



June 27, 2019

To: U.S. Army Corps of Engineers, Portland Region

From: Clinton Begley, Executive Director - Long Tom Watershed Council

As Executive Director of the Long Tom Watershed Council I submit this letter as comment for myself, in my professional capacity, for the purposes of scoping for the Environmental Impact Statement for the Willamette Valley System Operations and Maintenance.

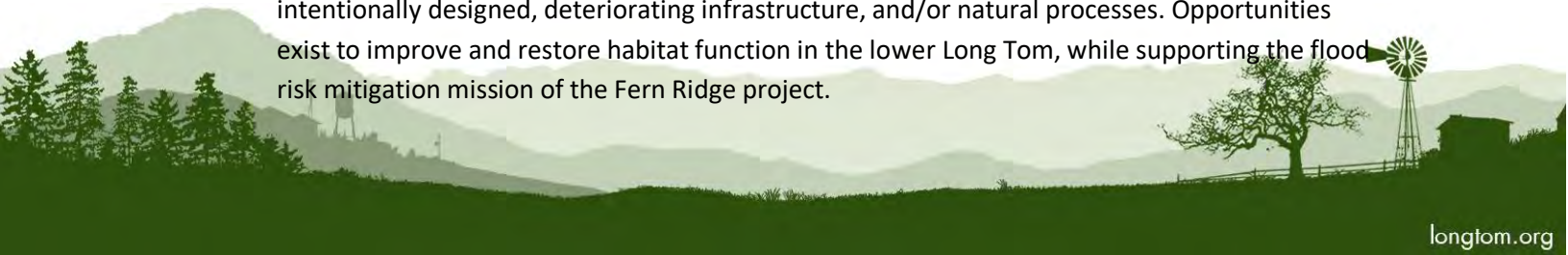
The Long Tom Watershed Council serves to improve water quality and watershed condition in the Long Tom River basin through education, coordination, consultation, and cooperation among all interests, using the collective wisdom and voluntary action of our community members.

The Long Tom Watershed Council (The Council) works in a unique niche - our voluntary and non-regulatory approach allows us to reflect the values of our watershed through a community of practice to enhance and restore the lands and waters in our shared home. This work depends upon a culture of neighbors-helping-neighbors to work across differences to make this a healthier place for everyone. As such, we work in close partnership with private landowners and public agencies alike in both the Long Tom Watershed, and the main stem of the Willamette River.

This modus operandi is important context to acknowledge both The Council's strengths as a regional participant in this work among partners (including strong and positive partnership with the Army Corps), and also the limitations upon our collective ability to achieve ecological uplift given the initial conditions of anthropogenic hydrologic processes within which we operate.

It is my hope that through the scoping phase of the Willamette Valley Project Environmental Impact Statement, the USACE will consider the following initial conditions and limiting factors to ecological uplift in our service area, and throughout the basin:

- **Invasive species:** while the origins and vectors for non-native invasive species are numerous and manifold, current conditions on some USACE lands in and around Fern Ridge Reservoir (Fisher Butte access for example) are dominated by invasive plant species like reed canary grass. These "anchors" for invasive species limit biodiversity of the surrounding systems and threaten nearby and adjacent work to restore rare wetlands and wet prairie to the detriment of numerous target endangered and threatened aquatic and terrestrial species like streaked horned lark, red legged frog, etc. Invasive species control inclusive of considering the impacts of dam operations upon seasonality of growth and preferential control methods etc. should be considered.
- **Side Channel Reconnection/ Enhancement Opportunities:** In the straightened and shortened channel of the Long Tom river below Fern Ridge dam, numerous historic side channels exist in various states of connectivity to the main channel as a result of how the channel was intentionally designed, deteriorating infrastructure, and/or natural processes. Opportunities exist to improve and restore habitat function in the lower Long Tom, while supporting the flood risk mitigation mission of the Fern Ridge project.



- **Check Dam/ Drop Structure Review:** Below Fern Ridge reservoir, three check dams attenuate the grade of the river to support the function of the straightened channel. These dams are barriers to resident native fish movement throughout the system and into tributaries, as well as to fluvial and anadromous fish from the Willamette. These structures are significant limiting factors to the health of our native fish including coastal cutthroat trout that are year round residents with numerous life histories in the watershed, and juvenile spring Chinook salmon that historically used the Long Tom as important rearing habitat and that are still present seasonally below the downstream most drop-structure in the city of Monroe.
- **Fern Ridge Reservoir Fish Passage:** Disagreement exists about the benefits and drawbacks of providing fish passage around Fern Ridge reservoir. Considerations including the harm in facilitating the movement of non-native fish above dam v.s. the benefits of providing greater connectivity for native species throughout the system is unclear. I would encourage an evaluation of the merits of providing both upstream and downstream fish passage at Fern Ridge.
- **Floodplain Restoration as a Risk Mitigation Opportunity:** I would encourage a thorough evaluation of the opportunities to address critical concerns of flood risk mitigation in balance with the opportunities and complimentary needs for floodplain habitat restoration. The EIS should include taking a critical look at the current paradigm to approaching flood risk management, in contrast with a cutting-edge view of the ecosystem services provided by a healthy and intentionally connected / inundated floodplain, and the efficacy in addressing both missions of flood control and habitat enhancement simultaneously.
- **Ecological Flows:** The Council encourages USACE to examine flow operations that protect infrastructure while balancing water quality and habitat needs for native species.
- **Partnership Funding:** The Corps should, where appropriate, seek to expand the opportunities for public/private partnership to leverage technical expertise and community engagement capacities of local partners, and simplify the process through which local Army Corps staff can direct discretionary funding to address critical needs and capitalize upon partnership opportunities locally.
- **Tribal Engagement & Traditional Ecological Knowledge:** The EIS should evaluate the role of Tribal governments, and indigenous knowledge holders in stewardship. While it is understood that guidelines exist for how and when recognized Tribes must be engaged in consultation for Corps operations and projects, it is less clear what opportunities and mechanisms exist to leverage and support the involvement of Native people in stewardship through public engagement and local contracting. Opportunities to support the efforts of indigenous peoples, through partnerships and support funding, should be evaluated. Specifically, the Corps should explore how its ecological mission for biodiversity and mitigating the impacts of Corps infrastructure can be strengthened through cultural diversity and the knowledge and skills held by Native peoples.

The Council is also a member of the Willamette Mainstem Anchor Habitat Working Group (AHWG), a partnership of 16 Willamette Valley organizations committed to protecting and restoring ecosystem function. The AHWG works to support the vision laid out in the *Willamette Restoration Strategy* (2001). The vision aspires to attain “a dynamic balance between diverse human and ecological needs” and



creating a place where “basin residents can live in healthy watersheds with functioning floodplains and habitats supporting a diversity of native species.”

Each member of the AHWG plays a distinct role in achieving long-term restoration, conservation and stewardship along the historic meander and current channel of the Willamette River and its major tributaries. The AHWG collectively works to sustain and enhance seasonally important resources for native fish. This goal is accomplished, where feasible, through various means such as reforestation of floodplain forests, controlling priority invasive aquatic weeds, reconnecting the river to its floodplain, and enhancing and creating off-channel habitat.

The Long Tom Watershed Council and AHWG have prioritized these activities because they are of ecological importance to economically and culturally significant ESA-listed salmonids and other native fish species of concern. This work also supports improved water quality, retention of floodwaters, and groundwater recharge while supporting habitats for a wide range of aquatic and terrestrial native species critical to the overall health of the Willamette Valley ecosystem. AHWG partners have been working for more than ten years along the Willamette River and its tributaries. It has made significant progress thanks to the collective efforts of agencies, organizations, and individuals. Much work remains and success can only occur with this continued regional collaboration. The Council encourages the USACE to incorporate in its scope evaluation how its operations can support creating a place where “basin resident can live in healthy watersheds with functioning floodplains and habitats supporting a diversity of native species.” There are many competing interests, and it will be incumbent upon the Corps to balance all those interests while maintaining strong, collaborative relationships with its partners.

The Council encourages USACE to examine opportunities in its Willamette Bank Protection Program for revetments to be removed or modified where ecological benefits can be achieved with low risk to infrastructure. Identifying areas where river processes such as erosion and deposition can be restored will increase overall river health. Increasing the extent and duration of floodplain and off-channel habitats helps reduce the intensity, severity, and frequency of flooding, with short and long-term benefits for infrastructure located in harm’s way, and reduced costs to the state and federal governments in the long term. The USACE can also examine how it can develop a process to work with landowners when a revetment fails to determine if alternatives exist to replacement or reinforcement of the existing revetment. Local partners including the Long Tom Watershed Council exist to work with USACE and landowners if these situations arise.

Thank you for the opportunity to lend comment to this important process. Please reach out with any questions you may have.

Sincerely,





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232

**In response refer to:
WCRO-2018-00782**

June 28, 2019

District Engineer
U.S. Army Corps of Engineer District, Portland
Attn: CENWP-PME-E/Suzanne Hill
P.O. Box 2946
Portland, Oregon 97208-2946

Dear Ms. Hill,

NOAA's National Marine Fisheries Service (NMFS) received the public notice seeking public comments on development of the scope of the U.S. Army Corps of Engineers (Corps) Environmental Impact Statement (EIS) to address continued operations and maintenance of the Willamette Valley System (WVS) on April 1, 2019. Thank you for the opportunity to comment.

We have reviewed the supplementary information provided in the public notice, as well as information shared at public meetings and Cooperating Agency meetings within the areas of NMFS responsibility, expertise, and in terms of the impact of proposed actions on trust resources.

NMFS offers comments pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and ESA Section 7(a)(1). In 2008, NMFS issued a Biological Opinion (BiOp) for the existing operations of the WVS with a finding of Jeopardy for the Upper Willamette River (UWR) spring-run Chinook salmon (*Oncorhynchus tshawytscha*), and UWR steelhead (*O. mykiss*) (NMFS 2008). The Reasonable and Prudent Alternative (RPA) directed the Action Agencies to implement a series of measures to address the effects of the WVS in order to avoid jeopardizing UWR Chinook salmon and steelhead. While several RPA measures remain incomplete the Corps has reinitiated consultation with NMFS under ESA Section 7, and intends this National Environmental Policy Act (NEPA) process to inform the ESA consultation process.

NMFS supports the timely re-initiation of ESA consultation on the ongoing operations and maintenance of the WVS, and the robust scoping of an EIS for this action that will complement a thorough ESA consultation process. We support the completion of these tasks expediently, as new information since 2008 indicates that the statuses of UWR Chinook salmon and steelhead continue to decline. Any additional delay in implementing critical fish passage and habitat actions associated with the WVS would only prolong this period of elevated extinction risk and potentially make recovery of these species more difficult in the future.

WCRO-2018-00782



NMFS has two primary comments regarding the WVS EIS NEPA process:

1. The current timeline calls for completion of a record of decision during spring/summer 2023, a four year process. However, Executive Order 13807 (Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects)(August 15, 2017) requires Federal agencies to process environmental reviews and authorization decisions for “major infrastructure projects” as One Federal Decision (OFD) and sets a government-wide goal of reducing, to two years, the average time for each agency to complete the required environmental reviews and authorization decisions for major infrastructure projects, as measured from the date of publication of a notice of intent (NOI) to prepare an environmental impact statement. The NOI to prepare an EIS for WVP operations and management was published on April 1, 2019.

The OFD process may not directly apply to WVP EIS process because the WVP is not a new major infrastructure project, or for other reasons. Nonetheless, evaluation of operation and maintenance of existing infrastructure appears to be no more difficult than evaluation of new infrastructure due to the nature and volume of information that is already available, including previous NEPA and ESA documents. That timeline is also appropriate considering the urgency called for by the current status of UWR Chinook salmon and steelhead. Therefore, we recommend that the Corps revise the schedule by reducing the timeline for completing the ROD to April 1, 2021, or as near to that date as possible, or explain the circumstances that make the two-year schedule infeasible.

2. The range of reasonable alternatives could be expanded based on the initial description of the scoping process.

Based on information that has been provided so far, we understand that the ‘no action’ alternative is planned to presume completion of large fish passage and water quality structures. However, these projects are still in early planning phases and have no allocated funding. We recommend the Corps define their no action alternative using the current status quo and not include these structures that are still being designed and are not currently funded to be built.

In addition, based on preliminary scoping discussions with the Cooperating Agencies, components of the action alternatives have not yet included consideration of actions in addition to the existing 2008 BiOp RPA requirements. When developing alternatives for the EIS, we encourage the Corps to include a broader range of actions that may reasonably occur, such as elements that may be required by the next BiOp.

We support the Corps’ intention to invite a broad array of suggestions to be included in action alternatives during Cooperating Agency meetings to be held later this summer. To help facilitate early scoping of appropriate alternatives we have provided an attached list of actions in addition to those currently included in the 2008 BiOp RPA, for the Corps to consider while scoping action alternatives.

NMFS appreciates this opportunity to review and provide comments on the range of actions to be analyzed in the EIS for ongoing operations and maintenance of the WVS. Please contact Marc Liverman at 503-231-2336 or via email at Marc.Liverman@noaa.gov if you have any questions concerning this letter, or if you require additional information.

Sincerely,

for -

Kim W. Kratz, Ph.D.
Assistant Regional Administrator
Oregon/Washington Coastal Area Office

cc: Marc Liverman
Shelby Mendez
Chris Fontecchio
Anne Mullan
Kathleen Wells

References

National Marine Fisheries Service (NMFS). 2008. Endangered Species Act Section 7(a)(2) Consultation Biological Opinion & Magnuson-Stevens Fishery Conservation & Management Act Essential Fish Habitat Consultation on the Willamette River Basin Flood Control Project. FINWR12000/02117, July 11, 2008.

Attachment: NMFS' proposed list of additional actions to be considered as part of action alternatives for EIS scoping of ongoing operations and maintenance of the Willamette Valley System

These actions are in addition to the requirements of the 2008 BiOp RPA, or were included in the RPA but are not currently planned in the Corps' 2015 Configuration and Operations Plan.

North Santiam Subbasin

- Drawdown fish passage operations at Detroit Dam in the spring and fall
- Spill fish passage operations at Detroit Dam in the spring
- Structural improvements at Big Cliff Dam to address TDG

South Santiam Subbasin

- Reintroduction of UWR Chinook and steelhead above Green Peter Dam
- Downstream fish passage structures and operations and Green Peter Dam
- Temperature control structure or operations at Green Peter Dam

South Fork McKenzie Subbasin

- Drawdown fish passage operations at Cougar Dam in the spring and fall

Middle Fork Willamette Subbasin

- Dexter adult fish facility improvements
- Downstream fish passage facility construction at Lookout Point Dam or head of reservoir
- Drawdown or delayed refill fish passage operations at Lookout Point Dam in the spring and fall
- Spill fish passage operations at Lookout Point Dam in the spring and fall
- Reintroduction of UWR Chinook salmon above Hills Creek Dam
- Downstream fish passage facility construction at Hills Creek Dam
- Drawdown fish passage operations at Hills Creek Dam in the spring and fall
- Spill fish passage operations at Hills Creek Dam in the spring and fall
- Temperature control structure or operations at Hills Creek Dam
- Drawdown or delayed refill fish passage operations at Fall Creek Dam in the spring

Systemwide

- Improve or replace some adult release sites above dams
- Remove or modify revetments to improve floodplain connectivity
- Maintenance of mainstem Willamette River juvenile monitoring/sampling facility
- Interim passage operations prior to completion of downstream passage facilities
- Installation and maintenance of new instream flow gages
- Research regarding passage design and effectiveness at new facilities and in subbasins with new adult reintroductions above dams
- Structural improvements to reduce water quality impacts during emergency and unusual events
- Structural improvements to reduce TDG where needed as a result of passage operations
- Additional habitat improvement/restoration projects in the lower tributaries and mainstem

[Non-DoD Source] Willamette Valley System Environmental Impact Statement

Diana Olson <leysin75@gmail.com>

Sun 6/16/2019 8:01 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Dear Env't Resources Specialist Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley, and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

These dams are critical to protecting farms, homes, and communities from growing flood risk, and we all saw first-hand this spring the impact releases from the dams can have on communities. We need to ensure that the dams retain their primary function of flood control, and that any adjustments made to system operations don't reduce or alter flood mitigation capacity.

Similarly, I oppose reducing the water storage capacity behind the dams. This water is critical for future irrigation and community needs, particularly as we trend toward having longer, hotter summers. Recent studies by the Oregon Department of Agriculture show that irrigation demand is going to exponentially increase in the Willamette Valley in the next several decades, as we become an even more critical part of the global food economy. We desperately need additional water supplies to ensure this critical part of our economy is able to adjust to changing conditions and continue to provide a safe, reliable supply of food and fiber to our state, region, and world. I can remember that as a child the back roads between Albany and Shedd, Oregon were always flooded in the winter and livestock were standing stranded on whatever higher ground available. Highway 99 E was passable because it was purposely built on a high bed as was the main railroad. I can recall that in the middle of the night (going to Grandad Margason's farm) he would say to me do you think we can make it to the farm on a back road (the roads were not named until about 1977)? It was very scary because I couldn't see anything but water. Of course, Grandad had a way of knowing how deep the water was and how rapid the current was and he was driving a Ford Model T (which was pretty high off the ground). He would say "OK, lift up your feet and I think we can make it across". After Foster and Green Peter Dams were built, there was a lot less flooding in the Willamette Valley. Flood control is very important for everyone. Last year there was a grave lack of potable water in Salem and the small towns above. What can these people be thinking of to do away with our reservoir system? I think salmon and other fish species are important. That is why we have fish ladders, overflows when the baby fish are making their way to the ocean, and various fish hatcheries in Oregon (for years). I think we should look to the way we have carelessly dumped raw sewage and other pollutants into our

rivers for years as a cause for the decline of fish. It all adds up to foul our waters for fish and people.

Thank you for the opportunity to comment.

Sincerely,

Diana Olson
35854 Richardson Gap Rd
Scio, OR 97374
leysin75@gmail.com

[Non-DoD Source] Willamette Dams

Erik Burke <erikburke@gmail.com>

Tue 5/14/2019 11:54 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Hi,

Thanks for listening to public comments. Rivers are being with rights and it is unethical to enslave and control them with dams. I strongly believe in removing all 13 dams in the Willamette system.

Best,
Erik

Erik Burke
541-915-1601

[Non-DoD Source] Willamette Valley System Environmental Impact Statement

Elicia Brown <koehn81e@gmail.com>

Mon 6/17/2019 3:31 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Dear Env't Resources Specialist Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley, and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

These dams are critical to protecting farms, homes, and communities from growing flood risk, and we all saw first-hand this spring the impact releases from the dams can have on communities. We need to ensure that the dams retain their primary function of flood control, and that any adjustments made to system operations don't reduce or alter flood mitigation capacity.

Similarly, I oppose reducing the water storage capacity behind the dams. This water is critical for future irrigation and community needs, particularly as we trend toward having longer, hotter summers. Recent studies by the Oregon Department of Agriculture show that irrigation demand is going to exponentially increase in the Willamette Valley in the next several decades, as we become an even more critical part of the global food economy. We desperately need additional water supplies to ensure this critical part of our economy is able to adjust to changing conditions and continue to provide a safe, reliable supply of food and fiber to our state, region, and world.

Thank you for the opportunity to comment.

Sincerely,

Elicia Brown
642 S Center St
Sublimity, OR 97385
koehn81e@gmail.com



Eugene Water & Electric Board

500 East 4th Avenue/Post Office Box 10148
Eugene, Oregon 97440-2148
(541) 484-2411
www.eweb.org

June 27, 2019

Suzanne Hill
U.S. Army Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Re: Willamette Valley System Operations and Maintenance
Environmental Impact Statement – Scoping

Dear Suzanne:

The Eugene Water & Electric Board (EWEB) is Oregon's largest customer-owned utility serving approximately 200,000 people in the greater Eugene and McKenzie Valley areas. Each year, EWEB is responsible for delivering 7.5 billion gallons of drinking water and 4.5 million megawatt-hours of electricity. EWEB's customers rely on the McKenzie River for both power generation and as its sole source of drinking water. Because EWEB's facilities are located downstream of two U.S. Army Corps of Engineers (USACE) Willamette Valley Projects, EWEB has a vested interest in the operations and maintenance of the Willamette Valley System.

EWEB owns and operates two hydropower projects on the McKenzie River, authorized under licenses issued by the Federal Energy Regulatory Commission (FERC). The Carmen-Smith Project (FERC Project No. 2242) is located upstream of and is not affected by any USACE Willamette Valley Projects. The Leaburg-Waltermville Project (FERC Project No. 2496), however, is located downstream of the USACE Cougar and Blue River Projects. The FERC license for the Leaburg-Waltermville Project specifies minimum in-stream flows be maintained in the McKenzie River downstream of our Leaburg and Waltermville canal diversions and affects our ability to generate power. Further, project-induced reductions in river level below both the Leaburg Dam and Waltermville Diversion are limited to two inches per hour year-around. As such, the operation and maintenance of these two USACE projects directly affect EWEB's downstream project.

EWEB's Hayden Bridge Filtration Plant is located in the city of Springfield, downstream of the USACE Cougar and Blue River Projects. Operation and maintenance of the USACE projects has the potential to affect downstream water quality. For example, reservoir management can influence cyanobacteria blooms and reservoir drawdowns can result in increased turbidity in the McKenzie River downstream of the projects.

EWEB would like to offer the following suggestions for the USACE to consider during the continued operation and maintenance of the Willamette Valley Projects:

First, better communication and coordination with downstream water users, such as EWEB, in regards to water and reservoir management, including anticipated deviations from the rule curves, whether it be from short- or long-term projects and/or operational changes.

Second, considering EWEB is one of the numerous stakeholders invested in the recovery of McKenzie ESA fish stocks, it would be beneficial to the resource if there was improved coordination and communication by the USACE in regards to fish enhancement projects/operational changes etc., which could potentially identify opportunities for the stakeholders to work in a more synergistic manner.

Thank you for your time and consideration. Please let me know of any additional information you may need or if you need clarification of the information provided. Feel free to contact me at 541-685-7379 or at mike.mccann@eweb.org.

Sincerely,



Michael J. McCann
Electric Generation Manager

[Non-DoD Source] Willamette Valley System Environmental Impact Statement

John Zielinski <john@ezorchards.com>

Thu 6/20/2019 2:23 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Dear Env't Resources Specialist Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley. I have attended several of the community meetings or community conversations that have been held by the Army Corps of Engineers. I have concerns about bank erosion, and stream depth in the main stem of the Willamette River. I am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

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Thank you for the opportunity to comment.

Sincerely,

John Zielinski
5270 55th Ave NE
Salem, OR 97305
john@ezorchards.com

[Non-DoD Source] Workshop/Tour/Speaker Inquiry

Katie Gibbs <katie@saturdayacademy.org>

Tue 4/9/2019 5:56 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Hi Suzanne,

I am the Classes and Camps Coordinator for Saturday Academy, a Portland metro STEM education non-profit that has been connecting students in grades 2 through 12 with STEM professionals through classes, camps, and internships for 36 years. Each year, we offer several **engineering-themed camps for both middle and high school students**. As part of our full-day camps, we aim to get students into environments—businesses, labs, etc.—where engineering is taking place. Typically the sessions I arrange are about 1.5 to no more than 3 hours in length. We generally aim to arrange either a demonstration or a hands-on activity—as opposed to a lecture/powerpoint type of presentation—so that kids can get as close as possible to really trying engineering on for size. Our student groups don't exceed 18 students.

I am currently hoping to arrange a tour that is centered around the theme of hydropower, renewable energy, or large civil engineering projects with a sustainability/environmental focus. In the past, we have been able to arrange tours of the Bonneville Dam, but those have become restricted. Last summer I was able to arrange a tour of the Clackamas River PGE hydro sites, but those will be undergoing some construction this summer, and are also not an option at this time.

If the US Army Corps of Engineers in the Portland District—or perhaps another local nearby district—has any educational outreach programs aimed at middle or high school students, I would be interested to learn of them. In many cases when I reach out to arrange a guest speaker, workshop, demo, or tour (our classes are hands-on!), I am able to connect with a passionate professional in the field who can arrange something, even if it's not something typically offered to the public.

If you can think of any site—be it a dam, a renewable energy production site, even a lab where research is conducted—or any person who might be willing to expose a group of aspiring engineers to their work world for a morning or afternoon this summer, please let me know. Alternately, if you could forward this email to others who might better be able to help, that would also be greatly appreciated.

Many thanks for your time and consideration,

Katie Gibbs, M. Ed.

Classes and Camps Coordinator

katie@saturdayacademy.org

503.200.5866 (direct)

[Saturday Academy](#)

University of Portland

5000 N Willamette Blvd.

Portland, OR 97203

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Caleb Price
Monitoring Coordinator

Project Manager

Jean-Paul Zagarola
*Bonneville Environmental
Foundation*

June 28, 2019

To: U.S. Army Corps of Engineers, Portland Region

The Luckiamute Watershed Council (LWC) submits this letter as comment for the scoping process to prepare an Environmental Impact Statement for the Willamette Valley System Operations and Maintenance.

The LWC's mission is to engage and assist landowners and communities in the voluntary protection, restoration and enhancement of the Luckiamute and Ash Creek watersheds.

The LWC is also a member of the Willamette Mainstem Anchor Habitat Working Group (AHWG), a partnership of 16 Willamette Valley organizations committed to protecting and restoring ecosystem function. The AHWG works to support the vision laid out in the Willamette Restoration Strategy (2001). The vision aspires to attain "a dynamic balance between diverse human and ecological needs" and creating a place where "basin residents can live in healthy watersheds with functioning floodplains and habitats supporting a diversity of native species."

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The LWC and AHWG have prioritized these activities because they are of ecological importance to economically and culturally significant ESA-listed salmonids and other native fish species of concern. This work also supports improved water quality, retention of floodwaters, and groundwater recharge while supporting habitats for a wide range of aquatic and terrestrial native species critical to the overall health of the Willamette Valley ecosystem. AHWG partners have been working for more than ten years along the Willamette River and its tributaries. It has made significant progress thanks to the collective efforts of agencies, organizations, and individuals. Much work remains and success can only occur with this continued regional collaboration. The LWC encourages the USACE to incorporate in its scope evaluation how its operations can support creating a place where "basin resident can live in healthy watersheds with functioning floodplains and habitats supporting a diversity of native species." There are many competing interests, and it will be incumbent upon the Corps to balance all those interests while maintaining strong, collaborative relationships with its partners.

The LWC encourages USACE to examine opportunities in its Willamette Bank Protection Program for revetments to be removed or modified where ecological benefits can be

achieved with low risk to infrastructure. Identifying areas where river processes such as erosion and deposition can be restored will increase overall river health. Increasing the extent and duration of floodplain and off-channel habitats helps reduce the intensity, severity, and frequency of flooding, with short and long-term benefits for infrastructure located in harm's way, and reduced costs to the state and federal governments in the long term. The USACE can also examine how it can develop a process to work with landowners when a revetment fails to determine if alternatives exist to replacement or reinforcement of the existing revetment. Local partners exist to work with USACE and landowners if these situations arise.

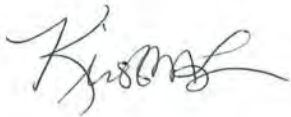
The LWC encourages USACE to examine flow operations that protect infrastructure but also balance water quality and habitat needs for native species.

The LWC encourages USACE to examine and incorporate recent research available on river processes and habitat needs. The Willamette Valley is fortunate to have robust research facilities contributing to the knowledge base that informs improved management of natural resources. These include the SLICES Framework, cold-water refuge and geomorphic mapping, fish distribution, and Willamette Water 2100 modeling results among others. USACE could build into its operations and maintenance a review and update process that can take advantage of new information as it is being made available or within some pre-determined time frame.

The LWC encourages USACE to reach out to local partners to work together to achieve common goals for the health of the Willamette River system and those that depend on it.

Thank you for consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Kristen Larson". The signature is fluid and cursive, with the first name "Kristen" being more prominent than the last name "Larson".

Kristen Larson
Executive Director

[Non-DoD Source] Willamette Valley System Environmental Impact Statement

Mark Dickman <dfarms@mtangel.net>

Mon 6/3/2019 11:21 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Dear Env't Resources Specialist Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley, and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

These dams are critical to protecting farms, homes, and communities from growing flood risk, and we all saw first-hand this spring the impact releases from the dams can have on communities. We need to ensure that the dams retain their primary function of flood control, and that any adjustments made to system operations don't reduce or alter flood mitigation capacity.

Similarly, I oppose reducing the water storage capacity behind the dams. This water is critical for future irrigation and community needs, particularly as we trend toward having longer, hotter summers. Recent studies by the Oregon Department of Agriculture show that irrigation demand is going to exponentially increase in the Willamette Valley in the next several decades, as we become an even more critical part of the global food economy. We desperately need additional water supplies to ensure this critical part of our economy is able to adjust to changing conditions and continue to provide a safe, reliable supply of food and fiber to our state, region, and world.

Thank you for the opportunity to comment.

Sincerely,

Mark Dickman
15829 MT Angel Scotts Mills Rd NE
Silverton, OR 97381
dfarms@mtangel.net

[Non-DoD Source] Re: ACOE EIS

Birdshill CPO/NA <birdshill.cpo.na@gmail.com>

Mon 6/10/2019 5:11 PM

To: Michael Pyszka <MPyszka@parametrix.com>;

Cc: Birdshill CPO/NA <birdshillcpona@gmail.com>; Skip Ormsby <sentinelskip@gmail.com>; Williams, Stephen <SWilliams@co.clackamas.or.us>; Carole Ockert <fanfh-carole@europa.com>; Jon Bell <jontbell@comcast.net>; Sarah Ellison <scgellison@gmail.com>; Craig Stephens <cyanblue189@gmail.com>; Leslie Goss <lesliegoss@mac.com>; CPO Summit <cposummitcouncil@gmail.com>; McCaleb, Iris <imccaleb@ci.oswego.or.us>; Bill Ward <wwward03@gmail.com>; citycouncil@westlinnoregon.gov <citycouncil@westlinnoregon.gov>; metrocouncil@oregonmetro.gov <metrocouncil@oregonmetro.gov>; John Wendland <john@portlandbindery.com>; Kohlhoff, Theresa <tkohlhoff@ci.oswego.or.us>; bcc@co.clackamas.or.us <bcc@co.clackamas.or.us>; pmalee@westlinntidings.com <pmalee@westlinntidings.com>; CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>; councildistribution@ci.oswego.or.us <councildistribution@ci.oswego.or.us>;

2019 Jun 10 Monday 14:15 [2:15 PM PT]

Mike

Thanks for the info on
US Army Corps of Engineers Portland District
regarding Willamette River (Basin) System and
upcoming deadline of comment period
ending 2019 Jun 28 Friday.

Two take aways from kick off of four year
project to update EIS policies revised last in 1980(s)
Meeting held on
2019 Jun 06 Thursday 16:00 U [4:00 PM PT].
at PSU conference center
310 SW Lincoln Street.
Notice by blurb on Portland Tribune Website
that morning.

ONE:

USACE Portland District
CANNOT CONTROL
Willamette River FLOODING.
USACE can only mitigate flooding effects.
<Barely and depending upon conditions
especially 100 - 200 miles downstream
of major Willamette River dams>.

TWO

Government entities along
Willamette River should not encourage
or promote expensive and
dense population development
below Base Flood Elevations [BFE(s)]
ie
in the Flood Plain.

Perhaps City of LO might learn before it is too late.
Like Columbia River and deceased city of Vanport
circa 1947 May
And
Lakewood Bay (Oswego Lake) to Willamette River shunt
circa 1996 Feb through
Foothills District in City of Lake Oswego.

Found website and PDF links on Sunday.

Posted to:

BH_Kn_CE_19-01_WSOM

Will need to make and update
a series of infographics to describe
the reach (section) of Willamette River
fronting my neighborhood of the
Birdshill CPO / NA to east.
In vicinity of UPRR Railroad Bridge at
Willamette River Mile (WLRM),
WLRM_020.0

Will keep you apprised.

Examples of Birdshill infographics

1. 2017 Oct BH IGPA OR43 STA LO UPRR Corridor .
2. 2017 Oct BH IGPA Cntx LO RR Bridge
3. 2017 Oct BH IGPA Cntx Foothills Pk and IS
4. **2015 Dec Quad LO BH RLWR 22 N 19**

This is the sort of condensed info I think
public needs to have on OGLO Ped / Bike Bridge.

Plus

US Army Corps of Engineers Portland District
projects on the Willamette River

Plus

Too TOO many City of Lake Oswego Oregon
projects.

Along with uniformed neighborhoods and
affected citizens by citizen involvement programs.

See PP 19-0006 if you can via the
fracked up City of Lake Oswego Archive System
provided by Lazerfiche Inc.

PP 19-0006 is about to eviscerate the
abysmal citizen involvement process
by the
LO Planning Commission / committee for
Citizen Involvement beginning this
evening, 2019 Jun 10 Monday 18:00 U [6:00 PM PT].

At whose direction and insistence begat this
project will be my key questions. I expect responses
in writing.
Or just tell me where to file discrimination complaints.

City of LO favors developers
First, Foremost and Forever!!!

Thanks
Skip
503.636.4483

Please forward to all who need to know.

On Fri, Jun 7, 2019 at 12:01 PM Michael Pyszka <MPyszka@parametrix.com> wrote:

Steve & Skip – attached is the PDF of the ACOE handout from last night. Additionally here is a link to the project website:

Blocked <https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/>

Mike

Michael Pyszka, P.E.
Sr Engineer, Project Manager
503.233.2400 | main
503.416.6187 | direct



[Non-DoD Source] Willamette Valley System Allocation Comments

Destinee S <mattanddestinee@gmail.com>

Wed 6/5/2019 12:25 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

1 attachments (14 KB)

Willamette Valley Allocation Comments.docx;

May 31, 2019

U.S. Army Corps of Engineers,
CENWP-PME-E
ATTN: Suzanne Hill
P.O. Box 2946
Portland, OR 97208-2946

Email: willamette.eis@usace.army.mil

Re: Scoping Comments on Willamette Valley System Evaluation

Ms. Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley, and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

These dams are critical to protecting farms, homes, and communities from growing flood risk, and we all saw first-hand this spring the impact releases from the dams can have on communities. We need to ensure that the dams retain their primary function of flood control, and that any adjustments made to system operations don't reduce or alter flood mitigation capacity.

