast and makes adjustments based on ambient hydrologic conditions. This collaboration has been tested under periods of extreme dryness (2001) and ample rainfall (2006.) It has provided the basis for building consensus among the federal and state agencies concerning a balanced flow management approach that effectively meets certain authorized uses while improving juvenile and adult salmon and steelhead migration and survival.

The most significant adaptation to reservoir system operations has been the adoption of spring mainstem flow targets. Since 2000, mainstem Willamette Basin flows have been substantially higher during the spring migration periods for juvenile and adult spring Chinook salmon and winter steelhead. In addition, tributary specific flow and storage conditions important to local populations of spring Chinook salmon, winter steelhead, and Oregon chub have been closely monitored and adjusted, when necessary. These flow objectives also preserve the ability to meet other authorized and necessary uses, such as maintaining acceptable water quality conditions, generating hydropower, and providing flood damage reduction. While it is not possible to achieve all flow objectives in every month of every year because of natural limitations in the availability of water and reservoir storage, the intent is to make every effort to meet or exceed the flow objectives taking into consideration flood damage reduction, human safety, and water quality. Additional information concerning Willamette Project operations and flow management can be found in the Supplemental Biological Assessment (Corps 2007).

Figure 1 below is a simplistic view of the Willamette Valley Project, showing the dams and control points. The control points are for flood reduction targets, though the points at Salem and Albany are also the locations for mainstem flow targets described above. Tributary flow targets described above are measured below the dam. Figure 2 below shows how the stored water contained within the conservation pools in each reservoir is used to meet multiple purposes, specifically fish and wildlife (flow targets described above) and irrigation.

Figure 1. Willamette Valley Project Schematic

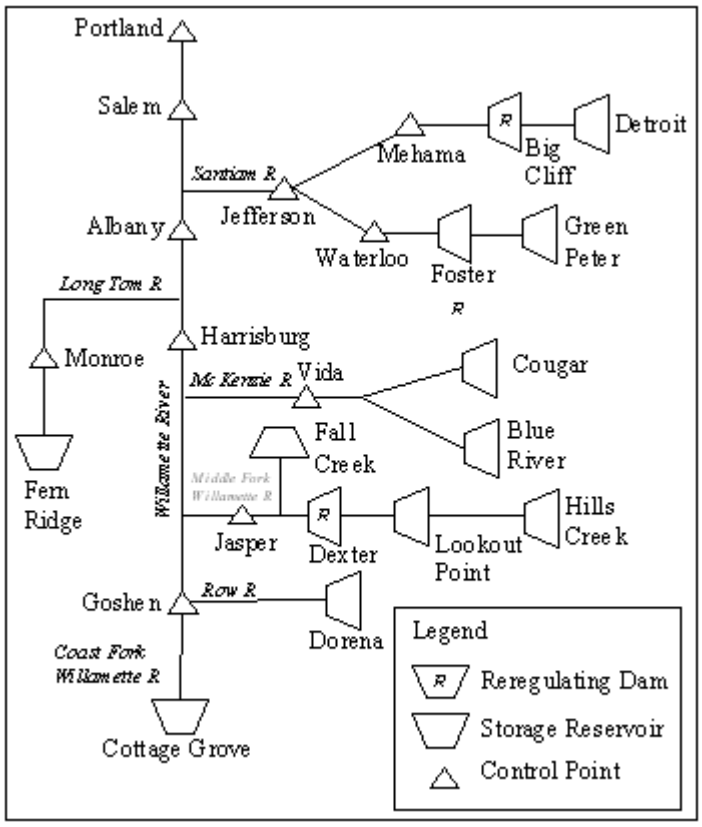


Figure 2. Use of Stored Water from Conservation Storage in the Willamette Valley Project