Similarly, I oppose reducing the water storage capacity behind the dams. This water is critical for future irrigation and community needs, particularly as we trend toward having longer, hotter summers. Recent studies by the Oregon Department of Agriculture show that irrigation demand is going to exponentially increase in the Willamette Valley in the next several

decades, as we become an even more critical part of the global food economy. We desperately need additional water supplies to ensure this critical part of our economy is able to adjust to changing conditions and continue to provide a safe, reliable supply of food and fiber to our state, region, and world.

Thank you for the opportunity to comment.

Sincerely,

Matthew Schuster
2181 Waconda Rd NE
Gervais, OR 97026

[Non-DoD Source] Comments for Willamette Valley System Operations and Maintenance

Matt Blakeley-Smith <matt@greenbeltlandtrust.org>

Fri 6/28/2019 4:24 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

June 28, 2019

To: U.S. Army Corps of Engineers, Portland Region

From: Greenbelt Land Trust 101 SW Western Blvd., Ste. 111 Corvallis, OR 97333

Greenbelt Land Trust submits this letter as comment for the scoping process to prepare an Environmental Impact Statement for the Willamette Valley System Operations and Maintenance.

The mission of the Greenbelt Land Trust is to conserve and protect in perpetuity native habitats, working lands, and lands of natural beauty, which provide a connection to the natural world for residents of the mid-Willamette Valley.

Greenbelt holds permanent Conservation Easements on 36 properties, totaling over 3,600 acres in the Willamette Valley. Specific to the Willamette River, Greenbelt owns in fee title, or holds a conservation easement on approximately 760 acres at River Mile 154, 125, and 107.7. Greenbelt also owns 405 acres of river frontage in fee title on the North Santiam River just east of Stayton. Greenbelt actively manages and restores native floodplain habitat for the benefit of fish and wildlife, with a special focus on listed ESA species.

Greenbelt Land Trust is also a member of the Willamette Mainstem Anchor Habitat Working Group (AHWG), a partnership of 16 Willamette Valley organizations committed to protecting and restoring ecosystem function. The AHWG works to support the vision laid out in the *Willamette Restoration Strategy* (2001). The vision aspires to attain “a dynamic balance between diverse human and ecological needs” and creating a place where “basin residents can live in healthy watersheds with functioning floodplains and habitats supporting a diversity of native species.”

Each member of the AHWG plays a distinct role in achieving long-term restoration, conservation and stewardship along the historic meander and current channel of the Willamette River and its major tributaries. The AHWG collectively works to sustain and enhance seasonally important resources for native fish. This goal is accomplished, where feasible, through various means such as reforestation of floodplain forests, controlling priority invasive aquatic weeds, reconnecting the river to its floodplain, and enhancing and creating off-channel habitat.

Greenbelt Land Trust and AHWG have prioritized these activities because they are of ecological importance to economically and culturally significant ESA-listed salmonids and other native fish species of concern. This work also supports improved water quality, retention of floodwaters, and groundwater recharge while supporting habitats for a wide range of aquatic and terrestrial native species critical to the overall health of the Willamette Valley ecosystem. AHWG partners have been working for more than ten years along the Willamette River and its tributaries. It has made significant progress thanks to the collective efforts of agencies, organizations, and individuals. Much work remains and success can only occur with this continued regional collaboration. Greenbelt Land Trust encourages the USACE to incorporate in its scope evaluation how its operations can support creating a place where “basin resident can live in healthy watersheds with functioning floodplains and

habitats supporting a diversity of native species.” There are many competing interests, and it will be incumbent upon the Corps to balance all those interests while maintaining strong, collaborative relationships with its partners.

Greenbelt Land Trust encourages USACE to examine opportunities in its Willamette Bank Protection Program for revetments to be removed or modified where ecological benefits can be achieved with low risk to infrastructure. Greenbelt Land Trust is specifically interested in the Scatter Bar revetment and the Irish Bend Revetment since we either own the property that those revetments are protecting or hold a permanent Conservation Easement on those lands. Identifying areas where river processes such as erosion and deposition can be restored will increase overall river health. Increasing the extent and duration of floodplain and off-channel habitats helps reduce the intensity, severity, and frequency of flooding, with short and long-term benefits for infrastructure located in harm’s way, and reduced costs to the state and federal governments in the long term. The USACE can also examine how it can develop a process to work with landowners when a revetment fails to determine if alternatives exist to replacement or reinforcement of the existing revetment. Local partners exist to work with USACE and landowners if these situations arise.

Greenbelt Land Trust encourages USACE to examine flow operations that protect infrastructure but also balance water quality and habitat needs for native species.

Greenbelt Land Trust encourages USACE to examine and incorporate recent research available on river processes and habitat needs. The Willamette Valley is fortunate to have robust research facilities contributing to the knowledge base that informs improved management of natural resources. These include the U of O SLICES Framework, cold water refuge and geomorphic mapping, fish distribution, and Willamette Water 2100 modeling results among others. USACE could build into its operations and maintenance a review and update process that can take advantage of new information as it is being made available or within some pre-determined time frame.

Greenbelt Land Trust encourages USACE to reach out to local partners to work together to achieve common goals for the health of the Willamette River system.

Sincerely,

Matt Blakeley-Smith
Habitat Restoration Manager
Greenbelt Land Trust

[Non-DoD Source] Willamette Valley System Environmental Impact Statement

Montgomery Smith <user@votervoice.net>

Thu 6/6/2019 11:01 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Dear Env't Resources Specialist Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley, and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing a lot in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

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Thank you for the opportunity to comment.

Sincerely,

Montgomery Smith
2218 Horseshoe Lake Rd NE
Saint Paul, OR 97137
mksmithwbf@yahoo.com



Marion County

OREGON

Board of Commissioners

June 27, 2019

(503) 588-5212
(503) 588-5237-FAX

Via E-mail (willamette.eis@usace.army.mil)
and U.S. Mail

BOARD OF COMMISSIONERS

Sam Brentano
Kevin Cameron
Colm Willis

U.S. Army Corps of Engineers
Portland District
P.O. Box 2946
Portland, OR 97208-2946
Attention: CENWP – PME - E

CHIEF ADMINISTRATIVE OFFICER

John Lattimer

Re: Willamette Valley System Operations and Maintenance Environmental Impact Statement

Dear Colonel Dorf:

On April 1, 2019, the U.S. Army Corps of Engineers published in the Federal Register a Notice of Intent to solicit written comments for consideration in the development of the NEPA Environmental Impact Statement (EIS) regarding the operation and maintenance of the Willamette Valley System (WVS). Marion County provides the following public comments regarding the proposed EIS.

The County understands that:

- The EIS will evaluate the impacts of continued operations and maintenance of the WVS;
- The Corps has reinitiated formal consultation under Section 7 of the ESA on the National Marine Fisheries Service's 2008 Biological Opinion for the Willamette River Basin Flood Control Project to inform the ESA Section 7 consultation process;
- The Corps intends to initiate consultation under Section 106 of the National Historic Preservation Act; and
- The Corps anticipates that the draft EIS will be made available for public comment in Fall/Winter 2020.

At the outset, the County wishes to emphasize the importance of reliable water from the WVS to the communities within the County.

The WVS provides Marion County with essential resources that support recreation, irrigation, drinking water, and public health. Most Marion County communities are located within the North Santiam Watershed, which is part of the WVS, making water from the WVS fundamental to life within the County. The County is concerned about the impact that management and operational changes to the WVS could have on the livelihood of communities within the County and to the revenues of the County itself. In the Federal Register notice, the Corps indicated that one of the purposes of public participation is to obtain input on “issues of concern.” The U.S. Army Corps of Engineers needs to take into account the County’s concerns in this process. Ignoring impacts to the health, safety, and welfare of Marion County communities and this critical natural water resources could result in irreparable damage at the conclusion of this process.

1. Recreation and Tourism Purposes

Detroit Lake, situated within the WVS, is a popular recreational destination in Marion County. During the winter months, Detroit Lake is maintained at an elevation of no lower than 1450 feet. Between Memorial Day and Labor Day, the water is approximately 1560 feet. Lower water levels throughout the summer could impact and effectively eliminate recreational use of Detroit Lake, which provides approximately 70% of jobs in the Detroit Lake area. The docks and marinas on Detroit Lake range from 1530 to 1560 feet (with the exception of one at 1450 feet). If the water level is too low to accommodate recreation throughout the summer, many businesses would not survive.

Of course, much of the boat access is for fishing and much of that fishing is for plentiful hatchery summer steelhead. The Minto Fish Hatchery, located 7 miles downstream of Detroit Lake, has also been a key component of County residents’ livelihood through fishing and tourism. While the County applauds efforts to restore native salmon and steelhead, improved hatchery practices should continue as well.

We ask that the Corps take into account the role that recreation from lakes and streams in the North Santiam Watershed provide to the County when preparing a new EIS for the WVS.

2. Irrigation Purposes

Many farms within Marion County rely on water from the Detroit reservoir and the North Santiam River for irrigation. Marion County is the largest producing agricultural county in the state of Oregon. As of 2012, Marion County’s agricultural land area totaled 286,194 acres. 800 agricultural firms employ over 16,000 people, with a payroll of nearly \$550 million dollars. Lower water levels at Detroit Lake and on the North Santiam River would impact 19% of the county land area and 41% of county jobs. Any change in management and operation of the WVS must protect the irrigation interest of farmers within Marion County.

3. County’s Economic Interest

Marion County’s economy relies heavily on water in the North Santiam Watershed and particularly on Detroit Lake. In total, a report prepared by EcoNorthwest and titled “Importance of Water in the North Santiam Basin” (Exhibit A) concludes that the economic value of water in the North Santiam Watershed exceeds \$180 million per year, including \$36.5 million from recreation and \$59.8 million from irrigation-related agriculture. Based on those figures, and the fact that more than half of the North Santiam Watershed is in Marion County, and more than one-third of the County is in the North Santiam Watershed, the County estimates that low water conditions could result in an economic loss of \$11 million per year to local businesses and industries just for recreation purposes. This is a loss that the County cannot afford and that would negatively impact many of our local communities. The Corps should consider the importance of water to the economic life of the County when drafting the EIS.

4. County's Public Interest

Lower water levels in Detroit Lake or on the North Santiam River would have ripple effect, extending beyond businesses in close proximity and depriving nearby farmers of irrigation water. Additionally, the economic impact would affect tax revenue for the county, which funds health and safety services. Variability in water level could also increase erosion and the risks of landslides along Highway 22, an important transportation corridor between the Willamette Valley and Central Oregon. Landslides not only cause significant public safety hazards in the area, but may impact the entire state.

5. Drinking Water Supplies

The City of Salem and various communities, including Stayton and Gates, rely on Detroit Lake for drinking water. Lower water levels would put those communities which do not have adequate back-up supplies at risk. Radically adjusting water levels will increase risk of turbidity in the North Santiam River downstream of the dams. This turbid water will create significant operational challenges for water supply systems. Increased and sustained turbidity caused lowering water levels in the McKenzie River during construction of the temperature control structure at Cougar Dam in 2002, and created an average turbidity in the river of 106 NTU for four months. Lowering seasonal water elevations in Detroit Reservoir and Big Cliff Reservoir may lead to higher water temperatures in the North Santiam River as well. Any deviations from normal water quality parameters have the ability to impact water treatment plant operations.

Higher water temperatures may also increase the occurrence and magnitude of algal blooms in Detroit Reservoir and the North Santiam River. Algal blooms can negatively impact the water treatment process by:

- (1) Clogging filters and inhibiting the ability to meet water demand;
- (2) Producing dangerous algal toxins; and
- (3) Creating taste and odor issues such as those caused by Geosmin and 2-Methylisoborneol (MIB).

Even if water quality is not impacted by solids or algae, the risk to maintaining the quantity of downstream flow must be considered. When drafting the new EIS, the Corps should give particular attention to the drinking water needs of reliant communities.

Conclusion

In light of the importance of the North Santiam Watershed to the livelihood of communities within Marion County, we expect that studies will be conducted to project the economic and human impact of changes to the management of the WVS including the North Santiam Watershed.

We appreciate the opportunity to work with the Corps on the implementation of a new EIS for the Willamette Valley System in a way that supports the needs of the County and its communities. As the process moves forward we may have to seek legal alternatives if the needs of local communities are not satisfied in the proposed EIS. We anticipate that our concerns will be included in the draft of the EIS.

Sincerely,



Kevin Cameron, Chair



Sam Brentano, Vice Chair



Colm Willis, Commissioner



OREGON WATER UTILITY COUNCIL
Pacific Northwest Section, American Water Works Association

June 28, 2019

U.S. Army Corps of Engineers, Portland District
ATTN: CENWP-PME-E
P.O. Box 2946
Portland, OR 97208-2946

RE: Public Scoping Comments on the Environmental Impact State for Operations and Maintenance of Willamette Valley System (Document Number: 2019-06258)

The Oregon Water Utilities Council (OWUC) is providing these comments for consideration in the development of the scope of the Environmental Impact Statement to address the continued operations and maintenance of the Willamette Valley System.

OWUC is a committee of the Pacific Northwest Section of the American Water Works Association and represents the water utilities that provide approximately 90 percent of Oregon's drinking water supply. OWUC has been actively involved in the effort to obtain access to stored water in the Willamette Valley Project (WVP) reservoirs for municipal and industrial (M&I) purposes. Approximately 70 percent of the state's population is located in the Willamette Basin, and approximately 85 percent of the population in the Willamette Basin is supported by public water systems.

These public water systems provide safe, reliable water supply for public health, safety and for business and industrial development activities. The ability of the water providers to meet the projected long-term water supply requirements of our communities is critical to the protection of public health and the economic viability of our state.

Public Water Providers Have Been Working to Obtain WVP Storage for Decades

The Flood Control Acts of 1938 and 1950 authorized the United States Army Corps of Engineers (USACE) to construct and operate the Willamette Basin projects. Despite the fact that in 1950 Congress authorized the Willamette Basin projects for multiple purposes, including "potable water supply," four years later (in 1954), the United States Bureau of Reclamation requested a water right to store water only for irrigation purposes. Consequently, the Oregon Water Resources Department (OWRD) cannot presently issue water rights for the use of this stored water for any purposes other than irrigation until the Willamette Basin Review Feasibility Study is completed with a final Chief's report and subsequent implementation of that recommendation.

Over the last several decades, stakeholders and state and federal agencies have been actively engaged in efforts to address the diverse demands for the stored water in the Willamette Basin projects. Beginning in June 1996, the USACE began working cooperatively with the State of Oregon and stakeholders as part of the Willamette Basin Reservoir Study. The study was “put on hold” in 2000 following the listing of Willamette River stocks of salmon and steelhead as threatened under the Endangered Species Act (ESA). In 2015, the USACE reinitiated the Willamette Basin Review Feasibility Study. The study was completed in November 2017. It identified a demand for 159,750 acre feet of storage space for M&I use. Nevertheless, until a full system-wide EIS is completed, M&I storage space may be capped at 43,000 acre feet.

WVP Storage is the Last Remaining Water Supply Available to Water Providers

After almost 30 years of effort, we are excited about the opportunity to have access to stored water and to develop an M&I contracting program. It is well understood that the stored water in the WVP constitutes the overwhelming majority of the remaining water supply available to public water providers in the Willamette Basin to meet future demands.

OWRD’s Willamette Basin Program rules (OAR 690-502) effectively preclude new water rights for municipal water supply from most surface water sources in the basin and opportunities to obtain new groundwater supplies are constrained by multiple regulatory limitations (there are currently 12 critical groundwater or groundwater limited areas in the lower Willamette Basin, and new groundwater appropriations with the “potential for interference” with surface water bodies have been disallowed). Furthermore, some existing water rights for municipal water supply downstream from the WVP reservoirs may become less reliable as a result of the impacts of climate change, reallocation of conservation storage for fish and wildlife benefits, and the subsequent issuance of water rights to protect stored water for instream purposes, or as a result of changes in the operation of the Willamette Valley System.

Water Providers Require Reliable Water Supplies

Public water providers are required to provide safe and reliable water supply to the communities they serve. Accordingly, they plan for water supply investments based on a planning period of 50 years or longer. In addition, they plan for multiple (redundant) water supplies to ensure uninterrupted service and the greatest protection possible for public health and safety. To meet these water service obligations, water providers must finance, permit and build complex and expensive infrastructure to extract, treat, and deliver high quality drinking water to homes and businesses. The monetary burden of this work is shouldered by our customers, the citizens of Oregon.

Whether for redundant supply or to meet growing demands, the water providers in the Willamette Basin need access to reliable water supply in order to finance long-term investments in infrastructure for the protection of public health and that support economic growth. Storage space that is disproportionately subject to curtailment, interruptible, or has “second-fill” status is unreliable both from year-to-year and over the long-term (see 33 C.F.R. § 209), and therefore cannot provide a sound basis for investment in water supply infrastructure. Similarly, the current cap of 43,000 acre feet on M&I storage space is too low to provide certainty that stored water supplies will still be available within the long repayment periods of debt issued to finance the construction of water supply infrastructure.

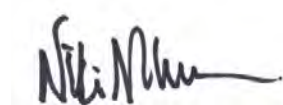
In summary:

- **WVP storage constitutes the overwhelming majority of the remaining water supplies available to public water providers in the Willamette Basin to meet future demands.**
- **Municipalities require reliable sources of water in order to invest in water supply infrastructure for resiliency, redundancy, and to support our growing communities.**
- **In order for WVP storage to meet water providers' needs for reliability, it is important that the USACE maintain the proportionate curtailment recommendation and policy for all beneficial uses of stored water on the system including for fish and wildlife supply.**
- **Furthermore, municipalities expect that after the operations and maintenance EIS is completed, the 43,000 acre foot cap on municipal and industrial contracts will be removed, allowing access to 159,750 acre feet of WVP storage.**

As part of its NEPA evaluation for the overall Willamette Valley System operations and maintenance, USACE should carefully consider the critical component of the stored water to protection of public health, economic impacts of existing and future water supplies for public water providers, and impacts to existing public water systems' water supplies due to proposed construction projects for EIS implementation.

We look forward to continuing to work with USACE to reach major milestones in the reallocation process and continuing the discussion on the protection of endangered species in the basin. Feel free to contact me should you have any questions regarding this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Niki Iverson", with a long horizontal flourish extending to the right.

Niki Iverson
Project Manager, Oregon Water Utilities Council
Water Director, City of Hillsboro



June 28, 2019

U.S. Army Corps of Engineers,
CENWP-PME-E
ATTN: Suzanne Hill
P.O. Box 2946
Portland, OR 97208-2946

SUBMITTED VIA EMAIL: willamette.eis@usace.army.mil

Re: Scoping Comments on Willamette Valley System Evaluation

Ms. Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. Our organizations represent farmers, ranchers, irrigation districts, drainage districts, and agriculture dependent businesses whose livelihood is tied to the operations of the Willamette Valley System. We have been actively engaged in the Willamette Reallocation process for the past several years and have a strong interest in both the flood risk management and water storage functions of the Willamette Valley System.

The Corps is seeking comments on the issues our organizations and the members we represent are concerned about related to the systemwide evaluation of the Willamette Valley System. The issues are numerous and very fact dependent. For example, we are very concerned about changes to the timing of when the Corps manages the System for flood control storage versus conservation storage. Our membership is both dependent on the winter flood control storage and the spring/summer conservation storage, and the correct balance between the two is critical. However, without a specific proposal to comment on, it is impossible to run through the myriad of impacts such a proposal could have on agricultural interests in each basin, and list all of the attendant issues that any particular change to the system could create.

Background on Agricultural Organizations

By way of background, Oregon Farm Bureau Federation (OFB) is a voluntary, grassroots, nonprofit organization representing Oregon's farmers and ranchers in the public and policymaking arenas. As Oregon's largest general farm organization, its primary goal is to

promote educational improvement, economic opportunity, and social advancement for its members and the farming, ranching, and natural resources industry. Today, OFB represents over 7,000-member farm families professionally engaged in the industry. The Oregon Farm Bureau has 3,084 members in the Willamette Valley.

The Oregon Association of Nurseries (OAN) represents the nursery and greenhouse industry. The nursery and greenhouse industry is one of the state's largest agricultural sectors, and Oregon ranks as the third largest nursery state in the nation, with over \$909 million in sales annually to customers in Oregon, the rest of the United States, and abroad. In fact, nearly 75% of the nursery stock grown in our state leaves our borders – with over half reaching markets east of the Mississippi River. Nursery operations send ecologically friendly green products out of the state, and bring traded sector dollars back to Oregon. Nursery association members represent wholesale plant growers, Christmas tree growers, retailers, and greenhouse operators. Our members are located throughout the state, with our largest nursery growing operations found in Clackamas, Marion, Washington, Yamhill and Multnomah Counties.

The Oregon Water Resources Congress (OWRC) is a nonprofit association representing irrigation districts, water control districts, improvement districts, drainage districts and other local government entities delivering agricultural water supplies. These water stewards operate complex water management systems, including water supply reservoirs, canals, pipelines, and hydropower facilities. Our members deliver water to roughly 1/3 of all irrigated land in Oregon, including farmers, nursery growers, and other agricultural water users in the Willamette Basin.

The Santiam Water Control District was formed in 1954. The District irrigation distribution system consists of 114 miles of canals and ditches extending from Stayton to Salem. The District presently delivers water to three hydroelectric plants, municipal water to the City of Stayton, cooling water to Norpac Foods, irrigation water for over 17,000 acres and other various uses. SWCD also conveys water to the critical habitat of listed species and performs contractual delivery obligations to federal, state, and county facilities, wetland restoration projects, and wildlife. SWCD holds over 197 cfs of consumptive and 947 cfs of non-consumptive surface water rights with priority dates spanning from 1866 to 1987. The SWCD lands, farmers working those lands, listed species, and municipal interests are dependent upon SWCD. In turn, SWCD is dependent upon the operation of the Detroit Lake and Big Cliff reservoirs located upstream of the SWCD points of diversion.

The Oregon Seed Council (OSC) is a trade organization that advocates for seed farmers, seed marketers, brokers, researchers and others involved in the Oregon seed industry.

The Oregon Dairy Farmers Association (ODFA) was founded in 1892 to work on behalf of Oregon dairy farmers. Today, ODFA represents Oregon's 228 multi-generational dairy farming families. Dairy farms are located in 21 counties and approximately 125,000 cows call Oregon "home." ODFA strives to create an atmosphere that is conducive for all Oregon dairy producers. These farms are extremely diverse family businesses. Milk is the fourth

most valuable agricultural commodity produced in Oregon, generating more than \$474 million in gross farm sales in 2015.

The Oregon Cattlemen's Association (OCA) works to advance the economic, political and social interests of the Oregon Cattle Industry.

The Oregon Wheat Growers League is proud to represent the nearly 2,000 farms across Oregon that produce wheat, one of our State's largest and most valuable crops. Wheat is grown in 30 of Oregon's 36 Counties and, with nearly 90% of our production going to export markets, it is one of Oregon's most important export crops. Wheat contributes hundreds of millions of dollars in direct and indirect value to Oregon's economy, especially Oregon's rural economy.

Associated Oregon Hazelnut Industries is an organization of hazelnut growers and handlers who deal with legislative and political issues that may impact the industry.

Oregon Women for Agriculture (OWA) was organized 50 years ago by Willamette Valley farm women who were concerned with regulatory issues impacting the grass seed industry. Since that time, this all-volunteer group has broadened its scope to include nearly all facets of agriculture and areas of our state. There are more than 300 members in eight chapters across the state. The mission of OWA is Working together to communicate the story of today's agriculture.

Agriculture is the Cornerstone of the Willamette Valley

The Willamette Valley is the most populated area of the state and is also home to the most diversified and intensively farmed agricultural regions. Approximately 70 percent of Oregon's population is in the Willamette Basin and approximately 85 percent of that population in the Willamette Basin is supported by public water systems.

The Willamette Valley is home to more than 19,000 farms spanning 1.5 million acres of farmland. The basin contains some of Oregon's most productive agricultural lands. Oregon proudly produces more than 225 products in the Willamette Valley, in a globally unique growing region that allows such diversity to thrive. According to the 2017 United States Census of Agriculture¹, the Willamette Valley makes up 47% of Oregon's total agriculture sales. The market value of products sold in the Willamette Valley represents more than \$2.3 billion in farm gate value. Oregon is number one nationwide in the production of twelve commodities (blackberries, blueberries, boysenberries, hazelnuts, potted florist azaleas, rhubarb, Christmas trees, sugar beet for seed, orchard grass seed, crimson clover, red clover seed, ryegrass seed and fescue seed) and number two in nationwide production for five other commodities (black raspberries, Austrian winter peas, pears, peppermint, and spearmint). Nursery products raised in the Valley decorate landscapes all along the eastern seaboard. Grass seed, grown in the heart of the Valley is featured on some of the most prominent golf courses and the National Mall. In addition, the Willamette Valley was also recognized as the Wine Region of the Year by Wine Enthusiast Magazine.

¹ See 2017 Census for the Willamette Valley counties, attached.

The Willamette River and her basin is a central pillar of Oregon's diverse natural resource base and the ecological landscape, while providing the water resource that sustains our cities and communities. The basin extends approximately 187 miles from its headwaters in the south to the north, where the Willamette River flows into the Columbia River. The basin is more than 11,200 square miles, averages 75 miles in width and encompasses approximately 12 percent of the total area of the state. Thirteen of Oregon's 36 counties intersect or lie within the boundary of the Willamette River Basin. The decisions made by the Corps in this system review will have a long-lasting impact on the vitality of Valley agricultural production.

Willamette System Operation Greatly Impacts Agriculture

The Corps' thirteen federal reservoirs in the middle and upper Willamette Basin provide critical flood control and irrigation water for farms in the Willamette Valley. The Willamette Valley System dams are critical to protecting farms, homes, and communities from growing flood risk, particularly as weather patterns become more extreme. For example, our members were greatly impacted by the releases from the dams earlier this year during high flow caused by spring storms. To that end, it is critical that the dams retain their primary function of flood control, and that any adjustments made to system operations do not reduce or alter flood mitigation capacity.

However, the balance between flood control and water storage has always been a delicate one and is of critical importance to agriculture in the Valley. Presently, the water in the System is stored under Bureau of Reclamation water rights that authorize storage for irrigation. Recognizing that the water stored in this System is the last available water in the Willamette Valley, our organizations have been closely participating in the Willamette Basin Reallocation.

Through that process, we have consistently advocated for ensuring that agriculture's future water demand will be met through available water allocated to irrigation. Despite our advocacy, the Corps is proposing to allocate a mere 327,650 acre feet of the nearly 4.4 million acre feet of agricultural demand on the Willamette Valley System, even though models predict that 2.5 acre feet of water per acre will be deficient in future years. Even more concerning, the Corps is unable to provide certainty that the allocated water will be available to agriculture – even in years of peak storage – due to the Endangered Species Act. This outcome is unacceptable to the agricultural community and will result in significant impacts to our state's most productive agricultural region.

To that end, we hope the Corps recognizes the importance of maintaining – at a minimum – existing storage capacity in the Willamette Valley System, presently 1.64 million-acre feet. This storage capacity must be maintained during the same period as historic operations, and at the same level as historic operations. Maintenance of this storage capacity is particularly important in light of the proposed increased use of the System by a multitude of new users after the completion of the Willamette Reallocation. Those new users will be seeking to transfer a portion of the water rights currently held for irrigation to those new

uses, and in so doing could impact existing users further down the Willamette Valley System.

We understand that a big reason for the review of the Willamette Valley System has to do with ongoing consultations with the National Marine Fisheries Service regarding the impact of the Willamette System on protected salmonid species in the system. We strongly encourage the Corps to keep at the forefront of its review protection of the Congressionally authorized purposes of the System and evaluate alternatives that meet fisheries needs while protecting and promoting non-fisheries related uses of the system, chief among them flood control and irrigation. The Corps is already proposing to allocate nearly 70% of the stored water to meet fisheries needs. In light of the multiple objectives of the System, the Corps should not make any further changes to the System that impact flood control or irrigation.

Further, we note that during the Willamette Reallocation process, we asked a number of questions about implementation of the Reallocation that the agencies involved in the process have been unable or unwilling to answer. These include basic questions around how the “share the pain” model for the Reallocation would work during times of shortage; how contracts would be administered, particularly between “new” users on the system and the existing agricultural contracts; whether users forced to convert from live flow to storage rights would be given a contract preference; how regulation downstream would occur; how the fisheries flows would be administered; and whether the fisheries flows are going to be subject to change as ESA consultations occur. To date, none of these questions have been answered. The answers to these questions have the potential to determine whether and to what extent changes proposed as alternatives in the Willamette Valley System review would impact agriculture in the basin.

Without additional information on the proposed alternatives, we are unable to offer more specific comments on the Willamette System review at this time. As you develop alternatives, we encourage you to ensure that the alternatives are not altering either the flood control or water storage capacity of the System in a manner that will impact communities or reduce the amount of water available as part of the Reallocation.


Due to the very low amount proposed to be allocated to agriculture as part of the Reallocation, our members are very concerned about their ability to access and reliably use the last available water in the Willamette Valley. Without certainty around this water, we will be unable to reliably grow many of the 225+ commodities we produce, which would have spillover effects on a local, national and international scale. Agriculture needs both a larger share of the water available on the system and certainty that that amount of water will be available into the future. While the System review does not have the ability to impact the allocation of the water, it has the potential to greatly impact water availability and overall storage on the system. We strongly encourage you to develop alternatives that protect flood control, address levee and revetment impacts and provide adequate agricultural water supply in the review process.

Thank you for the opportunity to comment and please do not hesitate to contact us if you have any concerns.

Sincerely,



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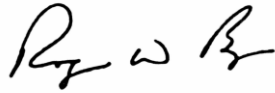
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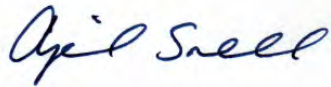
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[Non-DoD Source] Willamette EIS

Paul Mikesh <Paul.Mikesh@pgn.com>

Sun 5/26/2019 7:30 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Given the fact that the Willamette system has ESA listed runs of Spring Chinook and Winter steelhead I'm curious why the biological opinion for the system has never addressed controlling the Pike Minnow population like that on the Columbia River.

I use to fish the Willamette above Newberg and we caught large numbers of Pike Minnow along the rip rap banks of the river that were built by the Corps to channelize the river. Since these fish were recognized to be a predatory specie on juvenile salmon and steelhead in the Columbia then why not in the Willamette?

Seems to me we could potentially protect millions of salmon and steelhead smolts by controlling the Pike Minnow population in the river.

Paul Mikesh
Columbia City, OR
paulmikesh@comcast.net

4 January 2018

Phillip F. Brozek, P.E.
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(delivered via email to: willamette.eis@usace.army.mil)

District Engineer
U.S. Army Corps of Engineer District, Portland
Attn: CENWP-PM-E/Suzanne Hill
P.O. Box 2946
Portland, Oregon 97208-2946

Subject: EIS Scoping comments for Willamette Valley System Evaluation

These comments are provided to the United States Army Corps of Engineers (USACE) as project proponent and lead federal agency investigating the continued operations and maintenance of the Willamette Valley System in accordance with authorized project purposes.

1. Forecast Informed Reservoir Operations

USACE has adopted the use of Forecast Based Reservoir Operations (FIRO) to enhance management for flood storage in reservoirs in location on h west coast. In essence, using factors such as weather forecasts, basin wetness, etc., operators can release stored water in advance of a large incoming storm and retard unnecessarily high releases in the receding limb if a storm hydrograph. In doing so, an increase inf flood risk management benefits, and in certain cases, an increase in conservation storage, can be accomplished using the existing infrastructure. Use of FIRO would involve conducting review and modification of the Water Control Diagram and possibly the Emergency Spillway Release Diagram for each reservoir. I believe that such a review is already required by USACE policy. The EIS could approach the system wide FIRO application on a programmatic scale leaving each reoperation study the lighter lift of an EA for any impacts beyond those disclosed in the EIS. A great technical resource on the application of FIRO, if Portland District has not yet fully explored this topic, is Joe Forbis, USACE Sacramento District, Chief of Water Management.

2. Fish & Wildlife

The continued use of flows indicated in the Endangered Species Act Biological Opinion (BiOp) as the measure of fish & wildlife requirement may be flawed as a long-term operational approach.

- A primary objective of the Willamette Valley Project is the provision of flows for fish & wildlife.
- In the past, USACE studies (Willamette River Basin Review Study) used of BiOP demand as representative of the fish & wildlife allocation as reasonable for purposes of analysis and at one point actually defined fish & wildlife demand as those required to meet the BiOp.
- Using that definition, should the Endangered Species Act be modified in law (or even repealed) over the project life, the fish & wildlife allocation would be ill-defined or even be eliminated.

- **Recommendation:** State as an environmental commitment that flows for fish & wildlife and those for Endangered Species are not strictly linked. BiOp demand will be the priority for the fish & wildlife flows, but that if in the future BiOp flows are reduced under law or species recovery, the fish & wildlife flow will remain at the previous (current to the time of the EIS) level of BiOp flows.

3. Sustainable Rivers

The Willamette River is one of sixteen projects between USACE and The Nature Conservancy that represents an ongoing effort to operate USACE dams to achieve more ecologically sustainable flows, while maintaining or enhancing project benefits. While there could be some overlap or synergistic effects, ecological flows should not be confused with flows required by the NOAA Fisheries BiOp. The inclusion of these environmental flows in Willamette Valley System operation is not contrary to project authorization as part of the authorized fish & wildlife objective. Ecologically sustainable flow is clearly within the scope and policy in the preparation of EIS alternatives. The EIS analysis should include the healthy inter-relationships of sediment, temperature, nutrient, and connectivity, along with healthy-river based socioeconomic benefits.

4. Toxic Algae

Toxic Algae, as known as blue green algae, is an ever increasing a reality of Willamette System operations. The EIS should address Toxic Algae Management Plan. This management plan should include monitoring, communication/notification, and mitigation. Mitigation may include closure of all or part of reservoirs affecting recreation, drinking water supply and other effects. Future mitigation may include treatment of a reservoir as the technology improves.

Please email at phil.brozek@gmail.com or call at 916-995-3929 if you have questions.

Thank you

Phillip F. Brozek, P.E.

June 28, 2019

RE: Willamette Valley System Environmental Impact Statement Scoping

In response to the U.S. Army Corps of Engineers (Corps) notice of intent to prepare an environmental impact statement (EIS) for the Willamette Valley System (WVS) operations and maintenance, the Public Power Council (PPC) offers the following comments. PPC represents most of the preference customers purchasing power from the Bonneville Power Administration (BPA) who would ultimately fund approximately half of costs associated with Willamette Valley Projects. As a result, PPC and its members have a strong interest in robust EIS evaluation to determine the most cost-effective and biologically sound measures for continued operations and maintenance of the WVS that meet environmental obligations.

This EIS is an opportunity for the Corps to weigh all economic, social, and environmental impacts in determining a preferred action that forges the path forward for the Corps and region in the WVS. Until the EIS is completed and a comprehensive plan for continued operations of the WVS is completed, the Corps should not address isolated issues through expensive capital measures that may not prove useful upon completion of the systemwide EIS.

Sequencing of WVS Processes Should Follow System EIS

Given the magnitude of costs associated with the efforts across the WVS and the impacts these costs will have on regional ratepayers and taxpayers, the Corps should use this EIS as an opportunity to reset and influence its other plans throughout the system. Specifically, the Environmental Assessment of the Cougar Dam downstream passage facility and the Detroit Project environmental impact statement should be informed by the systemwide EIS, not the other way around. The proposed capital projects linked to these narrower processes could be improved and a better incorporated part of a broader mitigation strategy. In resetting the table with the systemwide EIS, the Corps has an opportunity to properly sequence the necessary processes and subsequent actions in the Willamette. Doing so would give the region greater faith that the Corps has a deliberate management approach in the WVS.

Further, properly sequencing WVS processes would exhibit that there is a clear expectation of effectiveness of the action that comes from the EIS. Projects within the proposed action would be viewed as needed pieces of a bigger plan instead of one-offs intended to address specific issues without consideration of the broader effort. Without appropriate sequencing of its efforts in the WVS, we believe it will be difficult for the Corps to achieve the technical, biological, and economic objectives it expects from this process.

Holistic Management of the Willamette Valley System

Although the Corps is not responsible for all management within the Willamette Basin, the EIS should consider all management actions and how they are complementary or detrimental to Corps' efforts and vice-versa. For example, while hatchery and harvest management actions are not a Corps responsibility, the EIS should consider these elements to ensure management actions are coordinated, or at least appropriately weighed when developing a long-term WVS plan. As a result, we believe it is appropriate to consider hatchery production program goals and harvest management as part of the EIS in order to understand their impacts and interplay with the resultant proposed action.

The Corps should also work closely with BPA as a cooperating agency in EIS development to produce a thorough analysis of multi-operational effects on power generation. This may include but should not be limited to: economic and biological impacts of operating the system for flood control and water supply purposes, other renewable resource integration, and greenhouse gas impacts.

Additionally, the EIS should consider:

- The most cost-effective options to meet downstream temperature and fish passage requirements,
- Opportunities to modify existing revetment to benefit floodplain function and improve juvenile fish productivity (e.g., set back revetments to flood capacity and improve habitat connectivity and function),
- Adaptive management options allowing for course changes if proposed actions do not meet intended conservation goals,

Clarification of the Effectiveness Standard

PPC understands the Corps' need to meet its mitigation obligations at projects within the WVS. That said, actions should not be implemented unless they appear to meet a clear effectiveness benchmark. For example, the Corps is moving forward on costly downstream trap-and-haul facilities within the WVS without having clearly shown the benefit of these expensive projects. As part of the EIS and as part of the Corps' own proper business practices, it should clarify the effectiveness standard of its recommended actions.

This is to say that as part of moving ahead with costly projects, within the design and planning process, the Corps should clearly show the region its expected measure of effectiveness of the proposed action. If the action does not meet a high-percentage threshold that the action will meet its goals, the Corps should reassess its options to find a better way forward. Merely hoping an action will succeed is unacceptable, especially when they are as costly as those currently proposed in the system.

Providing a clear decision matrix and sharing it at all management levels within the Corps, as well as publicly, is necessary for success in the WVS. With BPA ratepayers under great pressure to competitively serve their customers and with diminishing Congressional appropriation dollars available, the Corps cannot afford to fund projects without high certainty of effectiveness. The way forward set by this WVS EIS can provide the Corps and the region greater certainty of future success.

Conclusion

BPA's customers stand behind solid management principles at both their local utilities and at the regional level. If the Corps will also embrace these principles, we believe it can chart a reasonable path toward meeting its obligations in the WVS.

We appreciate your consideration of these comments and look forward to working with you and your cooperating agencies in developing an alternative that provides the best management direction for the Willamette Valley System.

U.S. Army Corps of Engineers, CENWP-PME-E
ATTN: Suzanne Hill
P.O. Box 2946
Portland, OR 97208-2946

June 25, 2019

Dear Suzanne et al.,

Thank you for this opportunity to offer scoping comments on your proposed Environmental Impact Statement on the Continued Operation and Maintenance of the Willamette Valley Project (WVP). My primary interests lie in the survival and recovery of the Valley's native anadromous salmonids, Upper Willamette River (UWR) Chinook salmon and (UWR) steelhead, both listed as threatened under the Endangered Species Act and both strongly affected by the WVP. I also have an interest in future water use in the basin and the potential role of the Project to meet those demands in an environmentally sound manner.

General Comments

1. It is unclear from your invitation to provide scoping comments whether the potential for reallocation of conservation storage is within the scope of actions you are considering. Any reallocation of stored water would affect project operations and thereby their effects on ESA-listed species. I offer a comment at the end of this letter on future out-of-stream water demands and the WVP's possible role in meeting them. At present, less than 80,000 acre-feet of water delivery is contracted at the WVP. Total WVP conservation storage tops out at almost 1,600,000 acre-feet and the Corps attempts to fill that storage by mid-May each year. Because storing water in project reservoirs has adverse effects on juvenile reservoir and dam passage survival and water quality, the alternative of capping water delivery contracts at current levels and revising project operations to have a high probability of meeting those contracts and downstream instream flow needs while minimizing storage should be considered.
2. In order for an alternative to be considered feasible and implementable, it must be shown to avoid jeopardizing the continued existence of ESA-listed species, or adversely modifying their critical habitat. Hence, each alternative considered should be analyzed for its effects on: each affected independent population's viability, WVP-wide effects on each affected ESU or DPS, and effects on designated critical habitats for each listed species.
3. Available data show both a long-term downward trend and a recent steep decline in the abundances of UWR Chinook salmon and steelhead (See *Declaration of Kirk Schroder Case No. 3:18-cv-00437-JR U.S. Dist. OR 2019*). The quality and timing of discharges at the dams and the severe reduction or elimination of passage to and from historical spawning and rearing habitats upstream of the dams strongly contribute to these declines.
4. The recent declines call for protective measures that could be implemented quickly (e.g. drawdown with safest passage route discharge priority) and timely development of more robust structural measures. Implementing effective structural passage improvements has proven to take a lot of time (5 to 10 years), from design to build. The EIS should emphasize immediately implementable measures, using existing facilities, to aid in the survival of the species in the near term, and an aggressive time-line for structural measures that would facilitate passage over a wider set of conditions but require both time and money to complete.

5. The WVP dams affect the likelihood of survival and the potential for recovery of the species in several ways: by blocking and inundating prime spawning habitats; by creating reservoirs that impose biological (predation and disease), physical (slow travel times), and water quality (high temperatures) limits on juvenile survival; by modifying downstream flow timing and water quality; and by preventing the flows of sediment and woody debris. While these effects were addressed in prior NEPA/ESA documents, many of the adverse effects remain and all need to be revisited.
6. The low level of juvenile survival through the WVP's dams and reservoirs greatly reduces the utility of critical habitats upstream. Hence, improving juvenile dam passage survival should be a focus of protective measures considered.

Fish passage studies conducted throughout the project demonstrate that the highest rate of juvenile emigration through project reservoirs takes place at and near the minimum conservation pool elevation which occurs during drawdown in the fall and winter months, while fish enter the reservoirs throughout the year but mostly in the spring and summer months. This lack of safe, volitional passage during the spring forces juveniles that enter then to reside in project reservoirs throughout the warm summer months when predation, disease, and water quality issues limit their survival. UWR Chinook salmon display two distinct life history strategies. Some juveniles leave their natal streams in the Willamette Valley a few months after emergence as subyearlings, while others, termed yearlings, stay in the river for up to a year after hatching before emigrating. By precluding timely volitional passage, the WVP strongly affects survival of both cohorts, but may also tend to skew populations toward fish displaying the yearling migration strategy by preventing expression of the subyearling strategy. Studies have also shown that the longer fish are in the reservoirs the lower the cohort survival. The seasonal draft and refill operation of the project strongly affects fish passage timing and survival through the project.

7. Although available models and scientific judgement are very useful to estimate likely effects, any alternative adopted should include an extensive research, monitoring, and evaluation program, coupled to adaptive management to ensure survival goals are being met, and to help identify remedial measures if they are not.

A Fish Friendly Alternative

The long-term goal should be to make the dams and reservoirs as invisible to fish as possible by providing safe, timely, and effective passage; and by providing high quality water in the reservoirs and downstream. Because experience has shown that developing juvenile collection and passage systems at WVP dams that would function well over a wide array of conditions is at least 5, and more likely 10 or more years away from the when the final EIS issues, I recommend an alternative that would provide juvenile passage survival improvements as soon as implemented, and an opportunity for evaluation and comparison to other approaches. The interim measures specified below could, and to the extent possible, should be implemented immediately and remain in place until structural juvenile collection and passage systems are completed and shown to be effective. In the proposed fish friendly alternative below, I recommend implementing both deeper seasonal drawdowns at several projects and year-round drawdown at one to improve juvenile emigration and dam passage. Each of these measures should include a monitoring and evaluation program to inform future management.

Interim Measures

1. Improve volitional downstream passage for juvenile fish using existing facilities.
 - a. Annually draw down Detroit reservoir to the regulating outlet invert elevation (1,370') by November 15 and hold until December 15, and prioritize discharge through the regulating outlets over power turbines for that time. This measure would:
 - i. Provide outmigrating juvenile Chinook salmon and steelhead access to the safest means of passing Detroit Dam under current dam configuration (the regulating outlets) during the higher passage period of the year (fall/winter).
 - ii. Reduce juvenile travel time through Detroit Lake by reducing the cross-sectional area of the lake, thereby improving juvenile passage survival and condition. This travel-time reduction would be substantial for fish that enter the lake in the fall and modest for fish that enter the lake in the spring. This would also reduce the time that juveniles are exposed to parasitic copepods in Detroit Lake that can harm and kill juvenile salmon and steelhead.
 - iii. Likely not provide the same level of benefit as a system that safely and effectively collected and passed fish more frequently.
 - iv. Increase the amount of storage available for flood events during the 30 days of deep draft operation, potentially benefiting flood damage reduction and water quality by reducing spills and thereby adverse TDG during flood events.
 - v. Reduce electrical generation during the period of prioritizing the regulating outlets and refill.
 - vi. Slightly reduce the likelihood of refill during dry years.
 - b. Annually prioritize discharge through the regulating outlets at Green Peter from November 15 through January 31 to enhance juvenile passage; and reinstate transporting a portion (determined in consultation with NMFS) of the UWR Chinook salmon and steelhead collected at the Foster trap to release points upstream from Green Peter reservoir. This measure would:
 - i. Restore UWR Chinook salmon and steelhead to the Middle Santiam River upstream of Green Peter Dam.
 - ii. Provide outmigrating juvenile Chinook salmon and steelhead access to the safest means of passing Green Peter Dam under current dam configuration (the regulating outlets) during the higher passage period of the year (fall/winter).
 - iii. Likely not provide the same level of benefit as deeper drafts or a system that safely and effectively collected and passed fish more frequently.
 - iv. Reduce electrical generation during the period of prioritizing the regulating outlets.
 - c. Draw down Cougar reservoir to the regulating outlets (elevation 1,505') by November 15 and hold until December 15. Maintain Cougar reservoir at minimum conservation pool (1,532') from March 1 to May 1 and prioritize use of regulating outlets over power turbines for that time. This measure would:
 - i. Provide outmigrating juvenile Chinook salmon access to the safest means of passing Cougar Dam under current dam configuration (the regulating outlets) during period of the year when the numbers passing the dam are highest.
 - ii. Reduce juvenile travel time through Cougar reservoir by reducing the cross-sectional area of the lake, thereby improving juvenile passage survival and condition. Maintaining lower water surface elevation in the spring (March 1 through May 1) coincides with juvenile entry, allowing for rapid passage and

- maintenance of life-history diversity. This measure would also reduce the time that juveniles would be exposed to parasitic copepods and predatory fish in Cougar reservoir.
- iii. Likely not provide the same level of benefit as a system that safely and effectively collected fish more frequently.
 - iv. Increase the amount of storage available for flood events during the 30 days of deep draft operation, potentially benefiting flood damage reduction and water quality by reducing spills during flood events.
 - v. Reduce electrical generation during the period of prioritizing the regulating outlets and refill.
 - vi. Slightly reduce the likelihood of refill during dry years.
- d. Draw down Lookout Point reservoir to the regulating outlets (elevation 750') by November 15 and hold until at least December 15 and provide free, ungated spill at Lookout Point dam for 2-4 weeks in spring (tentatively March – April, dates to be determined in cooperation with ODFW and NMFS,). This measure would:
- i. Provide outmigrating juvenile Chinook salmon access to the safest means of passing Lookout Point Dam under current dam configuration (the regulating outlets and spillway) during period of the year when the numbers passing the dam are highest.
 - ii. Reduce juvenile travel time through Lookout Point reservoir by reducing the cross-sectional area of the lake, thereby improving juvenile passage survival and condition. Maintaining lower water surface elevation (near spillway crest) in the spring (March 1 through May 1) coincides with juvenile entry, allowing for rapid passage and maintenance of life-history diversity. This measure would also reduce the time that juveniles would be exposed to predatory fish in Lookout Point reservoir.
 - iii. Likely not provide the same level of benefit as a system that safely and effectively collected fish more frequently.
 - iv. Increase the amount of storage available for flood events during the 30 days of deep draft operation, potentially benefiting flood damage reduction and water quality by reducing spills during flood events.
 - v. Reduce electrical generation during the period of prioritizing the regulating outlets and refill.
 - vi. Slightly reduce the likelihood of refill during dry years.
- e. Maintain the water surface elevation at Fall Creek reservoir at or below 685 feet year-round except as needed to provide downstream flood damage reduction benefits. This measure would be permanent and would:
- i. Provide outmigrating juvenile Chinook salmon access to the safest means of passing Fall Creek Dam under current dam configuration (the regulating outlets) year-round thereby increasing dam passage survival and facilitating expression of migration cues when they occur, improving life history diversity.
 - ii. Reduce juvenile travel time through Fall Creek reservoir by minimizing the cross-sectional area of the reservoir and converting much of Fall Creek to free-flowing, thereby improving juvenile passage survival and condition.
 - iii. Expose long segments of Fall Creek upstream of the dam, extending available spawning habitat.
 - iv. Increase the amount of storage available for flood events by drafting the project deeper.

- v. Provide the least possible effect on critical habitat throughout Fall Creek while increasing the downstream flood damage reduction benefit.
 - vi. Eliminate refill and summer flatwater recreation at Fall Creek reservoir. However, other forms of recreation would be improved.
 - vii. Facilitate revegetation of the reservoir footprint and stabilization of the Fall Creek channel upstream from the dam. Under current temporary drawdown operations, drawdown exposes large areas of unvegetated sediment and considerable sediment is entrained in the project's discharge stream. This adversely affects both water quality (turbidity) and channel morphometry (aggradation). Because over 50 years of sediment has accumulated in the reservoir footprint, there is ample supply to continue this process if not arrested. By eliminating refill and inundation of the reservoir footprint, a permanent drawdown would facilitate revegetating the disturbed reservoir footprint and stabilizing the active channel banks, thereby reducing sediment movement.
 - viii. Finally, because this measure is very likely to be highly successful, information gleaned through research, monitoring and evaluation would provide valuable information to improving passage survival at other facilities.
2. Improve downstream water quality using existing facilities.
 - a. Use the lower and upper regulating outlets at Detroit Dam as needed to control discharge water temperatures and prioritize meeting downstream water temperature targets over power generation during the fall. This measure would improve the reproductive success of Chinook salmon that spawn downstream from the project.
 3. Each of these measures should be implemented at the initiation of ESA consultation, or sooner, until supplanted by other measures (e.g. fish traps) that are shown to provide greater fish benefit.

Long-term Measures

4. Existing summer minimum discharge rates and interim water temperature control operations are predicated on reservoir refill. As juvenile dam and reservoir passage survival is adversely affected by project refill and storage, these predicates should be thoroughly reconsidered. In particular, minimum flow requirements during July and August are generally much higher than inflow during those months, requiring deliveries from storage. Summer flows generally serve adult migration and holding and juvenile rearing needs. Studies conducted by the Corps have shown that much lower flows, flows similar to inflow, could meet those habitat needs. Developing an instream flow regime that minimizes the need for stored water would benefit juvenile reservoir and dam passage, improving the opportunity to restore fish to habitats upstream of the dams.
5. Evaluate flood damage reduction operations to determine if more moderate operations could provide the same flood and project protection as current operations with less severe impacts on streamflow and fish habitat. Specifically, currently during flood events the Corps reduces project discharge by storing incoming water, then releases the stored water once the peak flow has passed and the flood risk abated. In the past this has resulted in the project going from minimum discharge to very high discharge rates very fast. This is hard on the ESA-listed fish and

other aquatic biota. At times, such operations are prudent as one storm can come after another and storage is needed quickly. At other times, storm events are spaced out and such operations are overly harsh. The Corps should evaluate using available meteorological and hydrological data, predictive models, and professional judgement to reduce the difference in discharge during and immediately after flood events.

6. The Corps and NMFS should develop and implement a long-term WVP configuration and operation plan that provides a high potential for recovery of the species. Such a plan will include both water temperature control and fish passage systems and an aggressive time-line for design and construction of these facilities, as well as a protective instream flow regime. However, it is clear that full implementation of a long-term solution will take more than ten years and additional interim measures to those listed above may be appropriate. The alternative adopted should provide for adaptive management throughout the duration of the proposed action.

Water Resource Development

Water demands in the Willamette Valley are growing and the WVP's storage is being sought to serve those demands. There are obvious conflicts between meeting out-of-stream water demands and fish survival and recovery needs, and because summer flows are low and both instream and out-of-stream demands high, summer water use is likely to create the strongest conflicts. Because juvenile dam and reservoir passage survival is strongly affected by reservoir water surface elevation, the dedication of conservation storage at WVP reservoirs to out-of-stream use would create conflicts, as would the development of additional in-channel storage facilities by others. A better solution to meet summer water demands in the Valley with a minimum of conflict with the survival and recovery of ESA-listed fish would be off-channel storage or rechargeable well-fields. High winter flows could be safely diverted to off-channel storage facilities, or designated recharge areas, which could then be tapped to augment current diversions of live flows to meet summer demands. WVP operations could then be managed to enhance such diversion opportunities during the fall and winter with no more than minor effects on fish. Further, for potable water use, water delivered during the winter would be free of cyanotoxins, which have curtailed summer water diversions in the recent past. Increasing the use of water collected during the winter would thereby improve water surety, and reduce human health risk and treatment costs.

These are my personal comments and should not be construed as those of any other party or organization. I cannot emphasize enough the need to implement significant interim measures as soon as possible as the current population trajectories are poor and delay risks further decline and possible extirpation. My comments above reflect this concern. Please put me on the service list for this EIS.

Sincerely,



Richard Domingue
Box 58956
Oak Grove, OR 97268

[Non-DoD Source] EIS, draft scoping comment, to the record, June 24, 2019, Benton County, Oregon.

tweet37@juno.com

Mon 6/24/2019 5:09 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

I shared inquiry to website email and have heard nothing back. June 13, 2019 and a follow up on June 20 2019 and heard nothing back.

Is the old EIS available? Will the new EIS please show the changes made to the old EIS as Track changes?

If I did not make any of the June 2019 public meetings, is there a way to see the presentation and or presentation materials on line?

Thanks, R.Foster

Public comment to Scoping for Draft EIS Willamette Valley Systems Operation and Maintenance.
June 24, 2019.

Not being able to see the old EIS, do not see it on Portland ACOE site.

Wondering how people may be notified of dam releases in the a.m. hours downriver of releases which will impact property, health and physical safety?

I looked on our local Benton County, Oregon website for this type of alert and found outdated material on public safety.

2019 flooding in Benton County Oregon could be a recent example of zero notification of dam releases to the mainstem Willamette River system of x volume over y time from these facilities upstream of all these communities.

No warning was given of dam water release for the 2019 flooding which occurred in Benton County, Oregon- Corvallis Oregon that I was aware of after, checking our local Benton County Oregon webpage and the City of Corvallis Web Page for specifics related to flooding, and the NOAA Portland website. ACOE can share that x volume is released here and will reach this community at this time with this much overall rise in stage level at this river gage.

for example and am hours, no one was aware of these additional CFS coming their way.

Extensive damage occurred in Corvallis from this release in the am hours, without indication of release volume reaching x location in predicted time. People where asleep, and where surprised to see flood flow surrounding their homes in Benton County. NO one had time to sand bag and move stuff out of flooded yards.

ODOT may have also been unaware of pending increase in known volume additions to Willamette River mainstem system from these facilities releasing these CFS combined volume, and so may have been less able to prepare and or prepare the working public for pending road closures and long delays in traffic movements at the Albany Oregon overpass.

Can the ACOE provide real time, factual public information to the public of CFS releases, alerting the public to water release volume and share an estimated time of arrival for this extra system addition CFS with impact State agencies and Cities?

Using NOAA perhaps as a conduit/ for information about weather related releases could alert local weather stations on TV/radio/social media to the fact that there is this release volume coming to hit a x time in y location and to be prepared with this led time warning given to NOAA Portland, by ACOE Portland, Oregon.

Insurance wise loss may have already been totaled and is available for loss totals, from this 2019 flood in Benton County, due to dam release flooding in early 2019 on mainstem Willamette River at Corvallis gage.

Water backup from this flood, up local creeks was excessive, more then in the last flood event which cased road closures in Corvallis, 2012? Marys River backed up, flooded Brooklane Drive in the AM. The city of corvallis public works may not have had time to close Brooklane Drive, so being a weekend, and in the AM, more property loss may have occurred on Brooklane Drive due to no road closure and cars moving through very deep flood flow water which was backed upstream from the mainstem Willamette River, to x point on the Marys River, to river mile ?

Erosion of Marys River river banks, and all other creeks may have been compounded due to water volume being so high and remaining high and backed up for a few days, lake like eating away at all the local creeks and river banks for two and a half days.

I guess release and water flow backup, upstreams and rivers in the Willamette Valley will occur more and more with global warming.

So, it may be good business practice for ACOE to develop and use an early warning system for property owners, Cities and State agencies which have to operate around and within these flooded areas, and who will see direct negative impacts from know CFS volume

releases where there is time to warn all downstream property owners, so they can better prepare their animals, homes, and property, and ODOT may be able to share with commuters what will occur where and when. An alerted work force who are forced to commute to say, Corvallis can be better prepared say, by getting days off, getting a babysitter, looking for car pools, preparing for long commutes to and from work should ACOE have have shared alerts with all residents in the Willamette Valley.

Thanks, R.Foster 980 SE Mason Place, Corvallis oregon.

All Natural CBD Oil Has Doctors Throwing Out Prescriptions

worldhealthlabs.com

Blocked<http://thirdpartyoffers.juno.com/TGL3131/5d1149a2a981449a10b1cst02duc>

From: tweet37@juno.com
To: [Hill, Suzanne CIV USARMY CENWP \(USA\)](#)
Subject: [Non-DoD Source] Re: Willamette Valley System EIS
Date: Tuesday, June 25, 2019 1:35:16 PM

Dear Suzanne,

Thanks, I see June public scoping meeting materials at the bottom of the website for EIS. I did email the portland ACOE website, twice, from the portland ACOE website, my email ends in juno.com so may have been removed as spam. June 11, 2019, June 21, 2019. Where is the original, historic, current EIS stored? Thanks, Rana.

----- Original Message -----

From: "Hill, Suzanne CIV USARMY CENWP (USA)" <Suzanne.Hill@usace.army.mil>
To: "tweet37@juno.com" <tweet37@juno.com>
Cc: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>
Subject: Willamette Valley System EIS
Date: Tue, 25 Jun 2019 01:27:13 +0000

Hello-

Writing to let you know we received your email this afternoon. You reference emails that were sent previously (06/13 and 06/20), however we don't have a record of these emails. Please confirm that the right email address was used:

willamette.eis@usace.army.mil

Meeting materials from the public meetings are available from the project website:

Blocked<https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/>

Thank you!

How to Stop Waking Up Every 2 to 3 Hours

howtoimproveyoursleep.com

<Blocked<http://thirdpartyoffers.juno.com/TGL3132/5d12851e441f751e5d16st03duc>>

Blocked<http://thirdpartyoffers.juno.com/TGL3132/5d12851e441f751e5d16st03duc>

<Blocked<https://d32oduq093hvot.cloudfront.net/icons/sponsoredlinksby.png>>

[Non-DoD Source] question about economic analysis

Ryan Thompson <ryan@mtnaireng.com>

Wed 6/5/2019 5:31 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

To whom it may concern,

I would like to know more information about the Willamette Valley Project economic estimates that are posted on the Army Corps website and in fliers. For example, the Corps states that the Willamette Valley Project saves the Willamette region \$1 billion per year. The Corps also reports estimated economic savings attributed to each dam. I have also seen estimates by the Corps about the economic benefit to Oregon's economy due to recreation from the Willamette Valley Project. Can you share any reports or background information that explain how those estimates were calculated? If not, then can you answer specific questions I have about how those estimates were calculated?

Thanks,
Ryan Thompson
Dorena, OR

[Non-DoD Source] Comment: Willamette Valley System (WVS)

Shannon Millington <slynemillington@gmail.com>

Thu 4/4/2019 7:47 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

To Whom It May Concern,

I am emailing to express my recommendation that all efforts be made to enable salmon to swim all the way up to through the Willamette River tributaries. As a homeowner in the town of Oakridge, I believe this would create a positive impact on both the ecology and economy of the area. I understand that this review is taking into consideration the Lookout Point Dam, and I would further encourage that the Hills Creek Dam also be evaluated with a remedy made.

I believe any effective solution must take into account natural spawning behavior of the fish and allow them to move beyond these dams in a timely and safe manner (e.g. wide and accessible fish ladders as preferable to trucking them around).

Thank you for your consideration and for making a positive change for this region.






Shannon Millington

Testimony (TS / TSPA)		BHCN Testimony USAP Willamette Valley System Operations and Maintenance EIS Ver: 02			
Date Rel: 2019 Jun 28 Friday 17:00 U [5:00 PM PT]			Date Anot: 2019 Jun 28 Friday 22:00 U [10:00 PM PT]		
TS = Testimony, PA = Orient: (P) Portrait, Sheet: (A) Letter		V	S3Pg: None		S1Pg: BH Kn CE 19-01 WVSOM
Link: 2019 Jun BHCN TSPA WVSOM EIS Scpng		02	PostS2Pg: BH Kn CE WVSOM Docs 2019		Site: BH Kn USACEPD Projects

01 | 2019 Jun BH TS CE WVSOM EIS

<i>Primary Contractions / Abbreviations</i>				
Item	Contraction	Expansion	Visit Gv Site	Visit BH Site
A	BHCN / BH	Birdshill CPO / NA (Nbhd = Neighborhood)	BH = BHCN	BH Kn Gv Org Nbhd Accs
B	USAP / USACEPD	US Army Corps of Engineers Portland District	USAP, USACEPD, CE,	BH Kn USACEPD Projects
C	WVSOM	Willamette Valley System O&M EIS (2019)	USACEPD WVSOM	BH Kn CE 19-01 WVSOM
D	WBR	Willamette Basin Review (EA) (FS) (2017)	USACEPD WBR	BH Kn CE 17-01 WBR
E	EIS	Environmental Impact Statement	EIS wkpd	BH Know DOCS
F	NEPA (US)	National Environmental Protection Act (US/DOE)	NEPA US DOE	BH Know DOCS
G	NEPA (Wiki)	National Environmental Protection Act (1969)	NEPA wkpd	BH Know DOCS
H	NEPA Guide	NEPA Citizen Guide ()	NEPA DOE CZ Guide	BH Know DOCS
I				

Birdshill CPO / NA Visualization of USAP Willamette Valley System O&M (WVSOM) EIS <2019-2023>

<p>Project Sites: Official: USAP WVSOM Nbhd: BH Kn CE 19-01 WVSOM</p>  <p>Imag USAP Cottage Grove Resvoir File / VIRIN: 090405-A-EZ675-0001JPG</p>	<p>Brochure: USAP WVSOM EIS Scoping Informational Brochure</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Front Pg <Cover></p>  </div> <div style="text-align: center;"> <p>Back Pg</p>  </div> </div> <p>USAP WVSOM: Scoping informational brochure BHCN Posting: 2019 Jun USAP BRPA WVSOM EIS Scpng BH</p>	<p>Public Testimony (TS) / Comment(s) of BHCN wrt USAP WVSOM</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>BHCN Icon</p>  </div> <div style="text-align: center;"> <p>Document Type</p>  </div> </div> <p>2019 Jun BHCN TSPA WVSOM EIS Scpng</p>
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Link(s):	Internal Link	Internal Heading	External Link	External Link Note	Important Link	
<i>Table of Contents with document section access link(s):</i>						
01		2019 Jun BH TS CE WVSOM EIS				2019 Jun US Army Corps of Engineers Willamette Valley System OM EIS
						Willamette Valley System Operation and Maintenance EIS (2019- 2023) Summary
						Coalescing Documents for USAP WVSOM
						BHCN: Critical LNAP Docs for LORA Mtng 2019 Jun 18 Tue 15:00 U [3:00 PM PT]
05		USAP WVSOM EIS Scoping Docs				WVSOM Scoping Documents presented at OH on 2019 Jun 06 Thur 16:00 U
06		USAP WVSOM Website Docs				WVSOM Website Documents posted
07		FDFP Apndx D Floodplain Analysis				Docs / Websites wrt FDFP Floodplain Analysis
08		Docs/Sites wrt FDFP and TCWTP				Docs / Websites wrt FDFP and TCWTP impacting Willamette River Floodplain
09		Docs/Sites wrt Fed Floodplain Authority				Docs / Websites wrt ROW(s) Permitting Authority
10		Docs/Sites wrt Locale Floodplain Authority				Docs / Websites wrt Flood Plain Authorities
11		Sites / Docs wrt OSU PNERC WRBPA				Docs / Websites wrt OSU PNERC 2002 Willamette River Basin Planning Atlas
12		Docs/Sites wrt FDFP Report(s)				Docs / Websites wrt FDFP Reports and
13		Docs/Sites wrt Linked Projects				Docs / Websites wrt Linked, Related and Evolving Projects
14		Docs/Sites wrt Knowledge Base				Docs / Websites wrt Multiple Related Knowledge Base Topics
15		Empty – Not Used (1)				Empty – removed to reduce file size. See template file(s)
16		Project Headers and Scratch Pads				Empty – removed to reduce file size. See template file(s)

Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

<p>02.01</p>		<p>NOT CREATED OR ANOTATED 2019 Jun 28 Friday 10:00 U</p> <p>Title: Summary of Lake Oswego North Anchor Project Subtitle: {WO 172, LNAP} LO North Anchor Project Link BHCN .: 2018 Mar BHCN IGPA LNAP Summary <Source> S2PgPost BH_Kn_WO172_LNAP_Smry, Site: BH_Knw_LOCG_WO_Projects</p> <p>Illustrates: City of Lake Oswego downtown and urban renewal district and project WO 172 North Anchor Project Intersection: OR43 (Oregon Hwy 43) (State St), MP .06.04 / B Av Issue / Defect with NW Corner (Short Radius turn)</p> <p>Cross Reference: City of LO (LORA): WO 172 <LO North Anchor> CRef Project City of LO (LOPL): LU 17-0075 <OR43 (State St) Setbacks> CRef Birdshill CPO / NA (BHCN): BH_Kn_WO172_North_Anchor CRef Birdshill CPO / NA (BHCN): BH_Kn_LU_2017-0075_OR43_Setbacks WO 172 / LNAP = Configuration Changes – LOCC 2018 Jul 03 Tu 18:30 U Item 14.01</p> <p>Time Chart of Actions Meeting Link: LOCC Mtng 195 2018 Jul 03 Tue 18:30 U (6:30 PM PT) Interactive Agenda: AGIN LOCC 2018 Jul 03 Tu 18:30 U (6:30 PM PT) See Item 14.01 – North Anchor Project Update</p> <p>Importance: Summary / Access Document Attributes Author: Charles Ormsby (Skip) Co-Chair Birdshill CPO / NA (BHCN, BH) Date Created .. : 2018 Mar 16 Fri 13:00 U (1:00 PM PT) <Circa> Date Published : 2018 Mar 16 Fri 13:00 U (1:00 PM PT) <Circa> Date Annotated : 2019 Mar 15 Fri 09:00 U (9:00 AM PT) <Circa> Version: 02 Type: IGPA = Infographic (IG), Orient: Portrait (P), Sheet: Letter (US Size "A") Sheet Orient: P = Portrait Orientation Sheet (Paper): A = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in) Size: 940 kb, Page(s): 1 File BHCN IGPA_BHCN_LNAP_Summary_2018_03Mar_16Fr_1300U.pdf Fldr BHCN ... CA:\BH_CPONA\BH_CPONA\ZZ_Act_2019x01\ Z2019_03Mar_14Th_1500U_Cret_INGF_LNAP_Smry</p>
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<p>02.02</p>	<p>BH Webpage – Time Chart of Actions</p>	<p>Title ... : CEPD2019SN01 Birdshill CPO / NA Knowledge Page for USACEPD / USAP / CE <Portland District> Project: WVSOM EIS Willamette Valley System Operations and Maintenance Environmental Impact Statement</p> <p>S1Page....: BH_Kn_CE_19-01_WVSOM Site: BH_Kn_USACEPD_Projects</p>
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<p>02.03</p> <p>Drone view of: Foothills Park and Adjacent areas including TCWTP.</p>	<p>Webpage / Video Screenshot</p>	<p>Title ...: Aerial View of Foothills Park in Lake Oswego Oregon Video...: 2015 Jun VIDO_PAGU_Foothills_Pk_WLRM_020.3, Total: 3 mins Locale ..: WLRM_020.3 north and downstream to WLRM_020.0 aprox. Content: Drone view of Willamette River in vicinity of: West Bank of Willamette River Foothills Park, Tryon Creek Waste Water Treatment Plant, Foothills District, Tryon Cove Park, Tryon Cove Park Annex and UPRR – Lake Oswego Railroad Bridge (WLRM_020.0) East Bank of Willamette River Rivervilla Park, Oak Lodge Water Reclamation Plant Tryon Creek (WLRM = Willamette River Mile, Terms Visit: BH_Knw_WR_EV_Resource)</p>
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03 Coalescing doc(s) – WVSOM