Reach	Reservoir	Total Conservation Storage Volume	Cumulative Conservation Storage	Irrigation Contracts [a]	Cumulative Irrigation Contracts acre-feet [b]	Flow Augmentation [c]	Cumulative Flow Augmentation [d]	M&I Contracts	Balance [e]	Unaccounted Storage (%) [f]
Coast Fork Willamette										
Row River - Cottage Grove	Cottage Grove	30,000		56	56	3,200				
Row River	Dorena	70,000		51	107	7,900				
Middle Fork - Row River	Dorena, Cottage Grove		100,000	1,166	1,273		11,100		87,627	88%
Middle Fork Willamette										
Fall Creek	Fall Creek	107,500		13	13	0				
	Lookout Point	340,000		95	108	6,600				
	Hills Creek	194,600				47,600				
Downstream of Fall Creek	Fall Creek, Lookout Point, Hills Creek		642,100	959	1,066		54,200		586,834	91%
McKenzie River	Blue River	223,000	223,000	1,740	1,740	1,500	4,200		217,060	97%
	Cougar					2,700				
Long Tom River	Fern Ridge	95,000	95,000	24,594	24,594	700	700		69,706	73%
Santiam River										
North Santiam River	Detroit	300,000		12,269	12,269	59,500				
South Santiam River	Green Peter	280,000		1,175		178,500				
	Foster									
Santiam River to Forks	Detroit, Green Peter, Foster		580,000	1,835	15,279		238,000		326,721	56%
Mainstem Willamette										
McKenzie River - Coast Fork	Fall Creek, Lookout Point, Hills Creek, Cottage Grove, Dorena		742,100	10	2,349				739,751	
Long Tom River - McKenzie River	All except Santiam Basin reservoirs & Fern Ridge		965,100	769	4,858				960,242	
Santiam River - Long Tom River	All except Santiam Basin reservoirs		1,060,100	12,425	41,877		292,000		726,223	69%
Downstream of Santiam River	All		1,640,100	23,275	80,431		536,700		1,022,969	62%
Totals		1,640,100		80,431	80,431		536,700		1,022,969	62%

a: The total acre feet of contracts, both issued and pending.
b: The cumulative acre-feet of contracts per sub-basin.
c: Acre-feet of stored water used to meet flow targets.
d: Cumulative acre-feet of stored water used to meet flow targets in each basin.
e: The amount of conservation storage available after taking into account existing and pending irrigation contracts and current flow augmentation requirements.
f: The percentage of conservation storage in each reservoir or system that is not accounted for by irrigation contracts or current flow augmentation.

Willamette Basin Review Feasibility Study

The Willamette Basin Review Feasibility Study began in June 1996 and was sponsored by the WRD. The study investigated future water demand in the basin, particularly as related to the operation of the Willamette Project during the summer conservation storage and flow release season. During scoping for the study, it was agreed by the Corps and WRD that modifications investigated for system operational changes must not affect the flood protection aspects of the projects and the system as a whole. Also, construction or modification of structural facilities at the Willamette projects was not under consideration in the alternative scenarios to be developed for the feasibility study. The goals, objectives, time frames, and costs for the feasibility study focused on conservation season-related modifications in accordance with the actions contained in the Water Management Plan for the Willamette Basin, approved by the Water Resources Commission in January 1992. Completion of the feasibility study was delayed pending completion of the ESA consultation for the Willamette Project. Although no funds are currently programmed for reinitiating the feasibility study, the study authority remains in place. The feasibility study may remain a viable vehicle for ultimately revising operation of the Willamette reservoirs for authorized purposes to better meet current and future needs, including addressing M&I water supply needs and the needs of ESA-listed species. It could be used to seek Congressional reauthorization for significant changes to operating purposes or criteria outside of current authorized limits.

Water Right Certificates for the Willamette Valley Project

For the Willamette Project, the Bureau of Reclamation is responsible for management and development of contracts for use of irrigation water that is stored in the reservoirs. On behalf of the Federal Government, Reclamation obtained two water rights certificates (No. 72755 and 72756) from the state of Oregon. These two certificates total 1,640,100 acre-feet of water for irrigation use only, which is the entire amount conservation storage available in the reservoirs.

State Water Rights Application Process

The Oregon Water Resources Commission adopts basin programs to set policies for managing river basins. Basin programs include water-use "classifications" that describe the types of new water right applications that may be considered by the Water Resources Department. The Willamette Basin Program currently classifies future use of water for irrigation and municipal / industrial in much of the basin consistent with using stored water from the Corps projects.