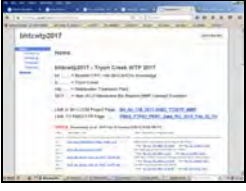
Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

03.01 Complete Research Annotate Work Needed




Source Webpage [BH Kn TCWTP 2017](#)

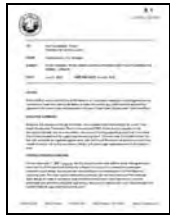



Title: **LO Foothills District Key Constraints and Tryon Creek Wastewater Treatment Plant (TCWTP)**
 Sub (Title 2) .: Foothills District
Link BHCN .: 2019 Feb BHCN IGPA KC FDFP TCWTP BH
 S2PgPost: [BH Kn TW MBR IG 2019](#)
 S1Pg: [BH Kn TWMBR INGF](#) , Site: [BH Kn TCWTP 2017](#)
 Illustrates: Willamette River West Bank in vicinity of Foothills and Tryon Creek and BHCN
 Importance: Flood mitigation limitations wrt 2012 FDFP vs. Stampher Road HOA/BHCN
 Cross Ref [BHCN](#) .: Multiple – to be created <
 Link [BHCN](#) : [BH Kn EVCR LC Foothills](#) and, [LOPL](#):
 Document Attributes
 Author (s).....: Charles Ormsby (Skip), Co-Chair Birdshill CPO / NA
 Entity: [BHCN](#) <Birdshill CPO / NA
 Project [BH Kn TCWTP 2017](#)
 Date Published : 2019 Feb 24 Sunday 18:00 U [6:0 PM PT]
 Date Posted : 2019 Feb 24 Sunday 18:00 U [6:0 PM PT]
 Date Annotated : 2019 Jun 28 Friday 21:00 U [9:00 PM PT] <Circa> <V01>
 IGPA = Infographic (IG), Orientation: Portrait ({}), Sht: Letter (A),
 Paper: PA = US "A Size" (Letter), (w x h – 8.5.0 in x 11.0 in)
 Size: 125 kb, Page(s): 1
 File BHCN ...: IGPA_BHCN_TWFD_MBR_2019_02Feb_24Su_1800U.pdf
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03.02 Essential



Council Report Source for Extract

Title: Figure 1-8: Future Foothills Development with Upgraded TCWTP <MBR2>
 Sub (Title 2) .: Source: PBES / CH2M Hill TCWTP (CAS) 2014 Jun, Fig 7-3
Link BHCN .: 2018 Jun PERC XMBR2 TWFP View SW
 S3PgPost: [BH Kn TW RP 2018 MBR2](#)
 S2Pg: [BH Kn TW MBR RP 2018](#) S1Pg: [BH Kn TW2017 MBR RP](#)
 Site: [BH Kn TCWTP 2017](#)
 Illustrates: Aerial view of TCWTP_CAS (Conv Actv Sludge) and Foothills District View to SW with boundary of OR43 [State St (LO)]
 Importance: Support / Access
 Cross Ref: LOCC 2018 Jun 19 Tuesday 15:00 U Agenda Item 06.01
 PERC MBR Location 02 – Lakeshore Concrete, 100 Foothills Rd LO
 Figure 1-8: Future Foothills Development with Upgraded TCWTP Section 1 Overview, File Screen 24 of 64 <File msgng Sec 03-10>
 Document Attributes
 Author (s).....: Brian D. Cullen, [PERCW](#) PERC Water (Costa Mesa CA)
 Entities: [PERCW](#) PERC Water (Costa Mesa CA) <Mods Ilus PBES / CH2M TCWTP>
 Entity <Source>.: CH2M Hill Portland Office (Circ 2013 Acquired by [Jacobs Engr](#))
 Date Published : 2018 Jun 19 Tuesday 15:00 U [3:00 PM PT] <Circa> <Mods Ilus>
 Date Published : 2014 Jun 30 Monday 17:00 U [5:00 PM PT] <Circa> <Src Ilus>
 Date Posted : 2018 May 31 Thursday 17:00 U [5:00 PM PT] <Circa> <LOCC_Pakt_Rels>
 Date of LOCC .: 2018 Jun 19 Tuesday 15:00 U [3:00 PM PT]
 Date Annotated : 2019 Mar 25 Monday 02:00 U [2:00 AM PT] <Circa> <V01>
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 Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11 in)
 Size: 220 kb, Page(s): 1
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

**03.03
Research
Annotate
Work
Needed**

2012 FDFP Report Section 5.3, Page 80



Section 5.0
Title Page



WDWD / LOED
Source for Extract



NOT CREATED OR ANOTATED 2019 Jun 28 Friday 10:00 U

Title: **Foothills District Framework Plan (FDFP)**

Sub (Title 2) : LOCC Adopted, RSLT 12-41 <Src [LOPL: LU_2012-0032](#)>

LOPL: [Exhibit F-4: Foothills District Framework Plan, Adopted 07/24/12 \(Part 1\)](#)
BHCN: [2012 Jul WDLE Rept FDFP P1F2](#)

Post [LOPL:](#)

NOT CREATED OR ANOTATED 2019 Jun 28 Friday 10:00 U
BHCN : [2012 Jul WDLE Rept FDFP P1F2 BH](#) <BDPA file >

S3PgPost:

S2Pg: [BH Kn FDFP Rept Accs](#) S1Pg: [BH Kn LU2012-0032_FDFP](#)

Site: [BH Knw LO LU Projects](#)

Illustrates: Evolution of FDFP without Metro LOPT Streetcar

Importance: 2012 Strategic (Vision) Plan effort for Foothills District

Cross Ref: [LOPL Nbdh Snapshot Info](#) circa 2011 FT / FTHL / Foothills - Not Regn

Visit: [BH Kn Gv Org Nbdh Accs](#)

See: [2011 Jan LOPL SMPA FTHL LOPL PJ FTHL](#) [LFTHL / LNAC / LOPN](#)

Portland Bureau of Environmental Services ([BES / PBES](#))

[PBES TCWTP](#) Tryon Creek Wastewater Treatment Plant (Homepage)

City of Lake Oswego Department of Public Works ([BES / PBES](#))

LOPW [LOPW TCWTP](#) > BHCN: [BH Kn TCWTP 2017](#) >

Metro: [MTRO LIB LOPT Arch](#) , BHCN: [loptland](#)

Document Attributes

Author (s).....: [WDWD](#) = WD =Williams Dame and White Developers

Entity: [LOED](#) = LE = LO Econ Development, Fnc Wrapped in to LORA Circa 2015?

[LORA](#) = LR = Lake Oswego Renewal Agency

Date Aprv LOCC: 2012 Jul 24 Tuesday 17:30 U [5:30 PM PT] <Circa> <On Doc Cover>

[LO Mtng / LO Mtng Archive](#) <Laserfiche System>

Date Aprv LOPC: 2012 Sep 13 Thursday 17:00 U [5:00 PM PT] <Circa> <On Srcr Filename>

[LO Mtng / LO Mtng Archive](#) <Laserfiche System>

Date Published : 2014 Oct 24 Saturday 09:21 U [9:21 AM PT] <Circa> <Doc Metadata >

Date Posted : 2014 Oct 26 Monday 17:00 U [5:00 PM PT] <Circa> <Assume>

Date Annotated : 2019 Jun 28 Friday 10:00 U [10:00 AM PT] <Circa> <V?? / Linked>

Type: BDPA = Book of Docs, Orientation: Portrait (P), Sheet: Letter (A),

Parsing of source report sections to files less than 20,000 kb

Paper: PB = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)

Size: 24,767 kb, Page(s): 190

File LOPL: [exhibit_f-4_foothills_framework_plan_final_09-13-12-adopted_07-24-12_part-1.pdf](#)

WbPg LOPL [LU_2012-0032](#), Item: Exhibit F-4

File BHCN: [REPT_WDLE_FDFP_F-4_LOCC_Adpt_2012_09Sep_13Th_1700U.pdf](#)

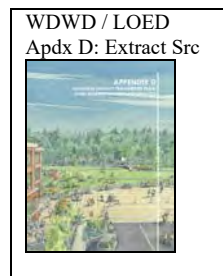
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\LU_12-0032_Dist_Plan_Spc_Foothills\03_WBPG_Files

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

03.04
Complete

Appendix D0, Item D0.00.02



Title: **Floodplain Base Map <LO Nbhds FH and BH>**

Sub (Title 2) ..: BID002 – PLPA: VGAG: FDFP Floodplain Base Map,
Scr: 310, DCPA Scr: 004

Link BHCN ..: **2011 Jun VG PLPA FPBase W D0 00 02 BH**

S3PgPost: [redacted]

S2Pg: [BH_Kn_FDFP_Rept_Acss](#) SIPg: [BH_Kn_LU2012-0032_FDFP](#)

Site: [BH_Knw_LO_LU_Projects](#)

Illustrates: Flood Plain Analysis 2011 Sep floodplain conditions in FDFP area

Importance: Identifies / Outlines existing floodplains in FDFP due to Willamette Rv and Tryon Cr.

Cross Ref BHCN ..: **2012 Sep BHWL DCPA FDFP P2F2 Apdx BH** < [redacted] >

Link BHCN ..: [2012 Jul WDLE Rept FDFP P1F2](#) , Post [LOPL: \[redacted\]](#)

Src Link BHCN ..: [2012 Jul WDLE Rept FDFP P2F2](#) , Post [LOPL: LU_2012-0032](#), Exhibit F-4

Document Attributes

Author (s).....: [ESA_VGAG](#) = VG = Vigil Agrimis, Portland OR <Prev VGAG to 2013>

ESA = Environmental Science Associates (1969)

Entity: [WDWD](#) = WD =Williams Dame and White Developer

[LOED](#) = LE = LO Econ Development, Fnct Wrapped in to LORA Circa 2015?

[LORA](#) = LR = Lake Oswego Renewal Agency

Date Aprv LOCC: 2012 Jul 24 Tuesday 17:30 U [5:30 PM PT] <Circa> <On Doc Cover>

[LO_Mtng](#) / [LO_Mtng_Archive](#) <Laserfiche System>

Date Aprv LOPC: 2012 Sep 13 Thursday 17:00 U [5:00 PM PT] <Circa> <On Srce Filename>

[LO_Mtng](#) / [LO_Mtng_Archive](#) <Laserfiche System>

Date Published : 2011 Sep 15 Thursday 17:00 U [5:00 PM PT] <Circa> <Assume>

Date Posted: Unknown / Cannot Determine

Date Annotated : 2019 Apr 12 Friday 13:00 U [1:00 PM PT] <Circa> <Vnn>

Type: BID002 = Body Item (BI) Appendix D, Item 2

PPLA = Plan (PL) = Plan, Orientation: Portrait (P), Sheet: Letter (A),

Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)

Size: 386 kb, Page(s): 1

File BHCN ...: R_X_WD00002_VG_PLPA_FPBase_2011_06Jun_20Mo_1700U.pdf

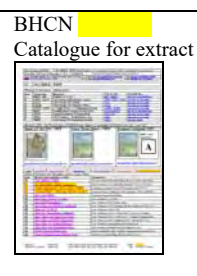
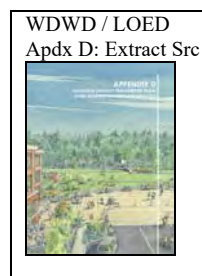
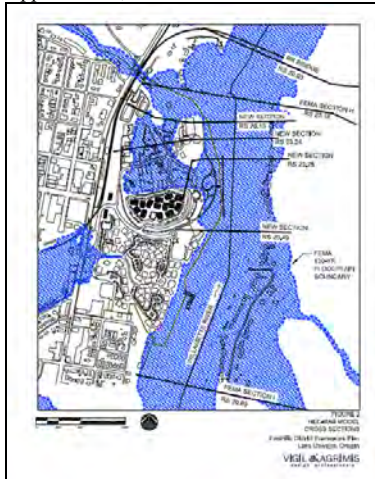
Fldr BHCN ... C:\... \BH_CPONA\050_LOCG\LOPB04LU

\LU_12-0032_Dist_Plan_Spc_Foothills\03AWBPG_Fils_PARS

<Check Post + Vnn fldrs>

03.05
Complete

Appendix D0, Item D0.03



Title: **HEC-RAS Model Cross Sections <LO Nbhds FH and BH>**

Sub (Title 2) ..: BID003 – PLPA: VGAG: HEC-RAS Model Cross Sections,
Scr: 311, DCPA Scr: 005

Link BHCN ..: **2011 Jun VG PLPA FPCrSc W D0 00 03 BH**

S3PgPost: [redacted]

S2Pg: [BH_Kn_FDFP_Rept_Acss](#) SIPg: [BH_Kn_LU2012-0032_FDFP](#)

Site: [BH_Knw_LO_LU_Projects](#)

Illustrates: Flood Plain Analysis 2011 Sep floodplain conditions in FDFP area

Importance: Identifies / Outlines existing floodplains in FDFP due to Willamette Rv and Tryon Cr.

Cross Ref BHCN ..: **2012 Sep BHWL DCPA FDFP P2F2 Apdx BH** < [redacted] >

Link BHCN ..: [2012 Jul WDLE Rept FDFP P1F2](#) , Post [LOPL: \[redacted\]](#)

Src Link BHCN ..: [2012 Jul WDLE Rept FDFP P2F2](#) , Post [LOPL: LU_2012-0032](#), Exhibit F-4

Document Attributes

Author (s).....: [ESA_VGAG](#) = VG = Vigil Agrimis, Portland OR <Prev VGAG to 2013>

ESA = Environmental Science Associates (1969)

Entity: [WDWD](#) = WD =Williams Dame and White Developer

[LOED](#) = LE = LO Econ Development, Fnct Wrapped in to LORA Circa 2015?

[LORA](#) = LR = Lake Oswego Renewal Agency

Date Aprv LOCC: 2012 Jul 24 Tuesday 17:30 U [5:30 PM PT] <Circa> <On Doc Cover>

[LO_Mtng](#) / [LO_Mtng_Archive](#) <Laserfiche System>

Date Aprv LOPC: 2012 Sep 13 Thursday 17:00 U [5:00 PM PT] <Circa> <On Srce Filename>

[LO_Mtng](#) / [LO_Mtng_Archive](#) <Laserfiche System>

Date Published : 2011 Jun 20 Monday 17:00 U [5:00 PM PT] <Circa> <HEC Model Run>

Date Posted: Unknown / Cannot Determine

Date Annotated : 2019 Apr 12 Friday 13:00 U [1:00 PM PT] <Circa> <Vnn>

Type: BID003 = Body Item (BI) Appendix D, Item 3

PPLA = Plan (PL) = Plan, Orientation: Portrait (P), Sheet: Letter (A),

Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)

Size: 538 kb, Page(s): 1

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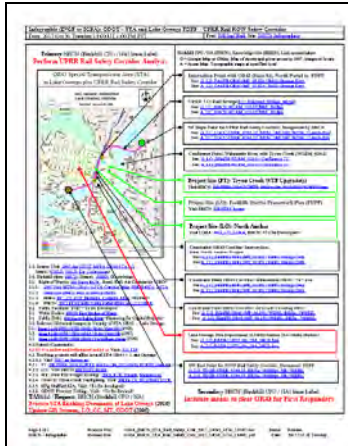
Fldr BHCN ... C:\... \BH_CPONA\050_LOCG\LOPB04LU

\LU_12-0032_Dist_Plan_Spc_Foothills\03AWBPG_Fils_PARS

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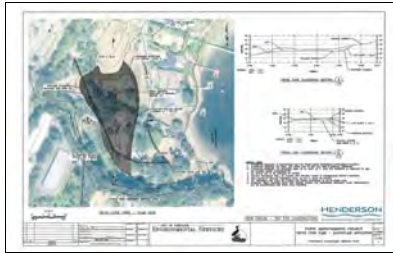
Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

03.06
Complete




Title: **ODOT – STA and Lake Oswego FDFP / UPRR Rail ROW Safety Corridor**
 Sub (Title 2) .: none
Link BHCN .: 2017 Oct BH IGPA OR43 STA LO UPRR Corridor
 Post SIPgPost: [BH_Infg Rail](#), Site: [BHCN_Infographics](#)
 CREF: [BH_Kn_RwRR_WDBL_Crossings](#), Site: [BH_Know_ROW](#) Gen: bhpubinvo
 Illustrates: ODOT Special Transportation Area (STA) and “at grade” rail crossings along OR43 [State St (LO)] including WDBL 749179D (Public Storage) and
 Importance: **Constraints for roadway capacity on OR43, TriMet Bus schedule compliance, and access to Foothills per FDFP via North Portal OR43_MP_05.83 Pub Storage Dwy WDBL 749179D (Public Storage)**
 File BHCN: IGPA_BHCN_STA_Rail_Safety_Crdr_2017_11Nov_14Tu_1300U.pdf
 Size: 342 kb Page(s): 1
 Fldr BHCN: C:\.BH_CPONA\ZZ_Act_2017x04\ \Z2017_11Nov_12Su_1000U_Cret_INFG_ODOT_STA_Rail_Crdr


03.07
Complete




Title: **TCWTP Improvement Project (PBES: E10582) Tryon Cove Park - Flood Plain Mitigation**
 Sub (Title 2) .: Plan for cut in Tryon Cove Park for fill on PBES Prop of TCWTP_Extg_CAS
Link BHCN .: 2018 Oct PBES PLLB TCov Wetlands
 Post SIPgPost: [BH_Kn_CM_2017-SN02_TCWTP_MBR](#),
 Site: [BH_Knw_LOCM_Projects](#)
 Illustrates: Tryon Cove Park (Jarvis Prop 14110 Stampher Rd)
 Importance: **12,000 cu yds earth removal “Cut” “Cut” on North Bank of Tryon Creek in Tryon Cove Park for “Fill” On South Banks for TCWTP_Extg_CAS tanks East of Pub Storage**
 File BHCN: tccovecut_0001.pdf
 PLLBSPBES_TCov_Wetland_60PC_2018_10Oct_08Mo_1000U.pdf
 Size: 1, 865 kb Page(s): 1

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

03.08 Research Annotate Work Needed	Image displayed is a screen shot of source image. 	<p>Title: WDBL View NE to West Bridge head of UPRR Lake Oswego Rail Road Bridge Construction</p> <p>Sub (Title 2) .: Approach trestle (3 timbers high) to west bridge pier circa 1907</p> <p>Link BHCN .: Imag LLIB 414b / 0946 WDBL / Berm Vw NE</p> <p>Source LLIB: LO LLIB HPHT Image Collection Index</p> <p>Note Link Format Imag, LLIB = Source, nnnn = Photo ID / nnnn = image file name download Post SIPgPost:None, Site: BH Knw Birdshill Hisorical Images</p> <p>Illustrates: West wooden trestle circa 1910 replaced with earth berm and 60 ft steel bridge circa 1925 – 1935. Impedes free flow of surface water to Willamette River from Fielding and Stampher Roads</p> <p>Importance: No free flow of water implies surface water from Fielding Road and Stampher Road causes flooding problems not recognized or mitigated by any government entity.</p> <p>Projects: 2012 FDFP, 2017 USAP Tryon Cr Culvert Replacement</p> <p>File LLIB: 946.jpg File:BHCN: None Established, Researching and annotating.pdf Size: 6, 152 kb Page(s): 1</p>
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03.09 Research Annotate Work Needed	Image displayed is a screen shot of source image. 	<p>Title: WLRM_020.1 View NW to WDBL and approach trestle to west pier of UPRR Lake Oswego Rail Road Bridge</p> <p>Sub (Title 2) .: Approach trestle (3 timbers high) to west bridge pier circa 1920</p> <p>Link BHCN .: Imag LLIB 0416 / 0948 WLRM 020.1 / WDBL Trestle Vw NW</p> <p>Source LLIB: LO LLIB HPHT Image Collection Index</p> <p>Note Link Format Imag, LLIB = Source, nnnn = Photo ID / nnnn = image file name download Post SIPgPost:None, Site: BH Knw Birdshill Hisorical Images</p> <p>Illustrates: West wooden trestle circa 1910 replaced with earth berm and 60 ft steel bridge circa 1925 – 1935. Impedes free flow of surface water to Willamette River from Fielding and Stampher Roads</p> <p>Importance: No free flow of water implies surface water from Fielding Road and Stampher Road causes flooding problems not recognized or mitigated by any government entity.</p> <p>Projects: 2012 FDFP, 2017 USAP Tryon Cr Culvert Replacement</p> <p>File LLIB: 948.jpg File:BHCN: None Established, Researching and annotating.pdf Size: 2,325 kb Page(s): 1</p>
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03.10 Research Annotate Work Needed	Image displayed is a screen shot of source image. 	<p>Title: WLRM_020.1 View NE to UPRR Lake Oswego Rail Road Bridge at WLRM_020.0</p> <p>Sub (Title 2) .: River view to NE of bridge circa 1910</p> <p>Link BHCN .: Imag LLIB 1599 / 4120 WLRM 020.1 / UPRR LO RR Bridge</p> <p>Source LLIB: LO LLIB HPHT Image Collection Index</p> <p>Note Link Format Imag, LLIB = Source, nnnn = Photo ID / nnnn = image file name download Post SIPgPost:None, Site: BH Knw Birdshill Hisorical Images</p> <p>Illustrates: Contrast approach trestle timber height, W pier approach = 3, E pier approach = 5 West wooden trestle circa 1910 replaced with earth berm and 60 ft steel bridge circa 1925 – 1935. Impedes free flow of surface water to Willamette River from Fielding and Stampher Roads</p> <p>Importance: No free flow of water implies surface water from Fielding Road and Stampher Road causes flooding problems not recognized or mitigated by any government entity.</p> <p>Projects: 2012 FDFP, 2017 USAP Tryon Cr Culvert Replacement</p> <p>File LLIB: 4120.jpg File:BHCN: None Established, Researching and annotating.pdf Size: 7,118 kb Page(s): 1</p>
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04	Critical WVSOM – BH Comment(s)
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Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

04	Critical WVSOM – BH Comment(s)
04.01	Abstract
04.02	Comments source from BHCN Co-Chair
04.03	Smry of BHCN Recommendations
04.04	Background to BHCN Recommendations
04.05	Locale of BHCN wrt WRB and WVSOM
04.06	BHCN and WVSOM Scoping Meeting
04.07	New Plus Codes Locale Reference System

04.01	Abstract
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Return to : [Critical WVSOM – BH Comment\(s\)](#)

As Co-Chair of Birdshill CPO / NA
 Visit: [BH](#), [BHCN](#) = Birdshill CPO / NA
 Cross Ref local: [G CC-LO BHCN Birdshill CPO/NA Area](#)
 Cross Ref local: [P <84QV> C8JV+34_Centroid_BHCN_GMap](#)

My focus for the USAP project WVSOM EIS is to promote development and ongoing evolution of clear communication for understanding the Willamette River, and Willamette River Basin (WRB) attributes and features that affect our community. Thus the scope of the recommendations is limited to general communicative topics, since I do not have a technical background in water management. **However** as a community leader I must rapidly understand and see to the consistent transfer of knowledge regarding multiple technical and political subjects, along with associated terms, policies, practices and locales to affected community parties in 2019 and forward in time to the end our planning horizon. That date is 2060 December 31 Friday 17:00 U [5:00 PM PT], termination of the Stafford IGA.
 Visit Official: [CC CCPG PRLS Sign Stafford IGA](#)
 Visit Nbhd ...: [BH Knw BH IGA STFD](#) <evolving>
 Coalescing documents for endeavors that precipitated this interest in WVSOM EIS project are partially specified in **Coalescing doc(s) – WVSOM**

04.02	Comments source from BHCN Co-Chair
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Return to : [Critical WVSOM – BH Comment\(s\)](#)

As Co-Chair (2016-2017) of the Birdshill CPO / NA
 Visit: [BH](#), [BHCN](#) = Birdshill CPO / NA
 Visit: [BH Cntr Bylaws](#) [Bylaws with map(s)]
 See : [2012_Sep_BH_PAKT_BH_Stats](#) [BH Statistics(s)]
 I, Charles B. Ormsby (aka Skip), as Co-Chair of the Birdshill CPO / NA make these comments for the Willamette Valley System Operation and Maintenance (WVSOM), Environmental Impact Statement (EIS) project, spanning years 2019 to 2023
 Visit Official: [USACEPD WVSOM](#)
 Visit Nbhd ...: [BH Kn CE 19-01 WVSOM](#)
 Overseen by US Army Corps of Engineers Portland District
 Visit Official: [USACEPD, USAP, CE](#)
 Visit Nbhd ...: [BH Kn USACEPD Projects](#)
 These comments are primarily from my own perspective that has evolved since 2000. Thus testimony / comments are my personal opinion at date of WVSOM submission. A BHCN resolution in the near future may endorse and codify them as representing a collective neighborhood opinion.

04.03	Smry of BHCN Recommendations (Rnn)
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Return to : [Critical WVSOM – BH Comment\(s\)](#)

For all Birdshill recommendations (R01 – R12):
 GPS = Global Positioning System
references to a locale POINT by coordinate(s)
 nomenclature for Latitude, Longitude,
Plus Code = Aka Open Location Code
references to a locale AREA by grid system
 nomenclature specified in
 Visit: [Plus Code Map Home](#)
 See: [Plus Code wkpd](#)
 Visit <BHCN>: [BH Knowledge Maps](#)
 See developing links to sub page subjects

Source = Accepted authoritative source – maintained and continually coordinated and updated by on-line repositories of definitions, data and and cross references accessible to the public.

WRBPA = Willamette River Basin Planning Atlas
 See ..: [OSU PNERC Book WRBPA](#)
 Visit: [OSU PNERC Site WRBPA](#)

WRB / WB = Willamette River Basin

R01 = Compile source of river mile indices for WRB

R02 = Develop source for terms wrt WRB

R03 = Develop source thesaurus of terms for WRB

R04 = Develop source for routine sequences for WRB

R05 = Utilize GPS, Plus Codes and others for locales

R06 = Update the PNERC 2002 WRBPA

R07 = Align PNERC 2002 WRBP Atlas with WVSOM

R08 = Develop maps for WVSOM

R09 = Develop jurisdictional/political maps for WRB

R10 = Confirm WRB limitations with cautions to ALL

R11 = Engage document management consultants

R12 = Make WRB development costs visible

R13 = Coordinate WRB management with FEMA

04.04

Background to BHCN Recommendations

Return to : [Critical WVSOM – BH Comment\(s\)](#)

The reason for these personal comments rather than ones endorsed by a neighborhood (nbhd) resolution (RSLT)

Visit: [BH Resolutions](#)

Example: [BH RSLT 2014 Conf on RR ROW](#)

Is there has simply been zero (0) time between the WVSOM EIS project “public scoping meeting” and termination of the public comment period. The public scoping outreach meeting was found by reading a blurb on Portland Tribune website under “What’s happening” box on the morning of 2019 Jun 06 Thursday. I thought it was a meeting regarding an extension of Willamette Basin Review (WBR) which was disclosed to Birdshill in a 2017 May meeting with USAP regarding concepts for replacing, possibly daylighting the Tryon Creek Culvert.

Visit Nbhd: [BH Kn CE 2017-SN02 TCCR](#)
(TCCR = Tryon Creek Culvert Replacement)

See: [2017 Jun LORV ATCL TCCV Replace](#)

Cross Ref Previous project(s)

2007 Visit: [BH Issue Daylight Tryon Cr,](#)

Site [2013 May BH Dgst 2013.12](#)

2013 ODOT – Recently circa 2018 – 2019 learned

I had been wondering what evolved with USAP WBR project due to many evolving project implications for our community and especially after a six month road closure of Terwilliger Blvd between 2017 Dec and 2018 Jul

Visit: [BH Kn PBES Project TBSP](#)

Birdshill knowledge source of WBR

See: [2017 Dec PTRB ATCL WLRV SB WF DEQ](#)

Note reference to site pollution in Foothills District Martin Electric, possible PCB ground contamination, Oregon DEQ is aware as stated in article.

Visit Official: [USACEPD WBR](#)

Visit Nbhd ..: [BH Kn CE 17-01 WBR](#)

Careful reading of the WVSOM EIS Brochure

See [WVSOM: Scoping informational brochure](#)

See Nb: [2019 Jun USAP BRPA WVSOM EIS Scpng BH](#)

Clarified the distinction after the WVSOM EIS scoping meeting along with other key meeting points received.

As neighborhood / community Co-Chair, activist, primary researcher, and archivist I realized the importance of the WVSOM EIS scoping meeting regarding a relatively high level resource management policy overview of the Willamette River Basin (WRB). Including the aspects of water management notably wrt Birdshill CPO / NA “flood control”. A misnomer label as I have: suspected, observed, studied and learned. All confirmed by USAP experts at scoping meeting in contrast with project advocates in the environs of the City of Lake Oswego. With respect to multiple endeavors contemplated for the Foothills District in the past 10 to 20 years.

Visit: [BH Kn EVCR LC Foothills](#) <Primary CRef>
CRef: [BHCN and WVSOM Scoping Meeting](#)

The WVSOM EIS policy overview / update will have and should have repercussions on historic, current (active) – existing, shelved (dormant) and evolving documents at the detail local / neighborhood levels. Including, but not limited to laws, administrative rules, regulations, policies, and agreements (LARPA) plus plans that affect specific stretches (un-labeled reaches) approximately indexed by river miles (RM). In the specific instance of the Willamette River (WL), Birdshill has chosen to label the river miles by WLRM. Birdshill CPO / NA lands abutting the Willamette River are affected by many water bodies and features upstream of WLRM_020.2. Attributes of water bodies (primarily flooding) and features [dam(s), dikes, contemplate fill actions below Base Flood Elevation (BFE) etc] are being synthesized, distilled, cross referenced (CRef). Then posted with links at the following BH websites and webpage(s) . These online linkage knowledge base sites and pages are in a state of constant and rapid evolution as information is compiled.

Visit: [BH Kn Bodies of Water](#)

Visit: [BH Knowledge GIS](#) <GIS Info >

Visit: [BH Knowledge Maps](#) <Map Info >

Visit: [BH Kn EVCR LC Foothills](#) <Primary CRef>

04.05 **Locale of BHCN wrt WRB and WVSOM**

Return to : [Critical WVSOM – BH Comment\(s\)](#)

The Willamette River segment that forms the east boundary of the BHCN is on the west bank of the Willamette River (WL or WR). River mile ([River Mile wkpd](#)) (RM) indexing marks can be found on the USGS 7.5 minute Lake Oswego (LO) Quadrangle [Quad(s) (Qd)] for edition years 1984 and prior.

- See: [USGS HTMC](#)
 - See: [1984 Jan USGS HTMC MPPD Quad LO \(Map\)](#)
 - See: [2004 Apr USGS RPPA Map Symbols HTMC \(Sym\)](#)
 - See: [1994 Jan USGS HTMC MLPE Index OR](#)(OR Index)
- Since 2011 RM index marks have been removed from USGS Quad Maps. Why is unknown (Need to be reinstated).
- See: [USGS National Map](#)
 - See: [USGS US Topo](#)

Cross Ref
R01 = Compile source of river mile indices for WRB

The Willamette River segment wrt to Birdshill CPO / NA begins on the north at Multnomah / Clackamas County Line and southern jog at WLRM_019.4
Cross Ref local: [P_<84QV>_C9M2+3F_OR_MC-CC_S_Jog](#)
and ends south and upstream (wrt river flow) at confluence of Tryon Creek at WLRM_020.2.
Cross Ref local: [P_<84QV>_C8FV+5H_Confluence_WR / TC](#)

Note as Co-Chair of the Birdshill CPO / NA I have concerns with multiple stretches of the Willamette River and entire Willamette River Basin system as is depicted on the following comparative maps (CM) and key defining basin map and infographic (IG).
See: [2015 Dec LOTP LOBH RLWR 020 N 019](#) [Compare Map [CM]]
(Foothills Park North and downstream to Elk Rock Escarpment)
Video : [2015 Jun VIDO PAGU Foothills Pk WLRM 020.3](#), Tot: 3 mins
See: [2015 Dec USGS QdLO RLWR 022 N 019](#) [Compare Map [CM]]
(Mary’s Woods North and downstream to Elk Rock Escarpment)
See: [2015 Dec USGS QIOR RLWR 050 N 000](#) [Compare Map [CM]]
(Newburg OR North and downstream to Columbia River)

Please note the above comparative maps are being updated. For Willamette River Basin the following defining map (MP) and infographic (IG) are **exceptionally important** for both neighborhood, endeavor, political, and general understanding.
See: [2002 PNERC WRBA 0103 MPPB Study Area](#) (Map)
See: [2002 PNERC WRBA 1002 IGPB USGS Quads](#) [Infographic (IG)]

04.06 **BHCN and WVSOM Scoping Meeting**

Return to : [Critical WVSOM – BH Comment\(s\)](#)

The WVSOM EIS scoping meeting was conducted / hosted by [USAP](#) on the afternoon of: 2019 Jun 06 Thursday, 16:00 U [4:00 PM PT] to 18:30 U [6:30 PM PT]. Meeting was held at Portland State University Place Hotel Conference Center 310 SW Lincoln Ave, Portland OR 97201-5007
Locale: PSU Conference Center, 310 SW Lincoln Av, Portland OR
Google (St / Imag): [G_PT_PTDT_PSU_Conf_Cntr_310_Lincoln_Av](#)
Acme (Topo): [A_PT_PTDT_PSU_Conf_Cntr_310_Lincoln_Av](#)
Plus Code: [P_<84QV>_G849+RQ_PT_PTDT_PSU_Hotel_Conf](#)
PSU Webpage: [PSU_Univ_Place_Hotel_Conf_Cntr](#)
Birdshill CPO / NA has created a webpage for the USAP WVSOM EIS project
Visit: [BH_Kn_CE_19-01_WVSOM](#)

A meeting report will be posted on this page in near future. Meeting report document creation and posting has been delayed due to personal factors and time required to compile this testimony in order to meet dead line of 2019 Jun 28 Friday 23:00 U [11:30 PM PT].

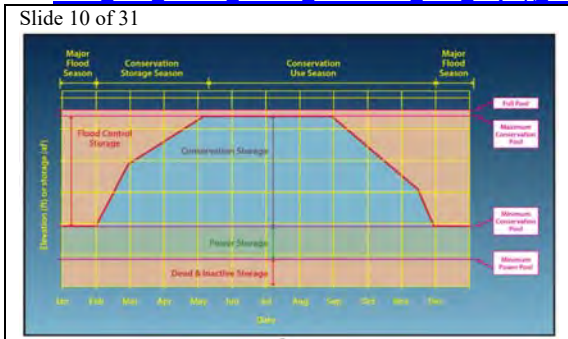
However in an email to be posted that was distributed to government entities including the WVSOM EIS email address on 2019 Jun 10 Monday 15:11 U [3:11 PM PT] I stated two (2) take aways or key critical items gleaned from the WVSOM EIS scoping presentation and meeting boards from perspective(s) of neighborhood Co-Chair, neighborhood activist, citizen concerned with public finances [ie taxes and fee(s)], finance mechanisms (bond debt instrument with “full faith and credit clauses”
Visit: [BH_Kn_CE_WVSOM_Docs_2019](#)
See: [2019 Jun USAP PDLL WVSOM EIS Scpng BH](#)
Willamette Valley System O&M EIS Presentation
See: [2019 Jun USAP MBLD WVSOM EIS Scpng BH](#)
Willamette Valley System O&M EIS Meeting Boards

Critical information from Presentation Slide and Meeting Board Extracts on next page. Project finance background
Visit: [BH_Know_Public_Debt](#) <pub finance>

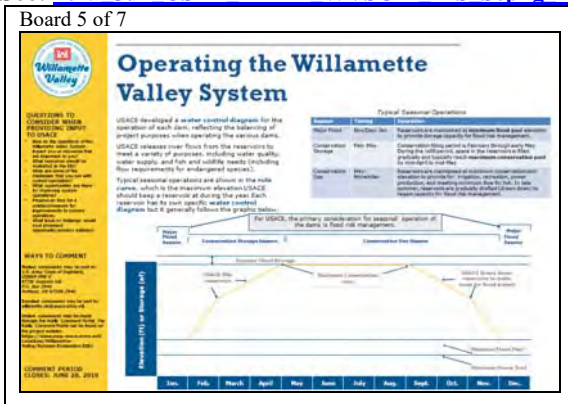
Note: USACE = [USAP](#), [USACEPD](#), [CE](#),
US Army Corps of Engineers, Portland District
ONE:
USACE Portland District CANNOT CONTROL Willamette River FLOODING.
USACE can only mitigate flooding effects.
<Barely and depending upon conditions especially 100 - 200 miles downstream of major Willamette River dams>.
TWO
Government entities along Willamette River should not encourage or promote expensive and dense population development below Base Flood Elevations [BFE(s)]
IE in the Flood Plain.

The above statements in the email dated 2019 Jun 10 Monday 15:11 U [3:11 PM PT] were based upon information gleaned from the following two images (extracts) and conversation with USAP technical meeting personnel at the scoping meeting 2019 Jun 06 Thursday 16:30 U.

From Presentation Slide 10 of 31;
See: [2019 Jun USAP PDLL WVSOM EIS Scpng BH](#)

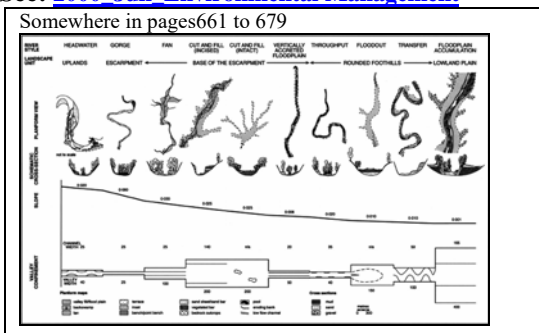


From Meeting Boards, Board 5 of 7;
See: [2019 Jun USAP MBLD WVSOM EIS Scpng BH](#)



The above extracts combined with the approximate topographic / geographic term for a river style labeled “trough”, <implies constrained lateral river space> may be considered equivalent to “Vertically Accreted Floodplain. BHCN started (circa 2018 Jul) to use “trough” to describe lateral cross section of our river segment

Term for river style on a specific segment of river that evolves from source to confluence.
“Vertically Accreted Floodplain” or “Trough” <BHCN>
See: [2000 Jun Environmental Management](#)



The term “trough” allows Birdshill CPO / NA <BHCN> residents in sub areas of both Fielding Road <Briarwood> and Stampher Road <Stampher Road Home Owners Association> See: [2012 Sep BH PAKT BH Stats](#) [BH Stats, pg 5/5]) See: [2009 Apr BH BLaw 06.09 BH Clean](#) Posted: [BH Cntr Bylaws](#) [Bylaws with map(s)] Cross Ref local: [P <84QV> C8HV+8GW BHCN Briarwood](#) Cross Ref local: [P <84QV> C8FR+QCW BHCN Stampher](#) to rapidly describe the style and configuration of the Willamette River. Along with flood impacts from weather.

Remember the Birdshill CPO / NA segment of the Willamette River WLRM_023.0 north and downstream to WLRM_019.0 in the vicinity of Birdshill CPO / NA and City of Lake Oswego Foothills District is depicted in the following comparative infographic.

See: [2015 Dec USGS QdLO RLWR 023 N 019](#) [Compare Map [CM]] (Mary’s Woods North and downstream to Elk Rock Escarpment) Video : [2015 Jun VIDO PAGU Foothills Pk WLRM 020.3](#), Tot: 3 mins Cross Ref: [Locale of BHCN wrt WRB and WVSOM](#) The remainder of infographics in greater and lesser detail are repeated for convenience below.
 See: [2015 Dec LOTP LOBH RLWR 020 N 019](#) [Compare Map [CM]] (Foothills Park North and downstream to Elk Rock Escarpment)
 See: [2015 Dec USGS QIOR RLWR 050 N 000](#) [Compare Map [CM]] (Newburg OR North and downstream to Columbia River)

In brief once extreme weather events start upstream of WLRM_020.0 (Willamette River / LO UPRR Bridge) and further into areas of the Tryon Creek Basin and balance of the Willamette River Basin – Birdshill CPO / NA will be impacted because of river style labeled “trough”.

Events precipitating extreme flooding in last 60 years:
 Water rise due to rapid snow melt:

See: [1964 Dec Willamette River Flood wkpd](#)
 GSCH: [Willamette River Flood 1964](#)

Water rise due to extreme rain:
 See: [1996 Feb Willamette River Flood wkpd](#)
 GSCH: [Willamette River Flood 1996](#)

This “trough” topography exacerbates expensive development / densification concepts to place fill below the BFE – Base Flood Elevation of the Willamette River ie in the flood plain.

These terms have never in 20 years been linked in City of Lake Oswego documents that promote development in the flood plain along the Willamette River between WLRM_020.0 (Willamette River / UPRR Bridge) See: [P <84QV> C8GW+24 OR OG UPRR Br](#) See: [LO-UPRR RR Bridge wkpd](#) , South and upstream to WLRM_021.0 (Willamette River / Oswego Cr). See: [P <84QV> C85R+VW OR LO WL Rv-LO Cr](#) See: [Oswego Lake wkpd](#)

This is why Birdshill CPO / NA needs an accepted and authoritative source for Willamette River Basin terminology. Preferably a source that can be shared amongst citizens, government entities, densifiers/developers and tax payers. Thereby promoting both:

1. Common language using accepted terms with images and
 2. Common good with understanding of terms and constraints.
- Cross Ref: [R02 = Develop source for terms wrt WRB](#)

04.07

New Plus Codes Locale Reference System

Return to : [Critical WVSOM – BH Comment\(s\)](#)

Note: Plus Code (Map) Information

< [Redacted]
[Redacted]
[Redacted] >

Visit: [Plus Code Map Home](#)

Visit: [Plus Code Map Portal](#) [BH example at Tryon Cv Pk]
[Plus Code Portal is NOT Google Map(s)]

See: [Plus Code wkpd](#) (aka Open Location Code)

Think of Plus Codes as Thomas Guide Maps,
discontinued circa 2009 (See: [Thomas Gd wkpd](#))

on 5 liter (USC: 1 gallon) / min steroid drip.

Resolution(s) to specify an area rather than a point:

+2 = 14 m² = 150 sq ft = (w x h) 10 ft x 15 ft, Large Garage

+3 = 3 m² = 32 sq ft = (w x h) 5 ft x 7 ft, SUV foot print

Birdshill CPO / NA has begun to use “plus codes” beginning
circa 2019 Jan. Evolving information can be found at
following website:

See Nbhd ...: [BH Knowledge Maps](#)

See developing links to sub page subjects

Cross Ref: [Smry of BHCN Recommendations](#)

Cross Ref: [R05 = Utilize GPS, Plus Codes and others for locales](#)

R01 = Compile source of river mile indices for WRB

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

Birdshill CPO / NA exists on the west bank of the Willamette River in a complex environment of jurisdictions, topography, and evolving endeavors from multiple sources. Cross Ref: [Locale of BHCN wrt WRB and WVSOM](#)

It is thus imperative based on experience garnered over past 60 years of residency in Birdshill area to have a common accepted and authoritative source of River Mile (RM) ([River Mile wkpd](#)). If residents are to communicate effectively with multiple parties in regards to evolving endeavors and locales wrt Willamette River.

Further map references to river mile markings have not been compiled on USGS “US Topo” maps

See: [USGS National Map](#)

See: [USGS US Topo](#)

since their introduction circa 2011.

Cross Ref: [Locale of BHCN wrt WRB and WVSOM](#)

Cross Ref: [R05 = Utilize GPS, Plus Codes and others for locales](#)

R02 = Develop source for terms wrt WRB

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

Birdshill residents as stated exist in a complex jurisdictional area with respect to projects and jurisdictions.

Cross Ref: [Locale of BHCN wrt WRB and WVSOM](#)

Recommendation R02 is closely allied with R01 above.

It may sound redundant but as Co-Chair and researcher I must find resources for river terminology from multiple sources when compiling testimony responses to multiple endeavors promoted by multiple jurisdictions over past fifteen years.

Only to have term challenged by “expert” and government officials that promote and support a specific project, such as redevelopment by City of Lake Oswego by 2012 Foothills District Framework Plan (2012 FDFP). Plus recent “mash up” (combination) promoted by retiring (2019 Jun) City Manager – Scott Lazenby, concept to replace existing Tryon Creek WTP with one of smaller footprint in the same flood plain.

Cross Ref local: [P <84QV> C89R+WC OR LO Foothills](#)

Visit: [BH_Kn_EVCR_LC_Foothills](#)

Visit: [BH_Kn_TCWTP_2017](#)

Current proposed site of TCWTP_MBR is in SW corner of FDFP area in flood plain. Existing TCWTP_CAS site on West bank of Willamette River at WLRM_020.2 was flooded by episodes in 1964 and 1966.

Cross Ref: [Locale of BHCN wrt WRB and WVSOM](#)

Cross Ref local: [P <84QV> C8CR+GC OR LO_TCWTP_CAS](#)

Cross Ref local: [P <84QV> C8CQ+4H_OR_LO_TCWTP_MBR](#)

Articles wrt extreme flood episodes in 1964 and 1966.

See: [1964 Dec Willamette River Flood wkpd](#)

GSCH: [Willamette River Flood 1964](#)

Water rise due to extreme rain:

See: [1996 Feb Willamette River Flood wkpd](#)

GSCH: [Willamette River Flood 1996](#)

2012 FDFP project as contemplated with base assumptions (not fully summarized thus disclosed implications to Birdshill CPO / NA in documents) will have high impacts on Birdshill CPO / NA. Notably but not limited to Stampher area (Stampher Road Home Owners Association) downstream of Willamette River / Tryon Creek confluence and FDFP.

Cross Ref local: [P <84QV> C8FV+5H_Confluence WR / TC](#)

Due to base plan requirement and assumption USAP and other authorities will grant permit(s) to place US: 75,000 cubic yards (SI: 57 000 m³), below the Base Flood Elevation ie in the flood plain.

Cross Ref

Item(s): 3.02, 3.03, 3.04,

R03 = Develop source thesaurus of terms for WRB

Return to: [Smry of BHCN Recommendations](#)

Once terms are defined and recorded at a source repository, perhaps a website, the terms can be structured thematically akin to a thesaurus.

Such a thesaurus document compiled over the span time of the WVSOM project years <2019 - 2023> will aide citizen comments in preparation for the Final WVSOM EIS and be an ongoing resource for all residents and government entities of the Willamette River Basin in multiple endeavors.

R04 = Develop source for routine sequences for WRB

Return to: [Smry of BHCN Recommendations](#)

Birdshill CPO / NA residents when beginning projects on lands adjacent to the Willamette River are confronted with a complex regulatory environment. As Co-Chair and since circa 2015 I have been promoting a concept with the contraction of N-I-C-E, expanding means Notification – Involvement – Compliance – Enforcement.

One of the key Industrial Engineering charts I learned of at class at Portland State University circa 1980 was from the Boeing Aircraft Company where the instructor had worked for many years.

The routine sequence chart is a two dimensional flow chart. Across horizontal page axis are columns labeled “Places of performance (Who / Whom / Where)”. Down the vertical page axis are the traditional steps in a process. Taken together with optional columns for comments, I have found through experience it will vivisect most written procedures, and regulations, thereby exposing defects.

This chart will be posted and accessible on the Birdhill CPO / NA webpage [BH_Know_DOCS](#).

BHCN Co-Chair Ormsby encourages its use in the WVSOM to both standardize process for ongoing operation and maintenance but also to convey understanding by a road map of the process to citizens at large.

R05 = Utilize GPS, Plus Codes and others for locales

Return to: [Smry of BHCN Recommendations](#)

Places in the Willamette River Basin and thereby domain of the WVSOM need to be located by the public through multiple existing maps and map grid systems. Which then should be cross referenced to multiple policies sourced from multiple jurisdictions in order to effect proper management of water and mitigation of flood impacts within the Willamette River Basin. This “tribal” knowledge gained by either trial and error of neighborhoods or by institutional knowledge gained by professionals needs to be summarized and publicly accessible and further passed down through time.

Birdshill CPO / NA would be appreciative of the USAP and partner agencies in the WVSOM project between 2019 -2023 to cross reference ALL locales by the following means:

Example: Confluence of Tryon Creek / Willamette River

Source 1: [Tryon_Cr_wkpd](#) (upper right of article)

[Tryon_Cr_GeoHack](#)

Source 2: Google Maps

1.0. Locale indices by river mile RM

possibly river kilometer RK (?) index means

Cross Ref: [R01 = Compile source of river mile indices for WRB](#)

2.0. Locale area reference by USGS Quadrangle Maps

See: [Link USGS :: 1984 Jan USGS HTMC MPPD Quad LO](#)

3.0. Locale Point reference by GPS nomenclature for latitude and longitude (Lat / Lng) from Google maps

3.1. Format of Lat / Lng in Degree, Minute and Second.

See: 45°25'22.0"N 122°39'24.0"W

3.2. Format of Lat / Lng in Decimal Degrees

See: [45.422778, -122.656667](#)

4.0. Locale Area reference by

Plus Codes / Open Location Code

Cross Ref local: [P_<84QV>_C8FV+5H_Confluence_WR_/TC](#)

Visit: [Plus_Code_Map_Home](#)

[Plus Code Portal is NOT Google Map(s)]

See: [Plus_Code_wkpd](#) (aka Open Location Code)

Cross Ref: [New Plus Codes Locale Reference System](#)

Cross Ref: [BH_Knowledge_Maps](#) <Links to sub page subjects>

5.0. Property / Taxlot locales by Area.

Property tax maps accessible at:

[ORMAP](#) = The Oregon Map

Explanation of nomenclature would be “a good thing”.

Examples for Birdshill CPO / NA

See: [2008 Aug BH TBLL Assr Notation](#)

See: [2006 Aug BH TBLP Assr Maps TCA](#)

See: [2004 Oct BH 2102 Tax Assr Maps](#)

Visit: [BH_Cntr_Concepts](#)

Cross ref to property tax rates

6.0. Locale Area reference by FEMA map grid

FEMA maps specify the 100 year flood plain and need cross reference throughout WRB and WVSOM.

Visit: [FEMA_Flood_Map_Srvr_Center](#)

7.0. Locale Area reference by

Oregon Land Conservation Development Commission
Willamette River Greenway.

See: [Willamette_River_Greenway_wkpd](#)

R06 = Update the PNERC 2002 WRBPA

Return to: [Smry of BHCN Recommendations](#)

This recommendation is a personal one with respect to the USAP WVSOM project and likely one of the more important ones. I found the

PNERC = Pacific Northwest Ecosystem Research Consortium document(s), circa 2015. Contraction(s) <WRBPA / WRBA>

Titled: Willamette River Basin Planning Atlas

Sub Title: Trajectories of Environmental and Ecological Change

Book ...: [OSU PNERC Book WRBPA](#)

Website: [OSU PNERC Site WRBPA](#)

This atlas with specific map(s) <MPPB> below and an infographic <IGPB> have helped immeasurably explaining the Willamette River basin to myself as I studied the Willamette River in relation to multiple projects. Further I have found it to be an accessible and authoritative source when producing testimony or explaining the context of river features to property owners. The index maps and explanation of the USGS Quadrangle map grid system are the best.

See: [2002 PNERC WRBA 0103 MPPB Study Area](#)

See: [2002 PNERC WRBA 1002 IGPB USGS Quads](#)

Posted at: [OSU PNERC Site WRBPA](#)

The atlas explains a lot with pictures and maps.

The atlas was compiled circa 2000 – 2002. It needs updating.

The atlas likely covers many subjects that will be explored in the course of the WVSOM EIS between 2019 and 2023.

R07 = Align PNERC 2002 WRBP Atlas with WVSOM

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

As stated above in R06 the WRBPA (Atlas) likely covers many of the topics to be considered in the USAP WVSOM EIS between 2019 and 2023.

All efforts possible should be

1. Made to update the planning atlas for WVSOM and see to continuous updates. In order to keep topics current.
2. Align the WRBPA with map(s) and other Willamette River documents to be created by WVSOM EIS as much as possible with cross references – hyperlinks between the documents on an ongoing basis.

R08 = Develop maps for WVSOM

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

This recommendation is essentially to identify and label all reaches of the Willamette River from its confluence with the Columbia River WLRM_000.0, CLRM_0104.1 south and upstream throughout the entire basin and tributaries.

Native Peoples terms for portions or reaches of the Willamette River should be respected.

Maps of these labeled reaches need to be

1. Indexed by river miles, Lat / Lng, Plus Codes etc.
Cross Ref: **R01 = Compile source of river mile indices for WRB**
Cross Ref: **R05 = Utilize GPS, Plus Codes and others for locales**
Cross Ref: **R06 = Update the PNERC 2002 WRBPA**
Cross Ref: **R07 = Align PNERC 2002 WRBP Atlas with WVSOM**
2. Created and made publicly accessible.
3. Included in documents for the final WVSOM EIS circa 2023

Example reaches already defined by the City of Portland

See: [2006 Jul PBPS IGPB WR River Reaches](#)

Document Attributes

Source: [River Plan WR PBPS Background](#)

Link PBPS: [Map of River Plan Study Area](#)

Link BHCN: [2006 Jul IGPB WL River Plan Reaches](#)

Post to: [BH_Kn_BW_WR_Ev_Rsrc](#) <Site and Page being revised>

R09 = Develop jurisdictional/political maps for WRB

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

When updating maps and infographics for the USAP WVSOM an effort to produce maps with layers of USGS Quad grid, and neighborhoods, jurisdictional boundaries and others needs to be compiled and maintained.

Again Birdshill CPO / NA exists in a complex area

See: [2015 Dec USGS QdLO RLWR_022_N_019](#) [Compare Map [CM]]
(Mary's Woods North and downstream to Elk Rock Escarpment)

An area reach of the Willamette River which includes multiple jurisdictions, neighborhoods, State of Oregon Legislative districts (Senate and House) and US Congressional Districts. I have learned from experience from producing testimony on any project this requires time to cross connect parties on both banks of the Willamette River from WLRM_019.0 (Milwaukie – Johnson Creek South and upstream past Birdshill CPO / NA at WLRM_020.0 and South and upstream to City of Lake Oswego and West Linn.

R10 = Confirm WRB limitations with cautions to ALL

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

Since 2000 and likely before the City of Lake Oswego has been contemplating redevelopment of its Willamette River frontage on the West bank between

Tryon Creek at WLRM_020.2

See: [P <84QV> C8FV+5H Confluence WR / TC](#)

south and upstream to about

Rohr Park at WRLM_020.5.

See: [P <84QV> C88V+69 WR / Rohr Pk](#)

One primary assumption of this endeavor is placement of 75,000 cubic yards of fill below the Base Flood Elevation (BFE) ie in the floodplain in the Foothills District.

See: [P <84QV> C89R+WC OR LO Foothills](#)

Consequently I am concerned thus have been on a mission since 2017 to find, annotate and catalogue ALL pertinent documents to annotation cards (document metadata).

CRef: [BHCN and WVSOM Scoping Meeting](#)

City of Lake Oswego officials, local leaders and Foothills District project advocates have demonstrated with deeds linked to projects since 2005 they consider west bank frontage of the Willamette River their own. It takes a substantial amount of energy to confront this mindset when a project affects residents upstream, downstream or across the river to the east bank.

One project that surfaced in 2005 Jun and involved the USAP was positioning and locale of a substantial boat basin and dock on the Willamette River adjacent to the future Foothills District. Information can be seen at the Birdshill site:

Visit: [BH Kn CE 05-01 FTHL Dock](#)

See: [2005 Jun LORV ATCL FHBD Dock Sitting BH](#)

See: [2005 Jul OREG ATCL FHBD Dock Hearing BH](#)

See: [2009 Aug LORV ATCL FHBD Lawsuit BH](#)

A second recent project of a Fireworks Display that evolved in 2017 and was executed on 2018 July 04 Wednesday. Presented problems for Birdshill. (I was concerned with brush fires potentially set off by falling debris and escape routes at night plus the replacement cost of infrastructure with an estimated value of \$500,000,000 (guess for 1 bridge, 2 sewer plants along with expensive homes). Testimony was given in 2017 November but was not heeded. The fireworks display failed. Fortunately without catastrophe. Because audiences in Lake Oswego parks could not see the firework burst patterns for the tall Douglas Fir trees along the river that blocked the view. Government officials and contractors did not do the math. I did circa 2018 May. But could not develop and transmit infographics to LO City Council that were simple and respected in time for their consideration. Diagrams explaining application of trigonometric functions and fireworks shell burst parameters. All should be disclosed.

Visit: [BH Kn CM 2017-SN01 LOFW](#)

See: [2017 Jul LORV ATCL 2018 LO Fireworks BH](#)

See: [2018 Jul LORV ATCL 2018 LOFW Bust](#)

As I learned dealing with rocketry at Boeing Rocketdyne.

See: [Boeing Rocketdyne\(1996-2005\) wkpd](#)

Assumptions are dangerous.

Visit: [LU 12-0032](#) <LO 2012 FDFP site>

The point of this reminiscing is City of Lake Oswego (LO)

<<Note web page of gov entities planning for BHCN

Visit: [BH Knw Gv Org Charts](#) >>

and likely other government entities do not synthesize, distill and distribute information about project impacts on the banks of the Willamette River. Especially LO and 2012 FDFP

Visit: [LU 12-0032](#) <LO 2012 FDFP site>

Visit: [BH Kn LU2012-0032 FDFP](#) <LO 2012 FDFP site>

Cross Ref: [BH Kn EVCR LC Foothills](#)

Project has key assumption not disclosed to BHCN of placing 75,000 cubic yards of fill in the Foothills District.

See: [2011 Sep VG ApBd FldPln W D0 00 02 BH](#)

Pg 2, Header: Findings, Bullet 1

Cross Ref: [\[redacted\]](#).Item(3): 3.01 – 3.06

Cross Ref Location: [P <84QV> C89R+WC OR LO Foothills](#)

Which is in the flood plain of the Willamette River on the west bank from

Tryon Creek at WLRM_020.2

See: [P <84QV> C8FV+5H Confluence WR / TC](#)

South and upstream to about

Rohr Park at WRLM_020.5.

See: [P <84QV> C88V+69 WR / Rohr Pk](#)

Cross Ref: [\[redacted\]](#)

Items 03.01 – 03.06

Government jurisdictions along with developers/densifiers project advocates need to be mandated and thereby required to understand the limitations of Willamette River Basin (WRB) system of water management by the US Army Corps of Engineers, Portland District for the length and breadth of the entire Willamette River Basin (WRB) . Including charts and documents presented at the USAP WVSOM EIS scoping meeting held on 2019 Jun 06 Thursday

CRef: [BHCN and WVSOM Scoping Meeting](#)

Especially for endeavors requiring expensive structures that would be impacted by 100 year flood events. Remember the following:

Articles wrt extreme flood episodes in 1964 and 1966.

See: [1964 Dec Willamette River Flood wkpd](#)

GSCH: [Willamette River Flood 1964](#)

Water rise due to extreme rain:

See: [1996 Feb Willamette River Flood wkpd](#)

GSCH: [Willamette River Flood 1996](#)

Then institutionally provide public evidence and confirmation of understanding of Willamette River Basin (WRB) water management by means of entity resolutions that are publicly distributed and recorded in repositories plus accessibly archived. Then periodically reviewed. Prior to evaluation of any project permits to be granted by the authority of the: [USACE NWD PD \(USAP\) \(CE\)](#) US Army Corps of Engineers, Portland District.

R11 = Engage document management consultants

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

Documents have changed radically since the production of the last Willamette Valley System and Operation EIS that was conducted circa 1980.

See: [2019 Jun USAP PDLL WVSOM EIS Scpng BH](#), Slide 21 of 31.

Over the past fifteen years Birdshill CPO / NA has experienced multiple multi-million dollar projects that require an Environmental Impact Statement (EIS).

Visit: [BH Kn EVCR LC Foothills](#)

Thus I as Co-Chair have formed many opinions about the document work products from the neighborhood perspective.

[REDACTED] :

1. Specialists in document management.
2. Specialists in PDF document creation, archiving and administration.
See: [2018 Aug BH IGPA PDF Oprt n Actn](#)
3. Specialists in document archival and retrieval.
4. Specialists in compiling dictionaries of terms.
5. Specialists in compiling visual dictionaries.
Example(s): From Birdshill desk top reference(s)
Book: [Ultimate Visual Dictionary DK amazon](#)
Book: [Macmillan Visual Dictionary amazon](#)
6. Specialists in compiling thesaurus of terms.
By this is implied an “expert” who has and has demonstrated knowledge of the study of hierarchies and systems of classification.
Example(s): From Birdshill desk top reference(s)
Book: [The Order of Things amazon](#)
7. Specialists in iconography / symbols
Distil WRB features to icons / symbols.
If icon in color make table of black/white equivalences.
Most citizens cannot afford color injet printers.
8. Specialist in developing infographics, fact sheets, and document summaries.

The aim is to make a cohesive set of documents regarding the USAP WVSOM EIS that can be accessed and continuously updated and accessible from many device platforms. Smart phones, tablets, portable computers, and desktops.

As Co-Chair I would also really like to see documents:

1. Indexed by key words, phrases and contractions within the document when length over 10 to 20 pages
2. Catalogued on “cards”, smart phone with Android Operating System for an article depict an image of the document and meta data about the article / document.
Example: Title and web page where the document is posted. (See items through out this document).
3. Infographics on single subjects like ones available for a college course in Trigonometry or Geography.

Examples available at:
Visit: [Permacharts Inc](#)

R12 = Make WRB development costs visible

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)

Development impacts within flood plains of the Willamette River Basin need to be systematically exposed.

Some how government entities, and developers need to publicly state by production of cost / risk / benefit analysis the impacts of their project on water management throughout the basin.

CRef: [BHCN and WVSOM Scoping Meeting](#)

Before catastrophic events take place with unrecoverable cost incurred on lives along with damage to nearly irreplaceable infrastructure affecting the public tax and fee base.

R13 = Coordinate WRB management with FEMA

Return to: [Smry of BHCN Recommendations \(Rnn\)](#)



The WVSOM EIS work products needs to be coordinated and aligned with FEMA. Especially its flood maps with local variants along the entire length and breadth of the Willamette River Basin.

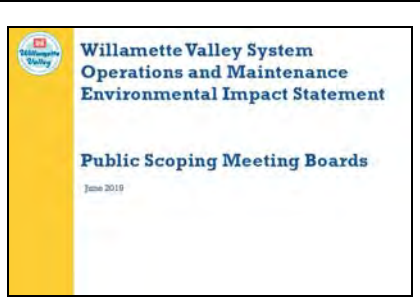

How to accomplish this I have only minimal conceptual ideas at this date.