The water right for a reservoir has the sole purpose of storing water. The reservoir storage is considered a primary right. Anyone intending to divert and use water stored in a reservoir needs an additional, or secondary, water use permit. When applicants seek to use stored water only, the application may receive an expedited review leading directly to a final order, unless public interest issues are identified. Permits for such applications that identify federal reservoirs as the source of water are conditioned to require a contract from the appropriate federal agency.

A holder of a water right to the natural flow of a stream has no right to water stored in the reservoir of another water right holder. A reservoir water right holder usually does not have to release stored water to satisfy the needs of senior, natural flow rights on the same stream system. The operator of the reservoir must, however, provide some means of passing natural streamflow through or around the reservoir to satisfy downstream water right holders and instream water rights.

CORPS WATER SUPPLY POLICY

Overview

The *Water Supply Handbook* (Corps 1998) is a comprehensive examination of the Corps' water supply policy. Based on the information in the handbook, the Portland District determined there are five main steps to using stored water from a Corps project which are detailed below.

Storage Allocations

When Congress authorizes construction of a Corps reservoir, it specifies the purposes for which the reservoir may be used based on the needs in the region at that time and the federal interest in supporting those needs. The Corps uses the allocation of reservoir space to each purpose as a measure of the overall federal interest in constructing a reservoir, and as the basis of cost-sharing among the authorized purposes. After a reservoir is constructed, the Corps has the authority to recommend changes in the operation of a reservoir to address current needs or reflect new definitions of the federal interest (reallocation or the reassignment of use of existing reservoir storage space, see below).

Reallocation

A change in the use of storage in an existing reservoir project from its present use to M&I water supply (reallocation) is authorized by the Water Supply Act of 1958. Reallocations or addition of storage that would seriously affect the purposes for which the project was authorized, surveyed, planned, or constructed, or which would involve major structural or operational changes, will be made only upon the approval of Congress. Providing the above criteria are not violated, 15% of total storage capacity allocated to all authorized project purposes or 50,000 acre feet, whichever is less, may be allocated from storage authorized for other purposes or may be added to the project to serve as storage for M&I water supply at the discretion of HQUSACE (Table 19). For reallocations up to 499 acre-feet, HQUSACE has delegated approval authority to the Division Commander. Reallocations that exceed HQUSACE authority may be approved at the discretion of the Secretary of the Army, if such reallocations do not require Congressional approval as described above.

Authority to Approve Water Supply Allocation

Approval authority for water supply storage agreements is shown in Table 19. The first storage agreement on any project will be approved by the Assistant Secretary of the Army, as will all agreements that deviate from the approved model (other than editorial changes). Approval authority for subsequent agreements and reallocation reports that do not require Congressional approval has been delegated to HQUSACE and to Division and District Commanders according to the instructions provided in Table 19.

Cost Allocations

The share of the users cost of storage represented in the repayment agreement will be the same ratio as the share of the users storage space is to the total water supply storage space. An agreement covering all costs allocated to water supply must be approved by both the sponsor and the Federal Government. This agreement must be approved before construction of a new project, modification of an existing project, or, if no modification is required, the initiation of the use of the storage space in an existing project.

Derivation of User Cost

According to the *Water Supply Handbook* (Corps 1998), the cost of authorized M&I water supply storage in new and existing projects will be the total construction cost allocated to the water supply storage space. This cost will include, as appropriate, interest during construction and interest after the 10-year interest free period. This cost will also include, as appropriate, the costs of water supply conduits, the cost of past

expenditures for items such as repair, replacement, rehabilitation and reconstruction, and the costs of project modifications for dam safety. Costs for dam safety modifications follows the provisions in Section 1203(a)(1) of the Water Resources Development Act of 1986. Under these provisions, 15% of the costs of the modification are allocated among purposes and shared with appropriate project sponsors in the same percent as the joint-use expenditures are allocated in the original cost allocation. Where water supply storage is reallocated, the terms of the reallocation agreement form the basis for the assignment of dam safety costs. The portion of the 15% of the dam safety cost assigned to the water supply purpose would be allocated in the same manner as was used as the basis for the assignment of costs.

Corps guidance for reservoir reallocations and associated cost-sharing requirements is found in ER 1105-2-100, dated 28 December 1990 (Section VII of Chapter 4 specifically discusses water supply and was revised on 31 October 1997). As specified in this regulation, the cost of reallocated (permanent) storage in a Corps reservoir to add water supply is the highest of benefits or revenues foregone, the replacement cost, or the updated cost of storage. Added to this annual cost for storage is an estimated annual cost for OMRR&R.

For the updated cost of storage method, the capital costs at the time of construction are calculated and costs allocated to specific purposes are subtracted. These resulting costs (joint use) are then escalated to current price levels. This amount is then multiplied by the ratio of requested storage to total usable storage (in acre-feet).

$$(\text{Total Construction Cost} - \text{Specific Costs}) \times \frac{\text{Storage Requested}}{\text{Total Usable Storage}} [\text{acre} - \text{feet}]$$

Added to this updated cost of storage is an appropriate share of the joint-use OMRR&R costs for the fiscal year prior to the year of the agreement. Repayment of all these costs, including interest at the current federal rate, is made using a thirty-year amortization period.

Corps role in Water Rights

According to the *Water Supply Handbook* (Corps 1998), the term "storage" conveys the right to store a resource (water) in a Corps reservoir project without guaranteeing that the resource will be available. The right to withdraw water from the storage space usually requires a separate agreement. The water rights necessary for use of stored water will not be acquired by the Corps. This acquisition of water rights is a responsibility of the water users. "Municipal and industrial" is defined to mean supply for uses customarily found in the operation of municipal water systems and for uses in industrial processes. Water supply storage is provided under the authority of the Water Supply Act of 1958, as amended. Services to be provided normally consist of space in a reservoir for use in regulating the flow of water so that it is useful for water supply purposes. Where necessary, facilities in the project structure to provide for the release or withdrawal of the stored water may also be provided. Repayment agreements for storage space will base the amount of storage to be provided on the yield required by the sponsor.

Contracts

Entities wishing to use stored water must contract with the Corps (M&I) or Reclamation (irrigation) for storage space within the conservation storage pool. The specific steps for the Corps contracting process is described in a later section.

Regulatory/Environmental Review

National Environmental Policy Act

The National Environmental Policy Act (NEPA) requires federal agencies to determine if an action they are undertaking will have a significant effect on the human environment. An environmental assessment is first developed to determine if the proposed action will have a significant impact. A finding of no significant impact (FONSI) during this phase will conclude the required NEPA review. If the Corps determines the proposed action will have a significant effect, then an environmental impact statement will be required.

Endangered Species Act

Section 7 of the ESA requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) (together, the Services) if they determine that any action they fund, authorize, or carry out may affect a listed species managed by either agency or its designated critical habitat. A Biological Assessment (BA) is required of the agency when the action involves major construction projects, and is recommended for all other federal actions. The BA presents an evaluation of available information and a determination whether the action is likely to have an effect on a listed species or its critical habitat. The BA is provided to the appropriate resource agency (NMFS, USFWS) responsible for ensuring conservation of the species. Depending on the extent of the action and the nature of the effects, the resource agency reviews the BA and available information and determines whether a formal consultation under Section 7 is necessary. If formal consultation is deemed necessary, a formal Biological Opinion (BO) is then prepared by the resource agency. Informal consultation involves a "finding" by the action agency that the project or activity is not likely to adversely affect and a letter of concurrence from the resource agency.

Table 19. Water Supply Storage Agreement Approval Authority [1]

Drafts				
Acre - Feet [2]		Storage Agreements [3]		Reallocation Reports [5]
From	To	Without Reallocation	With [4] Reallocation	
0	99	District [6]	District [6]	District
100	499	Division [6]	Division [6]	Division
500	999	Division [6]	ASA(CW)	HQUSACE [7]
1000	& up	ASA(CW)	ASA(CW)	HQUSACE [7]
Finals [8]				
Acre - Feet [2]		Storage Agreements		
From	To	Without Reallocation	With [4] Reallocation	
0	499	District	District	
500	999	District	HQUSACE	
1000	& up	HQUSACE	HQUSACE	

Notes:
[1] A copy of all approved agreements will be provided to ASA(CW).