05 | USAP WVSOM EIS Scoping Docs

Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

<p>05.01 Complete</p>	 <p>Source Webpage on WVSOM</p> 	<p>Title: Willamette Valley System Operations and Maintenance Environmental Impact Statement <BH: WVSOM EIS></p> <p>Sub (Title 2) .: Public Scoping Meeting Presentation <Portland Venu, 2019 Jun 06 Thu 16:30 U></p> <p>Link USAP: Public scoping meeting presentation File USAP : p16021coll7_11557.pdf</p> <p>Link BHCN : 2019 Jun USAP PDLL WVSOM EIS Scpng BH S2PgPost: BH Kn CE 19-01 WVSOM S1Pg: _____ Site: BH Kn USACEPD Projects</p> <p>Illustrates: Willamette River Basin, Willamette Valley System O&M EIS <2019-2023></p> <p>Importance: Flood mitigation limitations wrt 2012 FDFP vs. Stampher Road HOA/BHCN</p> <p>Cross Ref BHCN .:None at this date – to be created < _____ ></p> <p>Link BHCN : BH Kn EVCR LC Foothills and, LOPL: _____</p> <p>Document Attributes</p> <p>Author (s).....: USACE NWD PD (USAP) (CE) <US Army Corps Engr, Portland District></p> <p>Entity: USACE wkpd <US Army Corps of Engineers></p> <p>Project WVSOM <Short> = Willamette Valley System O&M EIS</p> <p>Date Published : 2019 Jun 03 Monday 19:00 U [7:00 PM PT]</p> <p>Date Posted : 2019 Jun 06 Thursday 16:30 U [4:30 PM PT] <USAP Meeting ></p> <p>Date Annotated : 2019 Jun 21 Friday 23:00 U [11:00 PM PT] <Circa> <V01></p> <p>PDLL = Present Display (PD), Orientation: Landscape (L), Sht: Legal (L),</p> <p>Paper: LL = US "L Size" (Legal), (w x h – 13.0 in x 7.0 in)</p> <p>Size: 7,116 kb, Page(s): 31</p> <p>File BHCN ...: PDLL_USAP_WVSOM_EIS_Scp_Prsn_2019_06Jun_06Th_1630U.pdf</p> <p>Fldr BHCN ... C:\... \BH_CPONA\</p> <p style="text-align: right;">\ZZ_Act_2019x02\Z2019_06Jun_06Th_1600U_Mtng_USAP_WVSOM</p>
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<p>05.02 Complete</p>	 <p>Source Webpage on WVSOM</p> 	<p>Title: Willamette Valley System Operations and Maintenance Environmental Impact Statement <BH: WVSOM EIS></p> <p>Sub (Title 2) .: Public Scoping Meeting Boards <Portland Venu, 2019 Jun 06 Thu 16:30 U></p> <p>Link USAP: Public scoping meeting boards File USAP : p16021coll7_11456.pdf</p> <p>Link BHCN : 2019 Jun USAP MBLD WVSOM EIS Scpng BH S2PgPost: BH Kn CE 19-01 WVSOM S1Pg: _____ Site: BH Kn USACEPD Projects</p> <p>Illustrates: Willamette River Basin, Willamette Valley System O&M EIS <2019-2023></p> <p>Importance: Flood mitigation limitations wrt 2012 FDFP vs. Stampher Road HOA/BHCN</p> <p>Cross Ref BHCN .:None at this date – to be created < _____ ></p> <p>Link BHCN : BH Kn EVCR LC Foothills and, LOPL: _____</p> <p>Document Attributes</p> <p>Author (s).....: USACE NWD PD (USAP) (CE) <US Army Corps Engr, Portland District></p> <p>Entity: USACE wkpd <US Army Corps of Engineers></p> <p>Project WVSOM <Short> = Willamette Valley System O&M EIS</p> <p>Date Published : 2019 Jun 03 Monday 19:00 U [7:00 PM PT]</p> <p>Date Posted : 2019 Jun 06 Thursday 16:30 U [4:30 PM PT] <USAP Meeting ></p> <p>Date Annotated : 2019 Jun 21 Friday 23:00 U [11:00 PM PT] <Circa> <V01></p> <p>MBLD = Meeting Boards (MB), Orientation: Landscape (L), Sht: (D),</p> <p>Paper: LD = US "D Size" (Letter), (w x h – 22.0 in x 15.0 in)</p> <p>Size: 1,653 kb, Page(s): 7</p> <p>File BHCN ...: MBLD_USAP_WVSOM_EIS_Scp_Brds_2019_06Jun_06Th_1630U.pdf</p> <p>Fldr BHCN ... C:\... \BH_CPONA\</p> <p style="text-align: right;">\ZZ_Act_2019x02\Z2019_06Jun_06Th_1600U_Mtng_USAP_WVSOM</p>
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

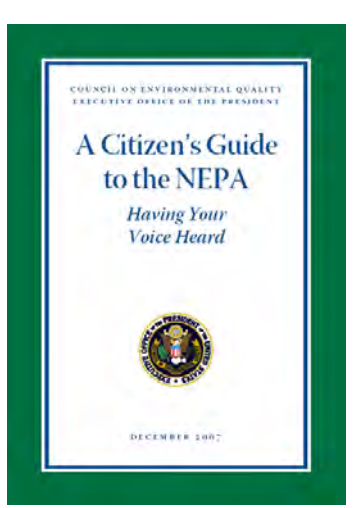
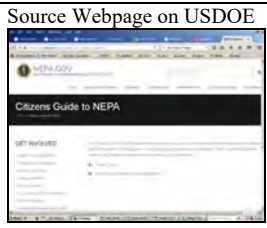
05.03
Complete



Title: **Willamette Valley System O&M EIS
Public Scoping Informational Handout**
 Sub (Title 2) .: Scoping Informational Brochure <for WVSOM project 2019 - 2023>
Link USAP: [Scoping informational brochure](#)
 File USAP : p16021coll7_11455.pdf
Link BHCN : [2019 Jun USAP BRPA WVSOM EIS Scpng BH](#)
 S2PgPost: [BH Kn CE 19-01 WVSOM](#)
 S1Pg: _____ Site: [BH_Kn_USACEPD_Projects](#)
 Illustrates: Willamette River Basin, Willamette Valley System O&M EIS <2019-2023>
 Importance: Flood mitigation limitations wrt 2012 FDFP vs. Stampher Road HOA/BHCN
 Cross Ref [BHCN](#) .: None at this date – to be created <_____
 Link [BHCN](#) : [BH Kn EVCR LC Foothills](#) and, [LOPL](#): _____
 Document Attributes
 Author (s).....: [USACE NWD PD \(USAP\) \(CE\)](#) <US Army Corps Engr, Portland District>
 Entity: [USACE wkpd](#) <US Army Corps of Engineers>
 Projce [WVSOM](#) <Short> = Willamette Valley System O&M EIS
 Date Published : 2019 Jun 03 Monday 18:00 U [6:00 PM PT]
 Date Posted : 2019 Jun 06 Thursday 16:30 U [4:30 PM PT] <USAP Meeting >
 Date Annotated : 2019 Jun 21 Friday 23:00 U [11:00 PM PT] <Circa> <V01>
 BRPA = Brochure (BR) = Plan, Orientation: Portrait (P), Sheet: Letter (A),
 Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)
 Size: 3,257 kb, Page(s): 18
 File BHCN ...: BRPA_USAP_WVSOM_EIS_Scope_2019_06Jun_03Mo_1800U.pdf
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Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)




Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

<p>06.01 Complete</p>	<p>NEPA Citizen's Guide</p>  <p>Source Webpage on USDOE</p> 	<p>NOT CREATED OR ANOTATED 2019 Jun 28 Friday 10:00 U</p> <p>Title: A Citizen's Guide to the NEPA Sub (Title 2) ..: Having your voice hear <Compiling testimony / comments on a public project / study></p> <p>Link WVSOM .: Citizen's Guide to NEPA File USDOE ...: Citizens_Guide_Dec07.pdf</p> <p>Link BHCN .: 2007 Dec UDOE Guide NEPA Citizen Cmnt WVSOM Post: WVSOM <Left Nav Menu> USDOE Pg: USDOE NEPA Post Page</p> <p>Link BHCN .: 2007 Dec UDOE Guide NEPA Citizen Cmnt BH S3PgPost: [REDACTED] S2Pg: BH_Kn_FDFP_Rept_Acss S1Pg: BH_Kn_LU2012-0032_FDFP Site: BH_Knw_LO_LU_Projects</p> <p>Illustrates: Flood Plain Analysis 2011 Sep floodplain conditions in FDFP area Importance: Identifies / Outlines existing floodplains in FDFP due to Willamette Rv and Tryon Cr. Cross Ref BHCN .: 2012 Sep_BHWL_DCPA_FDFP_P2F2_Apdx_BH < [REDACTED]> Link BHCN .: 2012 Jul_WDLE_Rept_FDFP_P1F2 , Post LOPL: Src Link BHCN .: 2012 Jul_WDLE_Rept_FDFP_P2F2 , Post LOPL: LU_2012-0032, Exhibit F-4</p> <p>Document Attributes</p> <p>Author (s).....: ESA_VGAG = VG = Vigil Agrimis, Portland OR <Prev VGAG to 2013> ESA = Environmental Science Associates (1969)</p> <p>Entity: WDWD = WD =Williams Dame and White Developer LOED = LE = LO Econ Development, Fnct Wrapped in to LORA Circa 2015? LORA = LR = Lake Oswego Renewal Agency</p> <p>Date Aprv LOCC: 2012 Jul 24 Tuesday 17:30 U [5:30 PM PT] <Circa> <On Doc Cover> LO_Mtng / LO_Mtng_Archive <Laserfiche System></p> <p>Date Aprv LOPC: 2012 Sep 13 Thursday 17:00 U [5:00 PM PT] <Circa> <On Srce Filename> LO_Mtng / LO_Mtng_Archive <Laserfiche System></p> <p>Date Published : 2011 Sep 15 Thursday 17:00 U [5:00 PM PT] <Circa> <Assume></p> <p>Date Posted: Unknown / Cannot Determine</p> <p>Date Annotated : 2019 Jun 28 Friday 13:00 U [1:00 PM PT] <Circa> <Vnn - PARTIAL></p> <p>Type: BID002 = Body Item (BI) Appendix D, Item 2 PPLA = Plan (PL) = Plan, Orientation: Portrait (P), Sheet: Letter (A),</p> <p>Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)</p> <p>Size: 951 kb, Page(s): 1</p> <p>File BHCN ...: Not determined 2019 Jun 28 Fri 10:00 U.pdf</p> <p>Fldr BHCN ... C:\... \BH_CPONA\Z_Act_2019x02 \Z2019_06Jun_28Fr_1700U_TSTM_USAP_WVSOM\Source_TS_WVSOM</p>
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07 | FDFP Apndx D Floodplain Analysis

Return to first page: [2019 Jun BH TS CE WVSOMEIS](#)

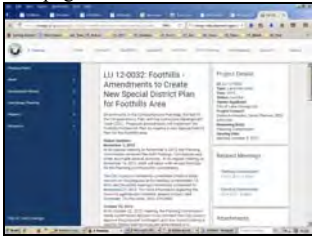
Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

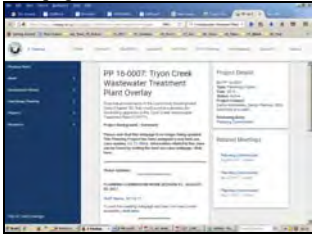
<p>07.01 Complete</p>	<p>Appendix D0, Item D0.00 – Apdx Body</p>  <div style="display: flex; justify-content: space-around;"> <div> <p>WDWD / LOED Apdx D: Extract Src</p>  </div> <div> <p>BHCN [Redacted] Catalogue for extract</p>  </div> </div>	<p>Title: Foothills District Framework Plan Floodplain Analysis Sub (Title 2) .: BdD000 – VIGIL-AGRIMIS: Floodplain Analysis, Scr: 136, DCPA Scr: 012</p> <p>Link BHCN .: 2011 Sep VG ApBd FldPln W D0 00 02 BH S3PgPost: [Redacted] S2Pg: BH_Kn_FDFP_Rept_Acss S1Pg: BH_Kn_LU2012-0032_FDFP Site: BH_Knw_LO_LU_Projects</p> <p>Illustrates: Flood Plain Analysis 2011 Sep floodplain conditions in FDFP area Importance: Identifies / Outlines existing floodplains in FDFP due to Willamette Rv and Tryon Cr. Cross Ref BHCN .: 2012_Sep_BHWL_DCPA_FDFP_P2F2_Apdx_BH < [Redacted] > Link BHCN .: 2012_Jul_WDLE_Rept_FDFP_P1F2, Post LOPL: Src Link BHCN .: 2012_Jul_WDLE_Rept_FDFP_P2F2, Post LOPL: LU_2012-0032, Exhibit F-4</p> <p>Document Attributes</p> <p>Author (s).....: ESA_VGAG = VG = Vigil Agrimis, Portland OR <Prev VGAG to 2013> ESA = Environmental Science Associates (1969)</p> <p>Entity: WDWD = WD =Williams Dame and White Developer LOED = LE = LO Econ Development, Fnct Wrapped in to LORA Circa 2015? LORA = LR = Lake Oswego Renewal Agency</p> <p>Date Aprv LOCC: 2012 Jul 24 Tuesday 17:30 U [5:30 PM PT] <Circa> <On Doc Cover> LO_Mtng / LO_Mtng_Archive <Laserfiche System></p> <p>Date Aprv LOPC: 2012 Sep 13 Thursday 17:00 U [5:00 PM PT] <Circa> <On Srcr Filename> LO_Mtng / LO_Mtng_Archive <Laserfiche System></p> <p>Date Published : 2011 Sep 15 Thursday 17:00 U [5:00 PM PT] <Circa> <Assume></p> <p>Date Posted : Unknown / Cannot Determine</p> <p>Date Annotated : 2019 Apr 12 Friday 13:00 U [1:00 PM PT] <Circa> <Vnn></p> <p>Type: BID000 = Body (BI) Appendix D, Item 0 RPPA = Rept (RP) = Report, Orientation: Portrait (P), Sheet: Letter (A),</p> <p>Paper: PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)</p> <p>Size: 1,326 kb, Page(s): 12</p> <p>File BHCN ...: R_X_WD00002_VG_ApBd_FldPln_2011_09Sep_15Th_1700U.pdf</p> <p>Fldr BHCN ... C:\... \BH_CPONA\050_LOCG\LOPB04LU \LU_12-0032_Dist_Plan_Spc_Foothills\03AWBPG_Fils_PARS <Check Post + Vnn fldrs></p>
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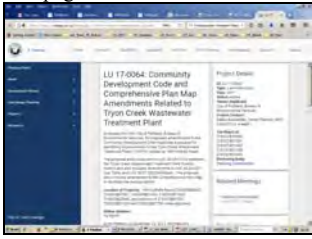
08	Docs/Sites wrt FDFP and TCWTP
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Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage
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08.01	<p>Webpage</p> 	<p>Webpage.....: LU 12-0032: Foothills - Amendments to Create New Special District Plan for Foothills Area</p>
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08.02	<p>Webpage</p> 	<p>Webpage.....: PP 16-0007: Tryon Creek Wastewater Treatment Plant Overlay</p>
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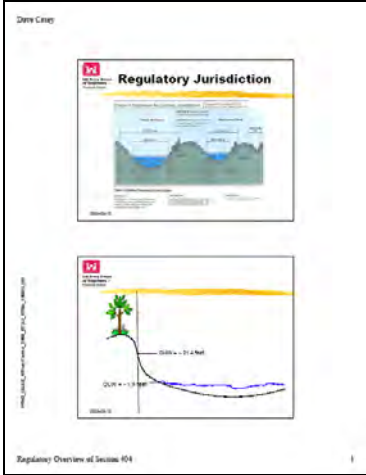
08.03	<p>Webpage</p> 	<p>Webpage.....: LU 17-0064: Community Development Code and Comprehensive Plan Map Amendments Related to Tryon Creek Wastewater Treatment Plant</p>
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09	Docs/Sites wrt Fed Floodplain Authority
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Return to first page: [2019 Jun BH TS CE WVSOM EIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

10.01



Title: Regulatory Jurisdiction <of USACE / NWD / CEPD >
Link BHCN .: [2005 Jul CEPD PPH2 X Jrsd USACE BH](#)
 SbpG: [BH CEPD FHBD 2005 Docs](#) , Page: [BH Kn CE 2005-SN01 FTHL Dock](#)
 Site: [BH Kn USACEPD Projects](#)
 Illustrates

Jurisdictional authority limits of federal agencies wrt water bodies, wrt BHCN and illustrates OHW=Ordn Highwater, and OLW = Ordn Low Water marks

Importance: Support / Access

Document Attributes

Entity

CEPD = BH Contraction for US Army Corps of Engineers <USACE > Portland District within [USACE NWD](#)

Date Published : 2005 Jul 07 Monday 18:00 U (6:00 PM PT)

Date Annotated : 2018 Jun 12 Tue 16:00 U (4:00 PM PT) <circa>

Type

PPH2 = Power Point Handout 2 slides per page

Orientation: Portrait (P), Sheet: Letter (A)

Paper

PA = US "A Size" (Letter), (w x h – 8.5 in x 11.0 in)

Size

94 kb, Page(s): 1

File Source


USACE / NWD / CEPD – Portland District ([CEPD](#))


File BHCN ... [PPH2_USAE_XRiverTerms_2005_07Jul_07Mo_1800U.pdf](#)


Fldr BHCN ... C:\... BH_CPONA\35_Monitor\022_0502_LKOS_FAP_Dock\06_PRSN_ACOE_PubH_LODock_2005_07Jul_18Mo_1800U

Note Extract froms: [PPLA_USAE_PD_LO_LFHP_Dock_2005_07Jul_07Mo_1800U.pdf](#)
 Regulatory Jurisdiction [Slide(s) above page(s) 5/9 and 6/9]

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

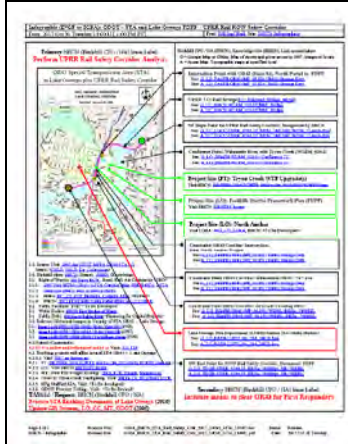
09.05 Background	<p>Webpage</p> 	<p>Webpage.....: FEMA Home Federal Emergency Management Agency Cross Ref: FEMA wkpd</p> <p>Google Search FEMA + FIRM Where: FEMA = Federal Emergency Management Area FIRM = Flood Insurance Rate Map</p>
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09.05.01 Background	<p>Webpage</p> 	<p>Webpage.....: FEMA Flood Map Srvc Center Federal Emergency Management Agency Flood Map Service Center</p> <p>Google Search FEMA + FIRM Where: FEMA = Federal Emergency Management Area FIRM = Flood Insurance Rate Map</p>
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09.05.02 Background	<p>Webpage</p> 	<p>Webpage.....: FEMA Flood Map Srvc Center Federal Emergency Management Agency Flood Map Service Center</p> <p>Input 14110 Stampher Rd, Lake Oswego OR Location of Tryon Cove Park, Alder Creek Kayak Rentals former Jarvis property (five taxlots)</p>
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

09.03




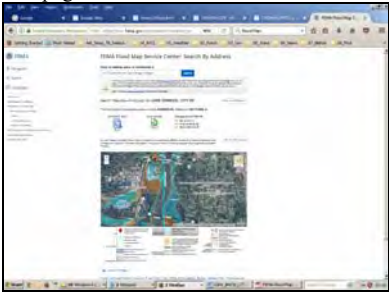
Title: **ODOT – STA and Lake Oswego FDFP / UPRR Rail ROW Safety Corridor**
 Sub (Title 2) .: none
 Link **BHCN** .: [2017 Oct BH IGPA OR43 STA LO UPRR Corridor](#)
 Post SIPgPost: [BH_Infg_Rail](#), Site: [BHCN_Infographics](#)
 CREF: [BH_Kn_RwRR_WDBL_Crossings](#), Site: [BH_Know_ROW](#) Gen: bhpubinvo
 Illustrates: ODOT Special Transportation Area (STA) and “at grade” rail crossings along OR43 [State St (LO)] including WDBL 749179D (Public Storage) and
 Importance: **Constraints for roadway capacity on OR43, TriMet Bus schedule compliance, and access to Foothills per FDFP via North Portal OR43_MP_05.83 Pub Storage Dwy**
 WDBL 749179D (Public Storage)
 File BHCN: IGPA_BHCN_STA_Rail_Safety_Crdr_2017_11Nov_14Tu_1300U.pdf
 Size: 342 kb Page(s): 1
 Fldr BHCN: C:\..BH_CPONA\ZZ_Act_2017x04\
 \Z2017_11Nov_12Su_1000U_Cret_INFG_ODOT_STA_Rail_Crdr


10 Docs/Sites wrt Locale Floodplain Authority


Return to first page: [2019 Jun BH TS CE WVSOMEIS](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details


10.01 Background		<p>Webpage.....: FEMA Flood Map Srvc Center Federal Emergency Management Agency Flood Map Service Center</p> <p>Google Search FEMA + FIRM Where: FEMA = Federal Emergency Management Area FIRM = Flood Insurance Rate Map</p>
----------------------------	---	---

10.02 Background		<p>Webpage.....: FEMA Flood Map Srvc Center Federal Emergency Management Agency Flood Map Service Center</p> <p></p> <p>Alder Creek Kayak Rentals former Jarvis property (five taxlots)</p>
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10.03 Background		<p>Webpage.....: LOC Lake Oswego Municipal Code</p> <p>Use left navigation section to navigate to specific chapters/article LOC LOC_01-60 = Chapters LOC_50 = Community Development Code LOC_50.nn Articles wrt Community Development Code nn-nn: 01-11 LOC_50.05 Articles regarding Design Districts nnn-nnn: 001-011 LOC_50.05.11 Flood Management Area</p>
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10.04 Background		<p>Webpage.....: LOC 50.05.011 Flood Mgmt Area LOC_50.05.11 Flood_Management_Area</p> <p>Key Figures: Figure 50.05.011-C: Flood Management Area Map C <LO and Willamette River, Area(s)> Figure 50.05.011-D: Flood Management Area Map D <LO and Willamette River, Elevations></p>
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

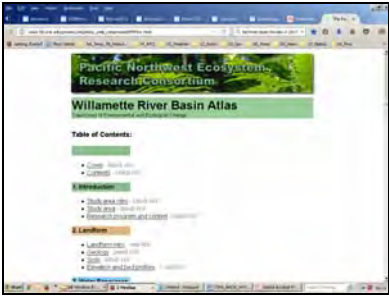
10.05		<p>Title: 2012 FDFP with North Portal effect on LO UGMA Plus TCWP 30 Year Facility Plan</p> <p>Sub (Title 2) .: none</p> <p>Link BHCN .: 2012 FDFP with North Portal effect on LO UGMA</p> <p>Post SIPgPost: BH_RSLT_2014x21x10x09 , Site: BH_RSLT_2014</p> <p>CREF: BH_Kn_RwRR_WDBL_Crossings, Site: BH_Know_ROW Gen: bhpubinvo</p> <p>Illustrates: Potential impact of at grade crossing at OR43 05.83 Public Storage Dwy</p> <p style="padding-left: 40px;">WDBL 749179D on LOUGMA</p> <p style="padding-left: 40px;">GMAP G_LO_FAnFH-OR43 (MP_05.83) / Public Storage Dwy (Street + Images)</p> <p style="padding-left: 40px;">ACME: A_LO_FAnFH-OR43 (MP_05.83) / Public Storage Dwy (Topo)</p> <p>Importance: 1UPRR and PWRR plus ODOT RD have likely not authorized or been informed / communicated with LO about contemplated at grade crossing east of Kaady Car Wash</p> <p>File BHCN: PPEP_BHCN_FDFP_LOUGMA_2015_03Mar_06Fr_1400U.pdf</p> <p style="padding-left: 40px;">Size: 872 kb Page(s): 1</p>
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11	Sites / Docs wrt OSU PNERC WRBPA
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Return to first page: [2019 Jun BH TS CE WVSOMEIS](#)

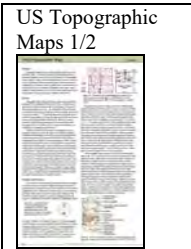
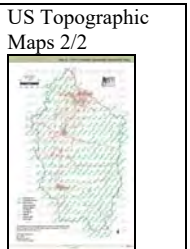
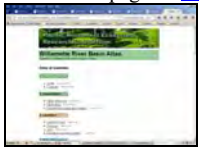
Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage
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11.01		<p>Page Title ...: Oregon State University Press Item Title: Willamette River Basin Planning Atlas Item Sub Title: Trajectories of Environmental and Ecological Change</p> <p>Label BHCH: Visit: OSU PNERC Book WRBPA URL: http://osupress.oregonstate.edu/book/willamette-river-basin-planning-atlas</p> <p>Cross Ref.: OSU PNERC Site WRBPA</p>
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11.02		<p>Page Title ...: Pacific Northwest Ecosystem Research Consortium Item Title: Willamette River Basin Planning Atlas Item Sub Title: Trajectories of Environmental and Ecological Change</p> <p>Label BHCH: ORGE / ODGAMI Visit: OSU PNERC Site WRBPA URL: http://www.fsl.orst.edu/pnwerc/wrb/Atlas_web_compressed/PDFtoc.html</p> <p>Cross Ref.: OSU PNERC Book WRBPA</p>
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
	Document thumbnail(s) and extract outline	Document information details

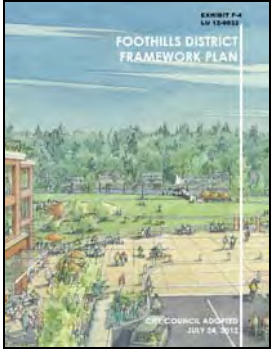
11.03 Research Annote Work Needed	 	<p>Title: Study Area – WRBPA Sub (Title 2) .: Willamette River Basin Planning Atlas Study area with visual explanation of WRB context</p> <p>Link WRBPA: Study Area Section 01 - Introduction, Item 03 Link WRBPA: 2002_PNERC_WRBA_0103_MPPB_Study_Area File USAP : 1b.studyarea_web.pdf Link BHCN : 2002_PNERC_WRBA_0103_MPPB_Study_Area_BH S2PgPost: < > S1Pg: BH_Kn_BW_WR_Ev_Rsrc < > Site: BH_Kn_Bodies_of_Water</p> <p>Illustrates: Willamette River Basin Planning Atlas Importance: Willamette River terminology impact of 2012 FDFP vs. Stampher Road HOA/BHCN Cross Ref BHCN .:None at this date – to be created < > Link BHCN : OSU_PNERC_Book_WRBPA Link BHCN : BH_Kn_EVCR_LC_Foothills and, LOPL:LU_2012-0032</p> <p>Document Attributes Author (s).....: S. Payne J. Baker Entity: OSU Forest Sci Labs Oregon State University Forest Science Labs Project WRBPA <Short> = Willamette River Basin Planning Atlas Date Published : 2002 Apr 23 Tuesday 18:00 U [6:00 PM PT] <Doc Meta Data> Date Posted : Unkown Date Annotated : 2019 Jun 28 Friday 17:00 U [5:00 PM PT] <Circa> <V01> < > MPPB = Map (MP), Orientation: Portrait (P), Sheet: Tabloid (B), Paper: PA = US "B Size" (Tabloid), (w x h – 11.00 in x 17.0 in) Size: 253 kb, Page(s): 2 File BHCN ...: MPPB_PNERC_WR_Basin_2002_04Apr_23Tu_1800U.pdf Fldr BHCN ... C:\... \BH_CPONA\Maps_Actv\080_WLRM_Atlas</p>
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11.03 Research Annote Work Needed	 	<p>Title: USGS Topographic Maps – WRBPA Sub (Title 2) .: Willamette River Basin Planning Atlas APPENDICES: Map 34. USGS 7.5-minute Topographic Quadrangle Maps</p> <p>Link WRBPA: USGS Topographical Maps, Section 10 - Appendix, Item 02 Link WRBPA: 2002_PNERC_WRBA_1002_IGPB_USGS_Quads File USAP : b.USGStopo_web.pdf Link BHCN : 2002_PNERC_WRBA_0103_MPPB_Study_Area_BH S2PgPost: < > S1Pg: BH_Kn_BW_WR_Ev_Rsrc < > Site: BH_Kn_Bodies_of_Water</p> <p>Illustrates: Willamette River Basin Planning Atlas Importance: Willamette River terminology impact of 2012 FDFP vs. Stampher Road HOA/BHCN Cross Ref BHCN .:None at this date – to be created < > Link BHCN : OSU_PNERC_Book_WRBPA Link 1994_Jan_USGS_HTMC_MLPE_Index_OR <BHCN> Link BHCN : BH_Kn_EVCR_LC_Foothills and, LOPL:LU_2012-0032</p> <p>Document Attributes Author (s).....: D. Richey Entity: OSU Forest Sci Labs Oregon State University Forest Science Labs Project WRBPA <Short> = Willamette River Basin Planning Atlas Date Published : 2002 Apr 24 Wednesday 22:00 U [10:00 PM PT] <Doc Meta Data> Date Posted : Unkown Date Annotated : 2019 Jun 28 Friday 17:00 U [5:00 PM PT] <Circa> <V01> < > IGPB = Infographic (IG), Orientation: Portrait (P), Sheet: Tabloid (B), Paper: PA = US "B Size" (Tabloid), (w x h – 11.00 in x 17.0 in) Size: 395 kb, Page(s): 2 File BHCN ...: IGPB_PNERC_Explain_USGS_Topo_2002_04Apr_24We_2200U.pdf Fldr BHCN ... C:\... \BH_CPONA\Maps_Actv\080_WLRM_Atlas</p>
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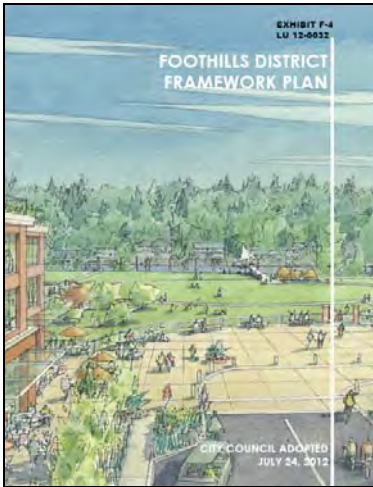
12	Docs/Sites wrt FDFP Report(s)
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Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
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12.01 Essential		<p>Title: Foothills District Framework Plan (FDFP) Sub (Title 2) ..: LOCC Adopted, RSLT 12-41 <Sree LOPL: LU 2012-0032> LOPL: Exhibit F-4: Foothills District Framework Plan, Adopted 07/24/12 (Part 1) BHCN : 2012 Jul WDLE Rept FDFP P1F2 Post LOPL: _____ BHCN .: 2012 Jul WDLE Rept FDFP P1F2 BH <BDPA file > S3PgPost: _____ S2Pg: BH_Kn_FDFP_Rept_Acss S1Pg: BH_Kn_LU2012-0032_FDFP Site: BH_Knw_LO_LU_Projects</p> <p>Illustrates: Evolution of FDFP without Metro LOPT Streetcar File LOPL: exhibit_f-4_foothillsl_framework_plan_final_09-13-12-adopted_07-24-12_part-1.pdf File BHCN ...: REPT_WDLE_FDFP_F-4_LOCC_Adpt_2012_09Sep_13Th_1700U.pdf Size : 24,767 kb, Page(s): 190</p>
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13	Docs/Sites wrt Linked Projects
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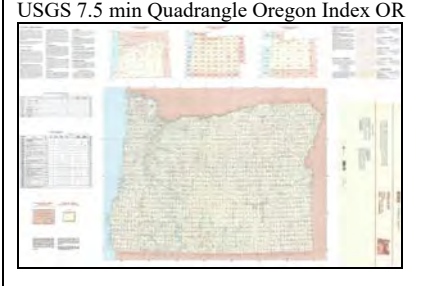
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	Document thumbnail(s) and extract outline	Document information details

13.01	<p>BH Webpage –</p> 	<p>Title ... : 0902001bh00lcfh Birdshill CPO / NA Knowledge Page for Projects affecting BH wrt Locale: Foothills</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Site URL for link: BH_Kn_EVCR_LC_Foothills https://sites.google.com/site/bhpbendv/home/0902010bh00lc/0902010bh00lcfh</p> </div> <p>Webs2page Label : 0902010bh00lcfh = BH_Kn_EVCR_LC_Foothills Webs1page Label : 0902010bh00lc = BH_Kn_EV_CR_Prjts_Loc Website Label : bhpbendv = BH_Knw_Endeavors General Label : bhdebtpub Site Created : 2017 Feb 08 Wednesday 17:00 U [5:00 PM PT] <circa> Page Created : 2017 Feb 08 Wednesday 17:00 U [5:00 PM PT] <circa> Page Revised : 2019 Jun 09 Sunday 13:00 U [1:00 PM PT] <circa></p>
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Image File BHCN:
IMPA_BHUG_Quad_07_LO_1984_01Jan_01Su_0000R.pdf

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Link USGS : [1984 Jan USGS HTMC MPPD Quad LO](#) <BHCN>
 Post USGS Page [USGS Store Product 88750](#)
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 Post 1: Historical Pre 2011: [USGS Ntnl Map](#) , [USGS HTMC](#) , [USGS Store](#)
 Post 2: Current 2011-Fwd [USGS Ntnl Map](#) , [US Topo](#)
 Cross Ref [USGS : 1994 Jan USGS HTMC MLPE Index OR](#)
 Cross Ref [USGS : 2004 Apr USGS RPPA Map Symbols HTMC](#)
 Illustrates: 1984 USGS Quadrangle 7.5 min Series Oregon Lake Oswego
 Note: Last edition to have river mile notation (x) on map
 Post S3Pg: [BH Kn Map UG MT LO 1984](#) , S2Pg: [BH Kn Map UG Q07 OR MT](#)
 S1Pg: [BH Kn Map Lv 0100 USGS](#) , Site: [BH Knowledge Maps](#)
Importance: Support / Access
 Author (s).....: [USGS](#) = United States Geologic Survey
 Entity: [USGS wkpd](#) = USGS wikipedia
 Parent (Cabinet Level) [USDOL wkpd](#) = US Dept of Interior
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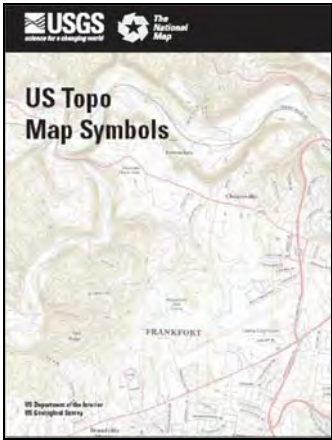


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 <Historical Topographic Map Collection ([USGS HTMC](#)) >
 prior to digital editions <[US Topo](#)> circa 2013
Importance: Map Symbols including river mile marks for Columbia and Willamette River
 Cross Ref [USGS : 1994 Jan USGS HTMC MLPE Index OR](#)
 Cross Ref [USGS : 1984 Jan USGS HTMC MPPD Quad LO](#)
 Cross Ref [USGS : 2004 Apr USGS RPPA Map Symbols HTMC](#)
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 Size: 2,106 kb, Page(s): 4

14.02.02
Key
Feature(s)

Key Document Features:
 1. Has river mile symbols for Willamette River, Article – See: [River Mile wkpd](#)
 2. Term: “Reach of River” (ie named and defined segment), Article See: [Reach wkpd](#)

Cross Ref ID	Document Information – Hyperlink notes: See => Specific document, Visit => Goto designated site / webpage	
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16	Project Headers and Scratch Pads
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[Non-DoD Source] FW: Challenge/Issue/Resource

Shelley Reed <sreedp@msn.com>

Thu 6/27/2019 3:37 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

One more time!

Sent from Mail for Windows 10

From: Shelley Reed <sreedp@msn.com>
Sent: Thursday, June 27, 2019 1:34:10 PM
To: willamette.eis@usace.army.mil
Cc: Dan Whelan; Vicki.Walker@or.us; Steve Cornacchia
Subject: Challenge/Issue/Resource

The Willamette Valley System Operations and Maintenance Environmental Impact Statement

PUBLIC COMMENT BY RIVER ROAD WATER CONTROL SUB-DISTRICT ONE

Challenge/Issue and Resource: Aged and unstable riverbank protection infrastructure susceptible to damage from flood management operations

Project Purpose: Flood Risk Management

We are a water control district initiated in 1967, formalized in 1970 through Lane County under ORS Chapter 553. Based on historical information made available to us through the Corps, it appears that we were formed pursuant to the creation of Lane County Improvement District One, for reasons unknown to the current board.

It is our wish to provide the Corps with documentation of our challenges, but our extremely limited budget requires us to provide you with educated guesses inferred from historical sources on much of our issues.

We are charged with the maintenance and operation of nine revetments within eleven river miles, from East Beacon Drive to the Harrisburg railroad bridges. Although we collect property taxes within that area, we are in possession of only one contract detailing our obligations for one revetment. Our other obligations are inferred based on our tax base, which is a bit opaque given that the Corps operates other revetments within our area; and formerly based on annual maintenance assessment reports from the Corps which stopped being provided to us in 2008.

For reasons unknown to the current board, the tax rate established for our district is \$.28 per \$1,000 assessed value, rendering an annual income today of \$12,000. This amount was established by the board president at inception with the promise that the District would do minor repairs and continue to depend on the Corps for larger repairs. Based on a repair estimate of \$225 per lineal foot specific to one revetment provided to us from an engineering firm last August, our total potential liability is \$4,068,900. Over the last twenty years the District has accumulated \$120,000. We have sought information on finding other financial resources given that we are taxing at our maximum rate. We have explored debt of which \$180,000 over a 20 year term would be available to us based on our projected income which would include an annual 3% rate increase. This is insufficient to make repairs on any significantly damaged revetment, of which we are aware of a few as of 2008 and most likely have more.

Flood management through dam releases has adverse impacts on our old and weak revetments. For instance, with the recent flood, the first revetment in our district suffered increased damage from what was 800 lineal feet of complete loss as of last August to a loss post flood of 1,400 lineal feet out of a total 2,400 lineal feet, with a property loss of 10,000 cubic feet in April. Depending on the depth of the channel near this revetment, yet to be determined, if it is over 20 feet, the entire revetment is lost. This is not the biggest property loss within our district by any means, but it is the one we have spent our meager funds to measure.

A revetment on the right side of the river at the above described location was also destroyed, based on a post flood conversation with the president of the water control district charged with operating and maintaining that revetment. A district that is also severely underfunded.