[2] In any particular agreement, the acre-feet of storage needed to produce the water under agreement on a dependable basis.

[3] At projects where storage agreements have been previously approved. The first storage agreement on any project will be approved by the ASA(CW).

[4] For reallocations which do not require Congressional approval, i.e., no significant effect on other authorized purposes and/or no major structural or operational changes.

[5] When the cumulative amount of storage reallocated exceeds the lesser of 4000 ac-ft of 10% of available storage, reports will be submitted to ASA(CW) prior to approval.

[6] When using approved model or approved model with editorial changes only. Agreements involving other changes will be submitted to ASA(CW) for approval.

[7] Submitted to ASA(CW) with the draft agreement prior to approval.

[8] When using the approved draft agreement and local signature within six months of draft approval. If beyond six months or if changes are made, the final agreement will be resubmitted for approval to the office with approval authority for the draft. If the proposed agreement involves changes other than editorial changes, the agreement will be submitted to ASA(CW) for approval. The ASA(CW) reserves the right to retain approval authority of any final agreement he approved as a draft. In cases where that right will be exercised in advance, the draft agreement will so note.

Clean Water Act

The Clean Water Act (CWA) was enacted to protect and restore the quality of the waters of the U.S. The key sections of the Act related to federal actions are Section 404 and Section 401. Section 404 of the Act regulates discharges of pollutants and dredged or fill material into said waters. Section 401 requires federal agencies to obtain certification from the state, territory, or Indian tribe before issuing a permit. The actions related to allocation of conservation storage or contracting of storage space would not in and of itself trigger either of these two requirements. Use of, or preparing to use, the released stored water could require the entity using the water to apply for a Section 404 discharge permit, which would also trigger a Section 401 certification.

WATER SUPPLY IN THE WILLAMETTE BASIN

Storage Allocations

The Willamette Valley is unique around the Corps in that the conservation pools in the reservoirs were not allocated amongst the authorized purposes, i.e. irrigation, M&I, recreation, fish and wildlife. Instead the conservation pools in each reservoir are allocated for joint-use, i.e. all the authorized purposes. A reallocation of the existing conservation storage would be needed following Corps guidance and authority provided by the Water Supply Act of 1958, as amended, if an entity wants assurance for a set amount of storage. The reallocation would follow the steps described above under the Corps Water Supply Policy section. Even though this would be an initial allocation to a specific purpose, it is considered a re-allocation because the storage space is being changed from joint-use to a specific use.

As part of the reallocation study, the Corps would need updated supply needs, including demand quantities and point of withdrawal. This information would be used to prepare a report, which would include project data, water supply needs analysis, cost of storage analysis, alternatives analysis, NEPA documentation, and a recommendation from the district commander.

Cost Allocations

Using the reallocation approach, the cost of storage would be calculated using the updated cost of storage method described above since the updated cost of storage method provides the highest cost for permanent storage in the Willamette Project. However, this is because inflating the project costs over a 40+ year period distorts the costs so significantly that they become meaningless. Applying this method does not appear appropriate for the Willamette reservoir system, and the replacement cost or some other method should be investigated (benefits or revenues foregone would not apply).

Using the updated cost of storage method, the cost of storage to be purchased is $1,508 per acre-foot (February 1999 price level, cost rounded to nearest dollar). An additional cost of $6.23 per acre-foot is added to include FY 1998 OMRR&R costs. Therefore, a water user would be charged $1,514 per acre-foot of storage reallocated from the Willamette reservoir system. This dollar figure would need to be updated during the actual small scale allocation.