In surveying randomly selected members of and around our district after the April flood to get a sense of damage and risks experienced during that flood, it was brought to our attention via video recording that the Corps' revetment 7A was now in the river, having been cut away from the riverbank, putting residences and agricultural businesses at risk. Without timely access to current maps detailing river miles, we cannot confirm nor deny that this is accurate. Although we do recall that members of the Corps visited this area after meeting with us in May.

Additionally, it was pointed out to us that a BPA tower was left much closer to the river. There are three such towers near three different riverbanks at this location. In speaking to the BPA we were told that one of these towers was indeed closer to the river and the riverbank would need to be shored up. The tower in question is said to sit on the left bank of the Willamette versus the one hovering over Spring Creek, it is our estimate that the tower on the main channel went from about 88 feet away from the river to around 47 feet, so these numbers could suggest one more "100 year flood" will take this tower down and the grid with it. This tower is just to the north of our Kelso revetment (when reviewed in 2006 by the Corps, mention was made of erosion near the north end of our revetment,) extension of our revetment might fix the situation, but clearly we do not have the money to navigate the multiple agencies necessary to engage in such a project let alone pay for the materials. In any case, this is infrastructure that needs to be protected.

In general, the people we spoke with agreed that the pattern of flood water dispersion was different than 1996 and that this flood came on lightening fast, not giving people enough time to prepare. One person, not in our district, but to the east of River Road, interviewed given that this water does not stop at the west side of River Road, a 40 year resident came home from work shocked to learn that her driveway was completely blocked, got help getting home to her ill husband and proceeded to watch as River Road was shut down in two directions. While Row River residents were given evacuation notices, we were given nothing and this was problematic for specific individuals in our area who had to or needed to, but couldn't, evacuate.

There seemed to be two groups of people most at risk: the elderly and infirm, and the freshman class, new residents who had no idea what to expect nor what to do about their islands in the rapid and dangerous streams. Power was lost, wires were hanging down and some people simply had no ability to leave their property. The story of the Campbell's near bankruptcy was well publicized, thankfully they have "only" lost \$300,000 so far. One person shared that a niece works for 911 and they were inundated with calls from people who didn't know what to do. It would be nice to know what solutions were offered other than "turn around, don't drown." Some of us would have been going in tight circles.

In reviewing the Lane County Emergency Services letter sent before flood season, the most notable sentence in it was "try not to build on the flood plain." Perhaps the Lane County Building Department could give that a little thought.

The challenge is this, in the 50's-70's the federal government made it possible for these properties to be developed down to lots of less than one acre through its decision to control the flow of river water. Since then we have had a cultural shift that seeks to support environmental concerns with a seemingly silent battle taking place where those who do not live here put a high value on the health of endangered species, an admirable goal, but without having an open conversation with all the stakeholders. For example, our constituent who lives near Green Island was not included in the McKenzie River Trust's list of affected property owners about the changes they were making that would affect the flow of the river. Part of her property is now a part of that island, perhaps the result of their changes combined with the damages to our revetment, which should have been accounted for in their application, or simply a product of the narrowing of channels caused by floods and the resultant buildup of gravel bars which, unfortunately for everyone downstream including allegedly your revetment Location 7A, increase the velocity of the river and push the river west while enriching the inventory of the McKenzie River Trust.

Unwinding historical changes to the river without accounting for the people who live and make a living along the river and have for over a century in many cases, is tantamount to the exercise of eminent domain. There is no communication between water boards, Lane County, Oregon State Lands – who own the river based on the high water mark as it shifts, EPA, NOAA, USFW, The Corps, etc. Policy changes are made that affect the operation of our district and we are never included in the conversation. The flow of the river was permanently changed, and now with efforts to restore the river that wandered as far as the coast range being

done without communication amongst stakeholders must have its limits unless the people whose lives and livelihoods that are ruined are recompensed.

We were told by the Corps that the April 8, 2019 flood was not as bad as November 1996. While school children in Junction City weren't out playing in the floodwater as they did in 1996, the effect of the flood was intense on properties within our district. In reviewing numbers from the Corps' historical database, flood levels were close. April 9 peak of 15.28 was a little less than the peak November 19, 1996 of 15.56.

Clearly, the issue is not that we don't want to protect our district and its citizens and high quality agricultural land, but it is the absurd gap in funding needed vs. funding provided that stands out. Ironically, as the Corps' budget has tightened, the financial responsibilities have fallen to small, severely underfunded water control districts.

We have been coached by a sympathetic Corps to plant trees, to seek out partnerships with the Long Tom Watershed Council which we were told would offer help for free. The trees have washed away at two different sites, and the Long Tom Watershed Council has declined to work with our constituents next to the above described revetment. A mystery, given that this revetment is near the confluence of the McKenzie and Willamette Rivers, a high value ecological site.

In speaking with the Long Tom Watershed Council, while awaiting specific information about this specific site, we were informed that the Watershed Council is a small organization that must prioritize the number of projects it undertakes. It works as a conduit for grant money provided by government agencies, state and federal as well as other non-profits, and that it was possible that this project was not large enough to garner interest from those parties. It's not enough for the property owners to be interested in working with them, there must be investors interested in funding the project. We were told that the Council had worked on one project, the removal of culverts impeding fish passage, for 10 years to get it accomplished. This is not the font of money that was suggested to us.

Historical descriptions in proposals to build these revetments talk about flood risk and concern about damage to agricultural land, losses measured as the net present value of income generated from land that is lost in riverbank erosion from floods and later, dam water releases, including lost wages, something no longer valued by the Corps. as reflected by the low risk/low value rating on our district lands.

We ask that you revalue our district properties to be consistent with the value of the properties as the source of food consumed locally and throughout the world, the lawns installed in city lots, sources of income for families and respect for the people who live here.

We also ask that all water control districts charged with riverbank erosion control be included in all future communications regarding river flow changes created by all parties within and coterminus to each district.

Respectfully submitted,

River Road Water Control Sub District One

Sent from Mail for Windows 10

[Non-DoD Source] scoping on Willamette Valley System

Stauffer Farms <staufferfarmsinc@yahoo.com>

Fri 5/31/2019 4:32 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

U. S. Army Corps of Engineers
CENWP-PME-E
ATTN: Suzanne Hill
P. O. Box 2946
Portland, Oregon 97208-2946
Email: willamette.eis@usace.army.mil

Re: Scoping Comments on Willamette Valley System Evaluation

Ms. Hill,

Thank you for the opportunity to comment on the Willamette Valley System Evaluation. I am a farmer in the Willamette Valley and am writing to express the importance of continuing to maintain the system for flood control and irrigation storage. We have been hearing much in the Valley around both the Willamette Reallocation and potential changes to the operations of the Willamette system dams to benefit fisheries. While we share in the desire to have healthy salmon populations, we do not believe that it is appropriate or wise to adjust the Willamette system operations to experiment with flow regimes or storage regimes that may or may not provide a greater fisheries benefit.

These dams are critical to protecting farms, homes and communities from growing flood risk and we all saw first-hand this spring the impact releases from the dams can have on communities. We need to ensure that the dams retain their primary function of flood control and that any adjustments made to the system operations do not reduce or alter flood mitigation.

In addition, I oppose reducing the water storage capacity behind dams. This water is critical for future irrigation and community needs, particularly as we trend toward having longer, hotter summers. Oregon Department of Agriculture's recent studies show that irrigation demand is going to exponentially grow in the Willamette Valley in the next several decades as we become an even more critical part of the global food economy. We desperately need additional water supplies to ensure this vital part of our economy is able to adjust to changing conditions and continue to provide a safe, reliable supply of food and fiber to our state, region and our world.

Thank you for this opportunity to comment.

Sincerely,

Sheryl Stauffer
Stauffer Farms, Inc.
13851 Stauffer Road, NE
Hubbard, Oregon 97032
Tel: 503-982-9393
Fax: 503-982-5065

[Non-DoD Source] scoping comments from ODOT for the WVS Project EIS effort (DUE/submitted to USACE 6-28-19)

WHITE Susan <Susan.WHITE@odot.state.or.us>

Fri 6/28/2019 4:57 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Cc: BROUWER Travis <Travis.BROUWER@odot.state.or.us>;

Hello,

The Oregon Department of Transportation is providing comments for the NEPA scoping phase of the subject EIS, as follows:

For any state highways, including interstates and other highways on the National Highway System, that are located near WVS dams and flood control devices, reservoirs, and hatcheries, ODOT should be coordinated with in order to avoid any adverse impact from both permanent impacts as well as construction-related temporary impacts from the WVS Proposed Action and the Selected Alternative on those inter- and intra-state highways and to the traveling public.

Specifically, if through coordination with ODOT it is anticipated that any part of the WVS Proposed Action and the Selected Alternative would create traffic impacts, a traffic impact study (TIS), and potential cooperative agreements with required mitigation, may be warranted. The traffic impact study and any resultant cooperative improvement agreement or plan related to traffic impacts and required mitigation, and any access needed on or adjacent to ODOT highway rights-of-way, may require review and approval by ODOT. In addition, various permits may be needed to accommodate any oversized vehicles needed to implement the WVS Proposed Action and the Selected Alternative during construction or any installment and associated hauling and storage of equipment needed for the project (both temporarily and permanently). The link to ODOT's Permitting Page is here: [Blockedhttps://www.oregon.gov/ODOT/Maintenance/Pages/index.aspx](https://www.oregon.gov/ODOT/Maintenance/Pages/index.aspx)

In addition, any changes to existing dams or reservoirs or their associated operations, riverbank protection projects, or fish hatchery programs that may cause impacts to regular state highway operations and maintenance activities other than traffic impacts (i.e., changes or new measures that could cause increased potential for flooding on state highways, change access to or otherwise encroach upon state highway rights-of-way, require USACOE owned access road changes, etc.) should be coordinated with ODOT in order to allow state highways to continue to operate safely and efficiently without adverse impacts. Any Corps proposed action that could result in impacts to, or changes needed on, any ODOT bridge, culvert, or other structure on the state highway system should be discussed in detail with ODOT prior to any decisions made.

Thank you for the opportunity to comment during the NEPA scoping phase. If you have any questions, please contact me.

Susan

Susan D. White
NEPA Program Coordinator

Oregon Department of Transportation (ODOT)
GeoEnvironmental Section (GES)
4040 Fairview Industrial Drive SE
Salem, Oregon 97302
503-986-3519 (direct)
503-986-3252 (main)



-

[Non-DoD Source] WVS EIS: meetings, scoping, comments, etc.

WHITE Susan <Susan.WHITE@odot.state.or.us>

Thu 5/2/2019 2:06 PM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>;

Hello,

ODOT is tracking, and has interest in, the development of the Corps' subject EIS described in the April 1, 2019 NOI in the Federal Register. Your NOI states that *"Written comments for consideration in the development of the scope of the NEPA EIS are due to the addresses below no later than June 28, 2019"* and your email announcement also dated April 1, 2019 (from Suzanne Hill, USACE) states further that *"A number of public meetings will be held during the scoping period. The specific dates, times, and locations of the meetings will be published on the Corps' website for this EIS: Blocked<https://www.nwp.usace.army.mil/Locations/Willamette-Valley/Evaluation/>. We will also provide email notification of the meetings. These meetings are planned to be held in May and June 2019."*

I'm not sure when the official scoping period started, or will start. Can you please clarify those dates for me? Since I don't see any specific problem statement, alternatives, or issues to date to comment on at this early stage, what kind of comments are you soliciting (from agencies, in particular) *"for consideration in the development of the scope of the NEPA EIS"*?

Also, could you please **add my name and contact information (below) to your WVS EIS email list** so ODOT knows when public meetings are being held and the EIS schedule? To date I've not seen any meeting or EIS schedule posted to your website. Also, can you verify that this is the WVS EIS website where all your meetings and the EIS schedule are to be posted: Blocked<https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/> ? My email address is: susan.white@odot.state.or.us

Thank you,
Susan

Susan D. White
NEPA Program Coordinator

Oregon Department of Transportation (ODOT)
GeoEnvironmental Section (GES)
4040 Fairview Industrial Drive SE
Salem, Oregon 97302
503-986-3519 (direct)
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Kari Mapohaku

Name (First, Last)

ME

Organization

Evu, OR

City, State

coyent tongue@gmail.com

Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

New designs prospects that are currently engineered and ready, but are not being implemented locally. Perhaps in other countries?

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

John Zieliński

Name (First, Last)

Marion County Farm Bureau

Organization

Salem OR

City, State

john@ezorchards.com

Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

Will the TMDL be a part of the EIS, if ag land has increased flooding it would stand to reason

that there would be increased mercury deposits.

With a changing climate the need for water is increasing, I would like to see

the Allocation for Ag to be higher than

the current 327.5th Aaft.

Bank erosion is an issue for many farmers with property bordering the Willamette

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

Doug Heiken
Name (First, Last)

Oregon Wild
Organization

Eugene, Oregon
City, State

dhe@oregonwild.org
Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

Remove revegetation where possible. Let river dynamics happen.

Remove weeds on banks + gravel bars + islands, ^{manual removal and} maybe using high flows.

Does Dexter need ~~higher~~ better upstream fish collection?

Enhance system for lamprey conservation/restoration.

Adjust system to conserve/restore freshwater ^{macroinvertebrates.} mussels + turtles.

Land acquisition in floodplain to allow avulsion, river migration. ^{river otters, salamanders, frogs}

Don't let water reallocation process limit options for conservation.

Favor native fish over hatchery fish.

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019



NETWORK of OREGON
WATERSHED COUNCILS

To: U.S. Army Corps of Engineers, Portland District, P.O. Box 2946,
Attn: CENWP-PME-E, Portland, OR 97208-2946
From: The Network of Oregon Watershed Councils

June 26, 2019

To Whom It May Concern,

We are writing to offer input into the development of the EIS scoping document process for the Willamette Valley basin.

By statute, Watershed Councils in Oregon were created to help preserve and restore watershed system health for those who depend on the ecosystem system services they provide and to protect and enhance fish and wildlife habitat in those systems. The USACE's management of the thirteen dams and the 100+ miles of revetments in the Willamette Bank Protection Program along the Willamette and its tributaries greatly impact the systems that watershed councils in the Willamette Valley are intended to protect and restore.

Dams in the Willamette basin are artificial but necessary barriers to natural watershed system health. Our request in the scoping document being developed is that the Corps work with local councils on issues that impact water quality and quantity and fish and wildlife habitat upstream and downstream of these dams. We believe there is a balance between the Corps mission of flood control and Councils' mission of protecting and restoring watershed health.

Upstream it is hoped that the Corps work to limit those inputs that lead to the growth of toxic algae blooms in reservoirs, sediment overloads and high water temperatures. In the reservoirs it is hoped that the scoping document include ways to monitor and treat water quality issues.

Downstream issues mostly concern fish habitat. Water quality and quantity can be impacted by how the dams are managed and operated. Water temperatures and sediment loads can also be impacted by the Corps management plan.

We encourage the Corps to **identify and take opportunities** for revetments to be removed or modified where ecological benefits can be achieved with low risk to infrastructure. Identifying areas where river processes such as erosion and deposition can be restored will increase overall river health. Increasing the extent and duration of floodplain and off-channel habitats helps reduce the intensity, severity, and frequency of flooding, with short and long-term benefits for infrastructure located in harm's way, and reduced costs to the state and federal governments in the long term. The USACE can also examine how it might develop a process to work with landowners when a revetment fails, to determine if alternatives

exist to replacement or reinforcement of the existing revetment. Local partners exist to work with USACE and landowners if these situations arise.

It is our hope that the Corps, in developing its scoping document and in the processes leading to an EIS, considers the Willamette watershed councils as partners, for this process and for **input to the ongoing management** of the dams. The Network of Watershed Councils also stands ready to work with the Corps, using our statewide resources and expertise in these issues. Please contact me for any further information on the Network, ways in which we can assist in this process, and any questions you may have about our interest in this process.

Respectfully,



Kelly Timchak

President | Network of Oregon Watershed Councils



June 28, 2019



Col. Aaron L. Dorf
U.S. Army Corps of Engineers District Commander
Portland District
P.O. Box 2946
Portland, OR 97208-2946

Sent via email to: willamette.eis@usace.army.mil.

Attn: CENWP-PME-E

Dear Col. Dorf,

Native Fish Society, Northwest Environmental Defense Center, WildEarth Guardians, WaterWatch of Oregon, McKenzie Flyfishers, Trout Unlimited, American Rivers, Northwest Guides and Anglers Association, The Conservation Angler, Whale & Dolphin Conservation, Molalla River Alliance, Cascadia Wildlands, and Willamette Riverkeeper respectfully submit these comments to the U.S. Army Corps of Engineers (Corps) regarding the scoping period for the Notice of Intent To Prepare an Environmental Impact Statement for the Willamette Valley System Operations and Maintenance. Our groups have a strong interest in the recovery of wild Upper Willamette River (UWR) spring Chinook salmon and winter steelhead and encourage the action agencies to substantively consider the comments contained in this letter.

For the first time in nearly forty years, the Corps and the associated action agencies, Bonneville Power Administration (BPA) and Bureau of Reclamation (Reclamation), will be undertaking a comprehensive evaluation of ongoing operations of the Willamette Valley System (WVS). It is our

understanding that the environmental impact statement produced in this analysis will be utilized as the basis for Endangered Species Act (ESA) section 7 consultation with the National Oceanic and Atmospheric Association National Marine Fisheries Service (NOAA Fisheries) and will inform the next Biological Opinion (BiOp) for listed UWR spring Chinook salmon and winter steelhead.

We commend the Corps for undertaking the National Environmental Policy Act (NEPA) process in conjunction with ESA consultation of systems operations. This provides the public and the agencies with an opportunity to engage with one another in a manner not available through standard ESA consultation alone. We encourage the action agencies to view this as a meaningful opportunity to co-create with the public a future for the Willamette basin that includes abundant, wild fish, healthy rivers, and thriving local communities.

The following comments are submitted during the NEPA scoping period for consideration in the formulation of the draft environmental impact statement:

- I. *Authorized Purposes: The Corps has the legal authority and management discretion to manage the WVS for the benefit of threatened fish where doing so does not impair flood control or the maintenance of human health and safety.*

The action agencies must craft alternatives based on their legal duties to ensure the WVS allows the ESA-listed fish to survive and recover under the ESA. To do so, the agency must consult with NMFS, ODFW, and the tribes. If the agencies wait until after the DEIS to do so, NMFS may require additional or substantially different alternative actions to avoid jeopardizing the species.

The agencies must consider alternatives that prioritize ESA-listed fish above other project purposes. The Ninth Circuit and U.S. District Court of Oregon have recognized the Corps' discretion to manage dams on the Columbia River for the benefit of threatened fish. *NWF v. NMFS*, 524 F.3d at 928-29; *Nat'l Wildlife Fed'n v Nat'l Marine Fisheries Serv.*, 2005 WL 1278878, at *9-10 (D. Or. May 26, 2005). The Flood Control Acts authorizing these federal dams imposed broad goals but did not dictate how the Corps must fulfill those goals, giving the agency considerable discretion in choosing what specific actions to take. *See NWF v. NMFS*, 524 F.3d at 928-29. Moreover, subsequent to the Flood Control Act of 1950, the Fish and Wildlife Coordination Act and the Northwest Power Act specifically called for fish and wildlife conservation when managing the dams. *Id.* at 929 n. 8; *NWF vs NMFS*, 524 F.3d at 929.

Because of the Corps' management discretion, the agency must operate the dams in compliance with the ESA's no-jeopardy mandate regardless of the expense or burden. *Id.* at 929. Thus, these courts have ordered the Corps to conduct operations to benefit fish at the expense of other project purposes like hydropower. *NWF v. NMFS*, 2017 WL 1829588, at *6, *Aff'd*, 886 F.3d 803.

Other courts have recognized that Flood Control Acts impose broad goals, and the Corps has broad discretion when balancing the multiple uses of dams, requiring compliance with the ESA. These include: *Miccosukee Tribe of Indians of Florida v. U.S. Army Corps of Eng'rs*, 716 F.3d 535, 541-45 (11th Cir. 2013); *In re: Operation of the Missouri River System Litigation*, 421 F.3d 618, 625 (8th Cir. 2005); *Am. Rivers v. U.S. Corps of Eng'rs*, 271 F.Supp.2d 230, 252-53 (D.D.C. 2003).

The same reasoning applies to the Willamette Project. The Willamette Project was authorized by Flood Control Acts—including the one that applied to the Columbia River dams—that impose broad goals and do not mandate specific dam operations. (*See supra* p. 4; Flood Control Act of 1950, Pub L. No. 81-516, § 204, 64 Stat. 163, 178-79 (1950)). Accordingly, the Corps has the discretion to alter the management of the Willamette dams to benefit ESA-listed species at the expense of other uses—including power production—just as it does with the Columbia dams. The ESA requires the Corps to exercise that discretion to benefit ESA-listed species, even if that requires prioritizing fish needs above other authorized purposes like hydropower and recreation.

Even if the Corps lacked authority to conduct operations or make improvements to the WVS to protect ESA-listed fish, the Corps should seek authorization from Congress to do so. Indeed, the 2008 Biological Opinion RPA required the Corps to identify where the agency lacks the authority to accomplish the required measures and to seek Congressional authorization where necessary to complete the mandated actions (RPA 4.8 (Interim Downstream Fish Passage through Reservoirs and Dams); 4.12 (Long-term fish passage solutions); 5.1.3 (Complex Interim Water Quality Measures) 5.2 (Water Temperature Control Facilities and Operations) 5.3.4 (Protecting Water Quality during Emergency and Unusual Events or Conditions)). The claim that the Corps lacks the legal authority or authorization to fully and substantively implement the RPA is an indication of the Corps' failure to identify and seek the necessary Congressional authorization as directed.

II. Given the Corps' legal discretion and ESA obligations, the agency must consider operational and structural alternatives which may impact other authorized purposes (excluding flood control and the maintenance of human health and safety) but may be beneficial to meet the recovery needs and mandates of ESA-listed species.

Because UWR spring Chinook salmon and winter steelhead are listed as threatened under the Endangered Species Act, the Corps has a duty to ensure the dams do not jeopardize their survival and recovery. NOAA Fisheries issued a complete list of actions in 2008, identified in a Biological Opinion, that the Corps and associated action agencies must take to protect these species and ensure recovery. NOAA Fisheries said that the critical actions needed to recover Willamette salmon and steelhead are fish passage for adults and juveniles, improved water temps and flows downstream of dams, downstream habitat restoration, and completed Hatchery Genetic Management Plans.

The action agencies should utilize the WVS analysis and associated ESA consultation as an opportunity to craft and execute a roadmap to recovery for the Willamette basin. Utilizing the best available science, the agencies should evaluate the multitude of operational and infrastructural adjustments that could be made to improve the root causes of wild fish decline and loss of ecosystem function in the basin.

Given the precarious state of ESA-listed fish and the failure of the Corps to meet significant timelines outlined in the 2008 BiOp, the agency should evaluate and select alternatives in the WVS analysis that can be implemented in the near term while planning, design, and construction commences for longer term solutions. Proposed action alternatives should be designed and evaluated with flexibility for future modifications in mind and selected measures must include robust timelines, metrics, and methods for evaluation.

The following are a number of actions that the agencies should consider within the scope and alternatives analysis for the WVS EIS. Many of these actions are interrelated and it is critical that the agencies evaluate these connections, associated opportunity costs, and levels of uncertainty. Actions for consideration in alternative development include:

- A. Modeling: The Corps should remodel the Operations and Maintenance Team Report and Configuration/Operations Plan alternatives. This evaluation SHOULD NOT be constrained by previous assumptions that the Corps must maximize or fulfill authorized purposes except for flood control and the maintenance of human health and safety (*see* part I of these comments).
- B. Hydropower: The Corps must produce and evaluate alternatives which may modify, reduce, or eliminate power production at Detroit, Big Cliff, Green Peter, Foster, Cougar, Lookout Point, Dexter, and Hills Creek. Present hydropower operations conflict with operational and infrastructural measures that could significantly improve juvenile migration and survival and adult returns. The Corps should evaluate the following:
 1. Modification of hydropower production: The Corps should consider eliminating power peaking, turning off turbines during migration periods in association with reservoir drawdowns, delayed refill, spill operations, the removal of turbines at hydropower projects to provide a passage route for fish in combination with timed drawdowns, and the conversion of specific projects to run-of-the-river operations without power generation.
 2. Modification or removal of non-flood control dams: Dexter and Big Cliff are hydropower reregulation dams that do not serve any flood control purposes. As such, the Corps must produce and evaluate alternatives which include consideration of modifying or removing these dams to support the recovery of listed salmonids. Operating these dams as run-of-the-river without hydropower operations, or removing them completely, will enable the Corps to evaluate operational changes to Lookout Point and Detroit that are currently constrained by the presence and operation of the reregulation dams. For instance, establishing volitional juvenile downstream passage at the reregulating dams may enable volitional juvenile downstream passage at Detroit and Lookout Point to be more successful as fish could be passed through the primary dam without then having to navigate another reservoir and dam.
 3. Costs: The Corps should analyze the current and future costs of power production on the Willamette compared to other project systems in BPAs portfolio along with evaluation of expected changes in electrical production and distribution in the region that will impact future power demand and generation.

4. Maintenance: Any remaining hydropower infrastructure should be maintained on explicit schedules designed to result in the least interference to fish passage, water quality, water flows, and other recovery objectives.
- C. Juvenile Downstream Passage: Fish passage studies conducted throughout the project demonstrate that the highest rate of juvenile emigration through project reservoirs and dam structures takes place at and near the minimum conservation pool elevation. However, at present this emigration takes place during the fall and winter months during project drawdown, while fish enter the reservoirs throughout the year but mostly in the spring and summer months. Studies have also shown that the longer fish are in the reservoirs the lower the cohort survival. Research also indicates that larger sized juvenile fish have higher return rates at present. In combination, this information stresses the importance of the variety of life histories in the basin. Drawdown analysis should include consideration of methods that address this diversity of life histories and their corresponding biological needs.

The seasonal draft and refill operation of the projects strongly affects fish passage timing and survival through the projects. Further, such operations substantially increase the complexity of juvenile collection facilities, like those currently proposed for Cougar and Detroit dams, as they would have to be designed for a wide range of reservoir water surface elevations and fluctuations in flows. Such complexity makes such systems both more difficult to engineer and install and increases the likelihood of failure.

Lowering reservoir pools to elevations that allow surface oriented fish to access various passage outlets (regulating outlets (ROs), penstocks, diversion tunnels) can provide increased rates of downstream fish passage than is available under present operations. Deep drawdowns have been conducted in recent years at Fall Creek and have shown that such operational practices may increase downstream passage of juvenile fish and have the added benefit of moving invasive and predatory species out of the reservoir ecosystem while also providing for the transport of sediment into the lower reaches of the system.

Similar to deep drawdowns, run-of-the-river operations could increase rates of downstream fish passage and increase dam passage survivability.

These alternatives would extend the period for which the projects provide potential storage for flood control, which is crucial as climate change makes severe weather and flooding more unpredictable. However, depending on timing, they could also reduce the Corps' ability to meet currently specified instream flow commitments, particularly during the summer and early fall when stored water is currently used to meet instream flow needs for juvenile rearing and adult spawning. In general, there are high rates of pre-spawn mortality in the basin and spawning success downstream from Project dams is poor and may grow worse as the climate continues to change. Evidence suggests that the greatest potential for survival and recovery of the species

is successful passage to and from the high-quality spawning habitat upstream from WVS reservoirs. These needs should be weighed against the need to store water for flow augmentation and other uses during the summer and fall.

The Corps should evaluate operations which will increase both juvenile dam passage efficiency and survival through methods such as deep drawdowns, spill, maintaining the large storage reservoirs at or near their minimum conservation pool (except as necessary to meet flood damage reduction goals), and run of river operations. The following passage opportunities should be evaluated:

1. Detroit: A fish collection facility (FCF) is currently being proposed but is not expected to be operational for downstream passage until 2028. Given that the facility will not be operational until well after the EIS is complete and that the completion of this project is highly uncertain, the Corps should not consider this project as part of the baseline or assume that it will be completed and successful. Given the limited number and mixed results to date of collectors currently in operation and the unique constraints of Detroit Dam and reservoir, the Corps should evaluate near term operations to improve fish passage over the next decade as well as evaluating the proposed FCF¹ and potential remedial reconfiguration or operations if fish collection efficiency or survival under the current proposed design proves insufficient. This includes:
 - a) Fall/winter drawdown to regulating outlets (ROs) or remove one or more turbine units and drawdown to penstock gate opening with passage through “powerhouse” in conjunction with spring surface spill.
 - b) Evaluate proposed FCF and associated handling and haul operations.
 - c) Evaluate remedial design and operations alternatives for FCF including the use of:
 - (1) Volitional bypass pipe.
 - (2) Guidance and/or exclusion nets.
 - (3) Pumped flow attraction.
 - (4) A combination of fish collection at the facility with drawdowns and/or spill operations.
2. Big Cliff: Consider modification and elimination of hydropower operations along with run of the river operations or dam removal. *See* part II.B.2 of these comments.
3. Cougar: The present configuration provides several passage opportunities that would likely require less costly modifications than the currently proposed non-volitional fish collector. These include:
 - a) Drawdown to run of river operations through the diversion tunnel.²

¹ Detroit Dam & Lake Downstream Passage Project must be evaluated as an alternative in the WVS NEPA analysis. Failing to do so would constitute impermissible segmentation. *See* part V of these comments.

² Temperature control operations would not be required as the river would self-regulate downstream temperatures.

- b) Remove one or both turbine units and drawdown to penstock/RO gate opening with passage through “powerhouse.”³
 - c) Utilize existing RO tunnel or modify to include a bypass pipe and drawdown to the penstock/RO gate opening.
 - (1) Evaluate modification to RO downstream opening to increase survivability at outlet.⁴

- 4. Hills Creek: The current dam structure is similar to Cougar Dam and presents several similar passage opportunities that would likely require modification of existing infrastructure. Unlike Cougar, Hills Creek does not have existing temperature control infrastructure. Passage opportunities include:
 - a) Reopen the diversion tunnel and drawdown to run of river operations.⁵
 - b) Remove one or both turbine units and drawdown to penstock/RO gate opening with passage through “powerhouse.”
 - c) Utilize existing RO tunnel or modify to include a bypass pipe and drawdown to the penstock/RO gate opening.
 - (1) Evaluate modification to RO downstream opening to increase survivability.

- 5. Green Peter: At present, passage survivability through the existing fish bypass pipe infrastructure is high. However, reservoir survival and corresponding passage efficiency is low. The Corps should evaluate methods to increase reservoir survival and passage efficiency. These include:
 - a) Reduce reservoir predation through deep drawdowns in fall/winter.
 - b) Increase attraction flows to existing fish bypass pipe by turning off hydropower during migration in the spring and evaluate opportunities to further increase attraction flow to existing bypass infrastructure.
 - c) Outplant adult hatchery Chinook salmon above Green Peter dam to study spawning success and juvenile downstream migration through Green Peter reservoir and dam.

- 6. Foster: For many years, a fish weir installed in one of the spillways has provided a passage route with high survival. An updated weir that can be utilized over an increased range of pool elevations was recently installed and has reduced dam passage survival. In the spring of 2019, the Corps prioritized increased spill (while minimizing hydropower production) to aid in downstream migration while evaluating modifications to the new weir structure to increase survival rates. However, like Green Peter, reservoir survival of juvenile fish in Foster reservoir is low, possibly due to a

³ Temperature control would require reassessment and potential modification of existing infrastructure.

⁴ Temperature control would require reassessment and potential modification of existing infrastructure.

⁵ Temperature control operations would not be required as the river would self regulate downstream temperatures.

combination of predation and incidental catch in the recreational sport fishery. The Corps should evaluate methods to increase reservoir survival and passage efficiency. These include:

- a) Reduce reservoir predation through deep drawdowns in fall/winter.
 - b) Increase attraction flows to the weir and/or spillways by turning off hydropower during migration in the spring.
 - c) Evaluate the impact of recreational fishing on juvenile steelhead and work with ODFW to reduce incidental harm from the fishery.
7. Lookout Point: NMFS has identified the Middle Fork as the most crucial run to restore and should have been a priority for completing fish passage under the 2008 BiOp. The Corps should prioritize Lookout Point for operational and structural alternatives that can be implemented as soon as possible. The Corps previously proposed and prepared a draft environmental assessment for deep drawdown operations at Lookout Point to assist in juvenile downstream passage; this proposal was strongly supported by the wildlife management agencies. The Corps should assess⁶:
- a) Fall/winter drawdown to ROs or removal of one or more turbine units and drawdown to penstock gate opening with passage through “powerhouse” in conjunction with spring surface spill.
 - b) Fall/winter drawdown to ROs or modified penstocks with delayed refill.
 - c) Run of the river operations.
8. Dexter: Consider modification and elimination of hydropower operations along with run of the river operations or dam removal. *See* part II.B.2 of these comments.
9. Fall Creek: Deep drawdowns are currently ongoing in late fall, and initial results indicate that this is a promising passage measure. The Corps should:
- a) Continue deep drawdowns in late fall and evaluate:
 - (1) Additional deep drawdowns in the spring.
 - (2) Implementing surface spill operations in the spring.
 - b) Assess drawdown to run of river operations year round.
- D. Adult Migration, Returns, and Trap & Haul: Downstream temperatures have been found to have a large impact on adult returns to the adult fish collection facilities. The infrastructure and handling operations at adult collection facilities also impacts the success of transporting adult fish above WVS projects. The Corps should evaluate infrastructural and operational alternatives for improving timing of adult migration, reducing prespawn mortality, and increasing the number of adults that are successfully transported into habitats above WVS projects including:

⁶ These operations will require reassessment of downstream and mainstem flow augmentation and should be considered in conjunction with operations at Hills Creek.