Using original project costs as an alternative method, the cost of storage to be purchased is $189 per acre-foot (cost rounded to nearest dollar). An additional cost of $6.23 per acre-foot is added to include FY 1998 operation, maintenance, repair, replacement and rehabilitation (OMRR&R) costs. Therefore, a water user would be charged $195 per acre-foot of storage purchased from the Willamette Project. This dollar figure is based on 1999 price levels and would need to be updated during the actual small scale allocation.

Another issue is system vs. project pricing of the conservation storage. There are many references in the authorizing documents that describe the operation of the Willamette Project as a system to balance the range of authorized purposes and to maximize system benefits. Also, a system-wide pricing concept was forwarded to HQUSACE in conjunction with purchasing surplus water storage from the Willamette Project. The Assistant Secretary of the Army approved the system-wide pricing for surplus water agreements on January 10, 1997. By calculating user costs based on the total conservation storage (about 1.6 million acre-feet), operational flexibility of the Willamette Project would be maintained and an equitable price that can be easily administered would be established for sponsors.

Water Rights

The certificates that allow the federal government to store water in the Willamette Valley Project reservoirs do not accurately represent the true multiple purpose authority of the Willamette Project. The certificates identify the use of the stored water as irrigation, which is the use requested in the water right application filed by the BOR, though not all of that water has been, or is presently, used for irrigation. Under federal law, the Corps can still contract for sale of stored water for M&I water supply or other purposes. However, the fact that all of the stored water in the system is currently designated for irrigation under the existing water rights certificates makes it impossible for users to obtain a state secondary water right permit for uses other than irrigation. Regardless of steps needed for storage and cost allocations, the two storage certificates issued by the WRD need to be changed to reflect the true multipurpose nature of the conservation storage. At a minimum, the change of use is only needed for the quantities for which contracts are issued for uses other than irrigation.

State Water Rights transfer process

The certificates that allow the federal government to store water in the Willamette Valley Project reservoirs can be modified in a transfer process known as a change in character of use. To approve a transfer application, the Department must determine that the proposed change will not injure other water rights. The public is offered a chance to comment and protest a proposed transfer if they believe an existing water right would be injured. The Department, working with the applicant, may attach conditions to an approval order to eliminate potential injury to other water rights. If conditional approval will not eliminate injury, the application is denied. A new transfer can be filed each time a contract is to be issued or upon completion of the reallocation process. Transfer applications could be filed to change larger quantities consistent with the new allocations.

Environmental Documentation

National Environmental Policy Act

The Corps believes that a small scale allocation of up to 499 acre-feet of storage from the Coast Fork will not result in a significant effect; therefore only an environmental assessment will be required. For a larger scale allocation, an EIS will likely be required.

Endangered Species Act

Between the years 2000 and 2007, the Corps, in conjunction with the U.S. Bureau of Reclamation (BOR) and the Bonneville Power Agency (BPA) completed two BAs for the operation and maintenance of the existing Willamette Project. NMFS and USFWS issued their respective biological opinions in July 2008. These documents were developed for the project as it existed at that time, which included water supply, limited to 95,000 acre-feet for irrigation purposes only. Because water supply for municipal and industrial (M&I) purposes was not included in the 2008 biological opinion, the Corps will be required to consult with the Services for reallocating and contracting water storage for M&I purposes.

Clean Water Act

The reallocation of 499 acre-feet of storage will not trigger CWA requirements. It is important to note that use of stored water may trigger CWA permitting requirements by the individual withdrawing the water for out-of-stream purposes.

Contracting Process

Below are the steps for contracting with the Corps for an M&I contract.

1. *Initial Contact.* A private entity may coordinate directly with the Corps to contract storage space for M&I purposes. To sell or market the storage, the interested party must be a municipality, utility, or quasi-municipal entity registered with the state. For large quantities of water, a request to the Corps would be provided by the State of Oregon. A private industrial company or corporation may contact the Corps directly, but they must be registered with the state and can only use water for industrial purposes. A waiver will be signed by the company's lawyer stating the company can legally enter into the agreement.

2. *Initial Coordination.* The Corps will provide a list of information needed to proceed, including contact information, quantity of storage space, timing of withdrawals, and location of withdrawal. The location of withdrawal is only used to make sure the party can access water released from project. The Corps is not responsible for guaranteeing the receipt of water since the agreement is only for storage space. If the party needs water during the winter when there is not a conservation pool then further consideration is required.

   The Corps will then input the information into a cost estimate spreadsheet and provides an explanation of costs to the interested party. At this time, the party is also informed that agreement is for storage space only and that a State of Oregon Water Right must be obtained to use any stored water under the agreement with the Corps.

3. *Draft Agreement.* If a party wishes to pursue an agreement with the Corps, a formal request, including the official name of the party, volume requested, and payment method will be provided to the Corps. The Corps will draft a Water Supply Agreement (Agreement) using a standard agreement template, which cannot be modified without approval from the Secretary of the Army. The parties review the draft Agreement and provide comments.

   The final draft Agreement will be routed through the Corps, including Economics, Office of Council, Real Estate, Environmental, Planning, and in some cases the Northwest Division Water Supply point of contact. Once the Corps review is complete, then the Final Agreement is sent to the party for review and signature.

4. *Final Agreement.* Once the Agreement is signed by the party and returned to the Corps, the Agreement will be signed by the District Commander and a letter sent to inform the party of the newly formed Agreement and when the first payment would be due.

   If water is available, storage behind dams is filled regardless of agreements. The Corps only guarantees the release of available water, not receipt of the released water downstream. The state is responsible for the monitoring of released water.

Below are the approximate timeframes for the steps in completing a water supply agreement.

Time	Task
any time	Receive request for Water Supply Agreement
1 month	Prepare draft
1 month	Review of draft by applicant including revisions
1 month	Review of final draft by Corps
1 month	Review of final draft by applicant and signature
1 week	Routing for Corps signature
2 weeks	Mailing of notice of binding Water Supply Agreement

CONCLUSIONS

Based on the information presented above, two alternatives appear possible for accessing storage for M&I purposes:

1. Change the use of the storage certificates from irrigation to multipurpose without specifically allocating the stored water. This is not recommended due to the competing needs throughout the basin and the complications with requirements under the Endangered Species Act.
2. Re-allocate the storage for multiple uses (authorized purposes); change the use of storage certificates to reflect the different allocations; start with small scale reallocation to test the process.

Alternative 1 involves minimal processes to move forward with issuing contracts for storage space within the Corps reservoirs. Currently, the main obstacle to using stored water for M&I purposes is the state issued water right for storage. Changing the use on the certificates would allow the WRD to issue secondary water rights for use of stored water. This presents the challenge of having multiple parties requesting small amounts of storage (and hence stored water) on a first come first serve basis. Priorities could be set by the state as water rights are a state responsibility. This alternative requires minimal funding which may be achieved through existing project funds and in agreement/coordination with the Bureau of Reclamation. Public outreach would be required to educate the stakeholders as to the consequences of changing the use on the certificate.

Alternative 2 represents a comprehensive study of the reservoirs in the long term, but could be done on a very small scale to test the required processes for reallocating storage space in the reservoirs. Limiting the re-allocation to one reservoir simplifies the process by minimizing additional constraints, such as the Endangered Species Act and NEPA. Public involvement would be achieved through public meetings and a public notice on the NEPA documentation. This alternative will require additional funding provided by Congress. Funding would be provided through the Willamette Basin Review project, which is not currently in the FY11 president's budget. It is uncertain when funding will be available for this process.

RECOMMENDATION

Based on discussions with the State, agencies and the stakeholders, the Corps and WRD recommend moving forward with a small scale allocation under Alternative 2. This affords the agencies an opportunity to explore the nuances of the different steps in the process. To date, the small scale allocation discussions with the WRD have centered on the Coast Fork of the Willamette River and the Long Tom

River. These systems were selected because of limited competing issues, simplifying a test case of the re-allocation process. In addition, the WRD sponsored a recent study through the Oregon Water Supply and Conservation Initiative that assessed a review of the communities in these drainages leading to the conclusion that there is an immediate need for access to stored water in the affected communities. The likely target community will be selected from these recommendations.

Implementation of the small scale allocation project is subject to funding availability, both from the federal side and the Water Resources Department.

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