1. Temperature control operations:
 - a) Cougar: Temperature control tower infrastructure and operations are ongoing at Cougar and have been beneficial to reestablishing spring Chinook adult run timing. Temperature control operations and infrastructure will require reassessment for any downstream passage alternatives that result in reservoir elevations below the current operational range of the temperature control tower.
 - b) Detroit: Modeling for Detroit temperature control structure suggests that the infrastructure will be successful in achieving the desired results in the North Santiam. This proposal should be evaluated in the context of the WVS analysis (*see* part V of these comments). The control structure should be designed to operate over the widest possible range of pool elevations to provide the greatest operational flexibility.
 - c) Hills Creek & Lookout Point: Modeling has indicated that even with temperature control structures, it may not be possible to completely correct downstream temperature issues in the Middle Fork subbasin. Operations to improve temperatures in the nearterm should be evaluated including prioritizing spill in the spring/summer and the use of the ROs in the fall.
 - d) Green Peter: Downstream temperature adjustment is necessary to improve run timing and increase adult returns. The Corps should evaluate long-term temperature control facilities as well as nearterm operational adjustments including spill in the spring.
 2. Adult Collection Facilities: Many of the adult collection facilities have been updated and fish handling techniques have been improved. However, the adult collection facility at Dexter has not been updated. The Middle Fork is arguably the most important basin for increasing adult survival, collection, and transport due to the extremely high levels of prespawm mortality and low levels of spawning success downstream of Dexter Dam. Upgrading adult collection, handling, and transport in the Middle Fork should be evaluated in the WVS analysis.
- E. Flows: The Corps should evaluate measures to improve flows for the recovery and benefit of fish and wildlife. The Corps should include the following in their analysis:
1. Evaluate flow targets that consider the life cycle needs and requirements of all species of fish and wildlife, including needs for habitat formation and maintenance as well as biological functions such as spawning, rearing, and migration. The Corps also should determine these requirements for ESA-listed fish in particular but also for other species that use the system. This analysis should consider impacts of shifting flows toward the previous

natural hydrograph to the extent that could be done without creating unacceptable flood risk.

2. Actions the Corps and other action agencies could take to ensure that flow targets described above are met, including transfer of some portion of water-storage rights to instream water rights and actions to ensure that stored water released for instream use is protected from downstream diversions.
3. Alternatives for meeting flow targets, including those for ESA-listed fish, even in years of water shortage.
4. Revised operations to reduce rates of augmenting and attenuating natural flow. Under current operations, when operating projects to reduce downstream flood damage, inflows are stored aggressively to attenuate the flood peak, reducing discharge, then, once the flood wave is receding, discharge is increased to near maximum to bring the reservoir water surface elevation back to the desired pool elevation. This results in widely fluctuating discharge that adversely affects fish and habitats downstream. At times, such operations may be necessary and prudent. However, when storms are far apart, this aggressive approach is harsher than necessary on aquatic resources. The Corps should include an alternative that would reconfigure pre and post flood damage reduction operations. In particular, the alternative should describe measures necessary to revise the Project operating manuals to take greater advantage of forecasting services such that the rates of attenuating and augmenting the natural flow would be minimized while maintaining the current control point flow objectives.
5. The ongoing Willamette Basin Review and proposed storage water reallocation should be included in this systems analysis as a proposed alternative, not as an ongoing or no action alternative. This is necessary for the following reasons:
 - a) The proposed reallocation will be implemented through the regular operations of the WVS. It is therefore inappropriate to segment this action from that of the systems' operations, which is the scope of this NEPA analysis. Failing to evaluate the impact of proposed reallocation is inconsistent with NEPA regulation 40 CFR 1508.25 on scope.⁷
 - b) The reallocation currently proposed and in ESA consultation with NOAA Fisheries is not an existing or ongoing action and should not be treated as such in this NEPA process. Even after consultation with NOAA Fisheries has concluded and the Chief's report has been issued, there are numerous administrative, legislative, and legal steps that must be completed in order to implement the reallocation. As the reallocation of storage water has not yet proceeded, it is

⁷ See part V of these comments regarding impermissible segmentation.

inappropriate to consider the proposal an ongoing action for inclusion in the no action alternative.

- F. Improve water quality: Water quality in the reservoirs and downstream reaches is impacted by current project operations. Water temperatures and dissolved gas levels are particularly problematic for ESA-listed fish at numerous life stages including egg incubation, emergence, rearing, and adult returns. The following alternatives to improve water quality should be evaluated and include:
1. Reduce water temperatures below Lookout Point and Detroit dams in fall and winter by using the lowest ROs to discharge colder water during drawdown operations.
 2. Improve water temperatures downstream of WVS projects in spring to improve adult migration to fish collection facilities.⁸
 3. Reduce total dissolved gas at projects where it exceeds NOAA Fisheries Criteria. Evaluate the use of a “flip lip” at Big Cliff Dam.
 4. Adopt and strictly follow maintenance schedules and emergency protocols provided by NMFS and ODFW to reduce water quality impacts during such events.
- G. Improve downstream rearing habitat: Project operations and past revetments affect sediment transport, the movement of large woody debris, and habitat diversity downstream of WVS projects and in the mainstem Willamette River, and survivability of fry is low in many of these reaches. The Corps should evaluate methods to ameliorate these impacts and increase habitat suitability and diversity, especially for fry rearing. For example, funding and implementing gravel augmentation below Cougar Dam could greatly enhance the habitat restoration work in the South Fork McKenzie.
- H. Reduce hatchery impacts: The Corps should ensure that hatchery programs adhere to Hatchery Genetic Management Plans to protect wild, ESA-listed fish from hatchery fish. The Corps should monitor and evaluate the rates of hatchery fish spawning in the wild (known as the percent hatchery origin spawners or “pHOS”). The Corps should have procedures in place to reduce straying if pHOS rates are exceeded.
- I. Addressing opportunities outside the four priority basins: ESA-listed fish have been observed utilizing non-priority basins including the Molalla and Yamhill. The Corps should take the following action to support recovery of ESA-listed fish in these habitats including:

⁸ See part II.D.1 of these comments.

1. Conduct a basin-wide assessment to identify anchor habitats in non-priority basins and opportunities to correct smaller passage barriers to provide fish access to those reaches.
2. Fund and implement habitat restoration and improvement in undammed tributaries like the Molalla, Tualatin, Luckiamute, Calapooia, Pudding, Yamhill, Marys, and Coast Fork Willamette.
3. Consider special guidance for regulatory programs operated by the Corps and other action agencies, including removal-fill permitting, to mitigate for impacts of the dams on listed fish.

J. Address Deferred Maintenance: The Corps should consider how addressing deferred maintenance may assist with fish recovery efforts including addressing “red tag” or inoperational ROs and other outlets.

III. *The Corps should include alternatives that may require modification of rule curves for WVS projects.*

In light of the impact to operations of the above proposed alternatives, the Corps should be prepared to re-evaluate and modify the rule curves for the WVS projects so as to support meaningful fish recovery while maintaining the primary authorized purpose of the WVS of flood control and the protection of human health and safety. The Corps and associated action agencies should identify the further studies and information needed to undertake such a revision.

IV. *The effects analysis must consider likely climate change scenarios utilizing the most recent available science.*

Climate change is expected to have significant impacts on the water resources available in the Willamette basin including changes in the type and timing of precipitation. Expected changes to temperatures, particularly during the summer months, are likely to result in increased water temperatures, especially in the mainstem Willamette River. Given these expected changes, providing access to high-quality, high-elevation habitats for aquatic species and ESA-listed fish is increasingly important.

The Corps must assess the impacts of possible alternatives within the frame of anticipated climate change over the intended duration of the next WVS operations plan and BiOp. This evaluation should include climate change projection scenarios across the range of foreseeable possibilities from best case to worst case including expected outcomes if current trends continue.

V. *The scope of the analysis requires inclusion and consideration of other proposed systems projects which will be implemented through the regular operations of the WVS.*

The Corps has several projects under NEPA and ESA consideration including the Willamette Basin Review, Detroit Dam & Lake Downstream Passage Project, and Cougar Dam & Reservoir Downstream Fish Passage Project. As of the submission of these comments, no Record of Decision has been completed for any of these projects nor have any of the projects and associated operations commenced. Furthermore, all of these projects will be carried out under the day-to-day operations of the WVS. These proposed projects have been previously evaluated under the assumed constraints

that the agency must maximize all authorized purposes, which part I of these comments explains is an inappropriate application of law.

The scope of a NEPA analysis requires that the above listed projects be included in the WVS analysis as they are “connected actions,” “cumulative actions,” and “similar actions” as defined by 40 CFR § 1508.25(a). *Am. Bird Conservancy, Inc. v. FCC*, 516 F.3d 1027, 1032 (D.C.Cir. 2008), and *Allison v. Dep't of Transp.*, 908 F.2d 1024, 1031 (D.C.Cir. 1990). Breaking up a project into smaller pieces, which individually may not have a significant impact, but for which taken together may represent a cumulatively significant impact represents impermissible segmentation. *NRDC v. Hodel*, 865 F.2d 288, 297 (D.C.Cir. 1988). The Supreme Court has held that, under NEPA, “proposals for ... actions that will have cumulative or synergistic environmental impact upon a region...pending concurrently before an agency...must be considered together. Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action.” *Kleppe v. Sierra Club*, 427 U.S. 390, 410, 96 S.Ct. 2718, 49 L.Ed.2d 576 (1976).

These projects should be incorporated as proposed alternatives, not as no action alternatives. None of these projects are currently operational and it is incorrect to consider them otherwise for the purposes of evaluation under NEPA. For instance, the Corps estimates that the Detroit temperature control tower will not be complete and in service until 2024, and the Detroit downstream passage fish collection facility isn’t slated for operation until at least 2028. The agency has also professed that they expect to “learn” and possibly redesign Detroit passage from the operation of fish collection at the Cougar downstream facility (anticipated operation to commence in 2023). Similarly, implementation of reallocation of storage water under the Willamette Basin Review requires a number of legal and regulatory changes after completion of ESA consultation. None of these projects represent an ongoing agency action and treating them as such is a misapplication of the no action alternative under NEPA. Further, most, if not all, of these actions are not scheduled to be operational until after the completion of the system’s EIS and corresponding Biological Opinion.

Given the necessity to reevaluate the downstream passage opportunities at both Detroit and Cougar as part of the WVS analysis, the Corps should remodel the Configuration/Operations Plan alternatives. This evaluation SHOULD NOT be constrained by previous assumptions that the Corps must maximize or fulfill authorized purposes except for flood control and the maintenance of human health and safety (*see* part I of these comments).

NEPA is, “in large measure, an attempt by Congress to instill in the environmental decision-making process a more comprehensive approach so that long term and cumulative effects of small and unrelated decisions could be recognized, evaluated and either avoided, mitigated, or accepted as the price to be paid for the major federal action under consideration.” *NRDC v. Callaway*, 524 F.2d 79, 88 (2d Cir.1975). The Corps has a duty to adhere to the requirements of NEPA in completing the WVS analysis. Further, a properly executed analysis fulfills the Congressional intent and purpose of NEPA to provide the agencies and the public with the most complete understanding of the impacts of a proposed federal action.

VI. *The Corps should consider a host of other issues related to ESA-listed fish and the Willamette Basin ecosystem and the people who depend on this area and these resources.*

The rivers of the Willamette Basin provide a multitude of benefits to the people of Oregon including supporting: healthy ecosystems that supply drinking water to our communities, the cultural heritage needs of indigenous people and tribal nations, and commercial and recreational fishing economies. The Willamette River in Oregon flows 180 miles out of the Cascades and Coast Range Mountains to its confluence with the Columbia River in the city of Portland. The river drains 11,487 square miles, nearly 12% of the state, flowing through a wide, fertile valley that is home to 75% of Oregon's population and is the state's agricultural powerhouse. The Willamette has been important to many Native American tribes that have relied on the river for millennia for salmon, as a trading hub, and as a source of water and other critical resources.

Restoring natural processes that have been altered by dams will benefit our fish, our ecosystems, and our communities that depend on these homewaters. In light of the diversity of ecological and social benefits the rivers of the Willamette Basin provide, the Corps should include the following considerations in the WVS analysis:

- A. Evaluate the costs and benefits of each alternative on local communities, economies, and tribes that rely on or value UWR fish.
- B. Assess how the reservoirs contribute to climate change through the production of greenhouse gases.
- C. Determine the full range of indirect, interrelated, and cumulative actions stemming from the operation and maintenance of all components of the WVS, including hatcheries, irrigation contracts, water delivery, etc.
- D. Reclamation should refrain from issuing any additional irrigation contracts until sufficient water quantity is available to meet the flow needs of fish year round.
- E. Evaluate a full range of alternatives to address the problems caused by revetments and to restore habitat needs in the mainstem Willamette River.
- F. Consider how reservoirs and dam operations contribute to illegal poaching of ESA-listed fish.
- G. Assess how recreational fishing in the reservoirs impacts ESA-listed fish and how access and/or policy changes could be implemented to reduce detrimental impacts.
- H. Expand its purpose and need of the EIS to include the recovery of ESA-listed fish.
- I. Consider an alternative in the EIS that evaluates eliminating hydropower completely.
- J. Include consideration of BPA's precarious financial state when determining what funding will be available for future mitigation and restoration projects and whether BPA will continue operating the turbines in the long-term.

- K. Analyze changes have occurred to the species, the WVS, the ecosystem, and the surrounding communities since the 1980 EIS. Determine what commensurate changes are needed as a result.
- L. Consider how future flood control needs will be impacted by the 2016 biological opinion of NOAA Fisheries regarding the Federal Emergency Management Agency's flood insurance program in Oregon.
- M. Ensure that properly qualified experts and technicians are included in the planning and execution of any events or operations that may offer the opportunity to document, protect, or recover cultural resources. The Corps should engage with the relevant tribal nations in undertaking this work and take the measures necessary to ensure that objects are neither desecrated or misappropriated.
- N. Evaluate how the action agencies will fulfill any outstanding requirements relating to the National Historic Preservation Act and assess the effects of proposed operations on properties on or eligible for inclusion on the National Register of Historic Places.

Thank you for accepting and considering these comments. Our collective organizations share a vision of abundant, wild fish returning to a healthy and thriving Willamette River basin that supports the many cultural, economic, social, and ecological needs of our communities and the landscape many of us call home. But we will only succeed if the agencies take seriously the important role they must play in achieving this goal. We urge you to think boldly, dare greatly, and embrace a forward looking and ambitious vision. It once took all of these attributes to create and build each one of the Willamette Valley System's dams. The agency has shown itself capable of achieving impressive feats in the past. The question is: Will you do so again?

Sincerely,

Jennifer Fairbrother
Campaign & Columbia Regional Director
Native Fish Society

Bob Rees & Rob Bignal
Northwest Guides & Anglers Association

Marlies Wierenga
Pacific NW Conservation Manager
WildEarth Guardians

Chandra Ferrari
Water Policy Advisor and Staff Attorney
Trout Unlimited

Brian Posewitz
Staff Attorney
WaterWatch of Oregon

Dave Thomas
Secretary, McKenzie Flyfishers
McKenzie River Steward, Native Fish Society

David Moyrc
Senior Director Wild & Scenic Rivers and Public Lands Policy
American Rivers

Jonah Sandford
Staff Attorney
Northwest Environmental Defense Center

David Moskowitz
Executive Director
The Conservation Angler

John Atkins
Molalla River Alliance

Colleen Weiler
Jessica Rekos Fellow
Whale and Dolphin Conservation

Elisabeth Holmes
Staff Attorney
Willamette Riverkeeper

Gabriel Scott
In-House Counsel
Cascadia Wildlands

Description of signatory organizations:

Native Fish Society (NFS) is an Oregon based non-profit organization dedicated to reviving the Pacific Northwest's abundant wild fish, free-flowing rivers, and thriving local communities. Native Fish Society is the leading science-based native fish conservation organization working in the Pacific Northwest, with 4,000 members and supporters and 89 volunteer River Stewards. Guided by the best available science, Native Fish Society advocates for the recovery and protection of wild, native fish and promotes the stewardship of the habitats that sustain them. Native Fish Society and its members have specific interests in the continued health of native Pacific Salmon species and their habitats.

WildEarth Guardians is a nonprofit conservation organization with offices in Oregon and six other states. WildEarth Guardians has more than 230,000 members and supporters across the United States and works to protect and restore wildlife, wild places, wild rivers, and the health of the American West. WildEarth Guardians and its members have specific interests in the continued health of native Pacific Salmon species and their habitats.

Northwest Environmental Defense Center (NEDC) is a nonprofit environmental organization based in Portland, Oregon, and composed of attorneys, law students, and members of the public. Since 1969, NEDC has pursued its mission of preserving and protecting the natural environment in the Pacific Northwest by providing legal support to individuals and grassroots organizations with environmental concerns, and engaging in litigation independently or in conjunction with other environmental groups. NEDC and its members have specific interests in the continued health of native Pacific Salmon species and their habitats.

McKenzie Flyfishers is a group of people based in Eugene, Oregon who share a common interest in flyfishing. The Club was conceived and organized in April of 1964 to: 1. Enjoy social contact with others interested in fly fishing; 2. Encourage fly fishing as a method of angling, and; 3. Protect and increase the fishery resources.

Trout Unlimited (TU) works to conserve, protect and restore North America's coldwater fisheries and their watersheds. By the next generation, Trout Unlimited will ensure that robust populations of native and wild coldwater fish once again thrive within their North American range, so that our children can enjoy healthy fisheries in their home waters.

Northwest Guides and Anglers Association was organized in 2004 to address sport fishing issues in the Pacific Northwest, specifically, Oregon and Washington.

American Rivers: Our mission is to protect wild rivers, restore damaged rivers, and conserve clean water for people and nature.

The Conservation Angler advocates for wild fish and fisheries. We work to protect, conserve and restore wild steelhead, salmon, trout and char throughout their Pacific range using all legal,

administrative and political means to prevent their extirpation. Our goal is to foster a long-term recovery of wild stocks to fishable and harvestable abundance.

Molalla River Alliance is a non-profit, all-volunteer conservation group of more than 100 civic and conservation organizations; local, state and federal agencies; numerous user groups; and local property owners. We are dedicated to preserving the water quality of the Molalla and sustaining the wildlife, fish and plants that inhabit its watershed. Also, we are committed to promoting a safe and healthy environment that encourages diverse enjoyment of the recreation corridor, including tourism and family-friendly activities.

Whale & Dolphin Conservation (WDC) is the leading global charity dedicated to the protection of whales and dolphins worldwide. Our mission is to amaze people with the wonder of whales and dolphins to inspire global action to protect them. We work globally through campaigns, research, educational outreach, advising governments, and work with state and federal agencies. Our vision of a world where every whale and dolphin is safe and free is not a noble gesture, but an essential means to sustain the future of our Earth by increasing the planet's climate resiliency.

WaterWatch of Oregon is a non-profit river conservation group dedicated to the protection and restoration of natural flows in Oregon's rivers. We work to ensure that enough water is protected in Oregon's rivers to sustain fish, wildlife, recreation and other public uses of Oregon's rivers, lakes and streams. We also work for balanced water laws and policies. WaterWatch has members across Oregon who care deeply about our rivers, their inhabitants and the effects of water laws and policies on these resources.

Willamette Riverkeeper (WRK) is a 501(c)(3) not-for-profit organization. WRK was founded in 1996, and focuses on protecting and restoring the resources of the Willamette River basin in Oregon. WRK works on programs and projects ranging from Clean Water Act compliance and river education, to Superfund cleanup and restoring habitat. WRK is concerned with all aspects of the WVS proposed project, including: flood control, irrigation, navigation, hydropower, fish and wildlife, water quality, recreation, and water supply. WRK has been long-time advocates for Pacific salmon and steelhead, including Upper Willamette River Chinook salmon and steelhead, and have long-standing concerns about the threat to these species from operation of the Willamette Project. WRK engages in public outreach and education, advocacy with agencies, agency administrative processes, and litigation to promote the protection of Upper Willamette River Chinook salmon and steelhead.

Cascadia Wildlands defends and restores Cascadia's wild ecosystems in the forests, in the courts, and in the streets. We envision vast old-growth forests, rivers full of salmon, wolves howling in the backcountry, and vibrant communities sustained by the unique landscapes of the Cascadia bioregion.



Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

April 17, 2019

U.S. Army Corps of Engineers
Portland District
ATTN: District Commander
P.O. Box 2946
Portland, OR 97208– 2946

RE: Portland District Willamette Valley System, Notice of Intent to prepare an EIS

Dear District Commander,

The Confederated Tribes and Bands of the Yakama Nation (“Yakama Nation”) submits this letter to notify the U.S. Army Corps of Engineers (“USACE”) of our interest in USACE’s *Notice of Intent to Prepare an Environmental Impact Statement (“EIS”) for the Willamette Valley System Operations and Maintenance*, published on April 1, 2019 in the Federal Register (84 FR 12237)

The promises guaranteed under the 1855 Treaty with the Yakamas (12 Stat. 951) include reserved rights within the Willamette Valley. Yakama Nation is concerned that proposals developed through any EIS may interfere with Yakama Nation’s Treaty-reserved rights falling within Yakama Nation’s usual and accustomed areas. Due to the importance of the activities being evaluated, Yakama Nation requests meaningful technical level engagement with USACE during the NEPA process and the development of the EIS.

Your cooperation and prompt response to this matter is appreciated. Please address your response to enviroreview@yakama.com and contact Paul Ward, Manager, Yakama Nation Fisheries at 509-865-5121, ext. 6363, to further discuss this matter.

Sincerely,

Philip Rigdon, Superintendent
Department of Natural Resources

[Non-DoD Source] Re: ace regularly kills birds, mammals fish - they are awful environmentalists - they need shut down

jean public <jeanpublic1@gmail.com>

Mon 4/1/2019 11:09 AM

To: CENWP-PME-Willamette-Valley-System-EIS <willamette.eis@usace.army.mil>; Kieran Suckling <center@biologicaldiversity.org>; The Pew Charitable Trusts <info@pewtrusts.org>; humanelines <humanelines@hsus.org>; PETA Info <info@peta.org>; INFORMATION@sierraclub.org <INFORMATION@sierraclub.org>; foe@foe.org <foe@foe.org>; info <info@earthjustice.org>;

public comment on federal register

i have found the usace army corps of engineers to be decidedly anti environmental. they seem to have the idea that lets knock everything environmental flat on its back. i have seen that in action in the new jersey meadowlands, where they allowed endless building to take place when the area could have and should have been saved. i do not regard the employees at this agency as concerned with environmental factors. i think they are completely anti environmental. i would not call them in ever for a job. they use mass and motion and will run over everything alive in their way. i note they have joined up with usfws, which also gives little to no protection to any animal these days. i would prefer no action. i would prefer sending them to the border with mexico to set up a wall. that is needed. this work is not. this comment is for the public record. leave the area alone. it will always be better than inviting in the usace army military. this comment is for the public record. please receipt. jean public [jean public1@gmail.com](mailto:jeanpublic1@gmail.com)

On Sun, Mar 31, 2019 at 3:15 PM jean public <jeanpublic1@gmail.com> wrote:

[Federal Register Volume 84, Number 62 (Monday, April 1, 2019)]
 [Notices]
 [Pages 12237-12238]
 From the Federal Register Online via the Government Publishing Office [Blocked www.gpo.gov]
 [FR Doc No: 2019-06258]

 DEPARTMENT OF DEFENSE

Department of the Army, Army Corps of Engineers

Notice of Intent To Prepare an Environmental Impact Statement for
 the Willamette Valley System Operations and Maintenance

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

 SUMMARY: The Portland District, U.S. Army Corps of Engineers (Corps) intends to prepare an Environmental Impact Statement (EIS) to address the continued operations and maintenance of the Willamette Valley System (WVS) in accordance with authorized project purposes; while meeting Endangered Species Act (ESA) obligations to avoid jeopardizing the continued existence of listed species.

The Corps will serve as the lead federal agency for purposes of the

National Environmental Policy Act (NEPA).

DATES: Written comments for consideration in the development of the scope of the NEPA EIS are due to the addresses below no later than June 28, 2019.

ADDRESSES: Mailed comments may be sent to: U.S. Army Corps of Engineers, Portland District, P.O. Box 2946, Attn: CENWP-PME-E, Portland, OR 97208-2946. Email comments to: willamette.eis@usace.army.mil. All comments and materials received, including names and addresses, will become part of the administrative record and may be released to the public.

FOR FURTHER INFORMATION CONTACT: For questions regarding the EIS, or special accommodations for scoping process participation, please contact Suzanne Hill, Environmental Resources Specialist, (503) 808-4767.

SUPPLEMENTARY INFORMATION:

Background. The WVS consists of 13 multipurpose dams and reservoirs, riverbank protection projects in the Willamette River Basin in Oregon, and hatchery programs to mitigate for effects of the project on fish habitat. The most recent NEPA evaluation for the overall WVS operations and maintenance was an EIS completed in 1980. Since 1980, operations have been modified and structural improvements for fish passage and temperature control have been implemented to address effects of the WVS on ESA-listed fish. NEPA evaluations since the 1980 EIS have been project-specific. There is also new information relevant to the environmental impacts of operating the WVS. This EIS will evaluate the impacts of continued operations and maintenance of the WVS. The EIS will be prepared in accordance with NEPA, the Council on Environmental Quality's (CEQ) NEPA regulations (40 CFR parts 1500-1508), and the Corps' NEPA regulations (33 CFR part 230). The Corps has reinitiated formal consultation under Section 7 of the ESA on the National Marine Fisheries Service's 2008 Biological Opinion for the Willamette River Basin Flood Control Project. This NEPA process will inform the ESA Section 7 consultation process. Additionally, the Corps intends to initiate consultation under Section 106 of the National Historic Preservation Act. The Corps anticipates that the draft EIS will be made available for public comment in Fall/Winter 2020.

The Corps has invited the following Tribes and federal and state agencies to participate as cooperating agencies for the EIS: Confederated Tribes of Warm Springs, Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Cow Creek Band of Umpqua Tribe of Indians, Bonneville Power Administration, U.S. Bureau of Land Management, National Marine Fisheries Service, U.S. Bureau of Reclamation, U.S. Forest Service, U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Oregon Water Resources Department, Oregon Parks

[[Page 12238]]

and Recreation Department, Oregon Department of Environmental Quality, Oregon Department of Land Conservation and Development, Oregon Department of State Lands, and Oregon Department of Agriculture.

Alternatives. The EIS will evaluate a no action alternative and action alternatives. The no action alternative is the current management direction for the WVS. Action alternatives will be composed of various measures for continued operations and maintenance of the WVS, as well as measures that will be developed to meet ESA obligations to avoid jeopardizing the continued existence of listed species. Comments received during the scoping comment period will inform the development of action alternatives.

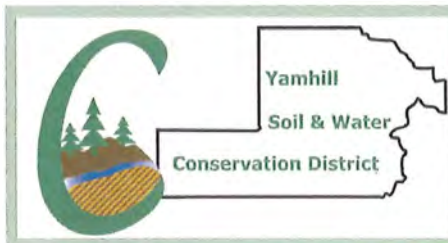
Scoping Process/Public Involvement. The Corps invites all affected federal, state, and local agencies, affected Native American Tribes, other interested parties, and the general public to participate in the NEPA process during development of the EIS. The purpose of the public

scoping process is to provide information to the public, narrow the scope of analysis to significant environmental issues, serve as a mechanism to solicit agency and public input on alternatives and issues of concern, and ensure full and open participation in scoping for the Draft EIS. Numerous public scoping meetings will be held during the scoping period. The specific dates, times, and locations of the meetings will be published on the Corps' project website: [Blockedhttps://www.mwp.usace.army.mil/Locations/Willamette-Valley/Evaluation/](https://www.mwp.usace.army.mil/Locations/Willamette-Valley/Evaluation/).

This is not a notice for the public comment periods for the Cougar Downstream Passage and Detroit Downstream Passage projects; public comment periods for those projects will be noticed separately.

Documents and other important information related to the EIS will be available for review on the Corps' project website.

Aaron L. Dorf,
Colonel, Corps of Engineers, District Commander.
[FR Doc. 2019-06258 Filed 3-29-19; 8:45 am]
BILLING CODE 3720-58-P



Providing Natural Resource Leadership

June 20, 2019

To: U.S. Army Corps of Engineers
CENWP-PME-E
ATTN: Suzanne Hill
P.O. Box 2946
Portland, OR 97208-2946
email: willamette.eis@usace.army.mil

From: Yamhill Soil and Water Conservation District

Re: The Army Corps of Engineers request for comments in preparation of an Environmental Impact Statement, (EIS) on the Willamette River System.

ATTACHMENT: *Geomorphic Evaluation of the Ongoing Channel Processes Occurring at Lambert Bend, Yamhill County, Oregon* prepared by Lidstone and Associates dated May 2006

Dear Susan Hill, EIS Project leader Army Corps of Engineers:

Please accept and consider the following comments in the Army Corps of Engineers' (COE) preparation for the Environmental Impact Statement, (EIS) for the continued operations and maintenance of the Willamette Valley System.

Yamhill Soil and Water Conservation District (district) is very concerned about the lack of maintenance on the COE bank protection projects. These include, wing dams, revetments, bank barbs, etc. The lack of maintenance has resulted in the loss of farmland, bank and river capture in the Lambert Bend Area, RM 63 to 65. The floods of 1996, 1997, 1998 and subsequent years including April 2019, have caused significant river scouring, loss of bank protection, and massive amounts of debris lodged in this area. The access road to the farmland and adjacent areas are in jeopardy of being lost in the next flooding period.

Since the early 1980s the district has responded to requests from landowners to provide advice and help to prevent erosion damage on their farmland in this area. However, the scope and scale of the eroding river is way beyond the capabilities of the district.

It is evident even from a casual observation that future river flood events will create a new channel, possibly a main channel across the May's land on Lambert Bend. When this occurs, the river will endanger the downstream mining pits and area resulting in river capture and head cutting back upstream.

We have attached a *Geomorphic Evaluation of the ongoing channel Processes occurring at Lambert Bend Yamhill County, Oregon* prepared by Lidstone and Associates dated May 2006. The study was in response to a request from the Department of Geology and Mineral Industries (DOGAMI) Albany, Oregon who were concerned about the impacts of future flooding and new channels forming resulting in pit capture on the current mining operations in the general area of RM 61 and upstream.

Note pages 34 and 35, heading 10.0 about the high potential of significant river capture in this area. Page 35 paragraph two, the last three sentences: “Channel changes at Lambert Bend can initiate pit capture. There will be tremendous loss of farmland and it may also cause erosion and scour in the existing riparian areas. The conveyance capacity of the captured system will be grossly altered resulting in additional upstream and downstream impacts.”

It is our opinion that approval of mining operations in the Willamette Valley Floodplains of Yamhill County weakens the structural integrity of the floodplains resulting in head cutting and eventual river capture destroying productive high value farmland that Yamhill County depends on to support its economy. The district would appreciate the COE’s comments to address these concerns in future aggregate mining applications.

Please include our comments in the COE’s preparation of the EIS and future plans of the “Continued Operations and Maintenance of the Willamette Valley System”

Respectfully,

Barbara Boyer

A handwritten signature in blue ink, appearing to read 'BB', with a horizontal line extending to the right.

District Chair

**GEOMORPHIC EVALUATION OF THE
ONGOING CHANNEL PROCESSES
OCCURRING AT LAMBERT BEND
YAMHILL COUNTY, OREGON**

Prepared for:

**State of Oregon
Department of Geology and Mineral Industries
Albany, Oregon**

Prepared by:

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May 2006



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1.0 INTRODUCTION

Over the past 100 years, the Willamette River has changed from a braided channel covering large expanses of its valley floor to almost a single channel throughout its length. Human development of cities, agriculture, forestry and other industries have permanently altered the floodplains and upland areas. This development includes flood and erosion control activities, water supply, and navigation maintenance. Historical research concludes that “channelization” has occurred along the Willamette River since the mid 1800’s. According to Benner, 1997, eighteen percent (18%) of the Willamette River channel bank has been stabilized between Eugene and the Newberg Pool above Oregon City Falls. The Army Corps of Engineers (Corps) under the River and Harbors Act, and the Eldridge Bar District Improvement Company constructed revetments along the Willamette River between Windsor Island (RM 75) and Canadian Bar (RM 58) beginning in 1938. Until the early 1970’s, the Corps maintained a navigation channel (by dredging) as far upstream as Eugene. Dam construction along many of the tributaries was initiated around 1942 and was completed in 1969. Each of these activities has the potential to change the flow pattern and geomorphic behavior of the Willamette River. Of particular interest is the source of excessive sedimentation and the inherent possibility of a meander bend cutoff at Lambert Bend (RM 64.48).

As a member of the Lambert Bend Stakeholders Group (Stakeholders Group), Lidstone and Associates, Inc. (LA) of Fort Collins, Colorado volunteered to direct and assist in field data collection and geomorphic analysis of a potential river cutoff at Lambert Bend (RM 64). Currently, the Stakeholders Group consists of impacted and adjacent farm operators/landowners, floodplain mine owners, Yamhill County Commissioners, Yamhill County Soil Water Conservation District, Yamhill County Improvement District No. 1, USDA-NRCS, McMinnville, Oregon Department of Agriculture, and the Oregon Department of Geology and Mineral Industries (DOGAMI). The purpose of this analysis was to determine the direct and indirect cause(s) of the potential cutoff and the potential consequences, should this cutoff occur. LA recognizes that natural channel changes are an inherent part of all river systems, but in some cases human actions either accelerate the rate of change or are causal by themselves. The distinction between a natural and human-induced change at Lambert Bend is important. It is not the Stakeholders Group’s mantra to “control nature,” but rather to work within the boundaries of river and floodplain processes to mitigate existing and predictable human-induced impacts and to avoid catastrophic impacts to the channel and floodplain. The data collection program and this geomorphic analysis were developed primarily to determine the source and cause of the Lambert Bend cutoff. A secondary work effort associated with the initial baseline data collection was to determine the upstream and downstream impacts of the impending cutoff and provide baseline data (topographic and hydraulic) to accommodate final engineering/geomorphic design of potential solutions to help the river more or less maintain its current course or accommodate the impending river channel change. Finally this work also included a brain storming effort to address secondary benefits (biological, environmental and channel complexity) of alternate geomorphic solutions to the Lambert Bend cutoff.

In July 2005, members of the Stakeholders Group and other volunteers, led by Frank Schnitzer, DOGAMI, met in Dayton, Oregon to begin data collection. The reach of interest extended from Windsor Island (RM 75), through Grand Island (RM 67), through Lambert Bend (RM 64) to Weston Bend (RM 60) and is depicted on **Figure 1**. Based on this data collection effort and



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direct assistance from DOGAMI, LA completed a geomorphic analysis of a reach of the Willamette River to evaluate changes in the river's course through time. Much of the critical reach of interest and its subject of investigation, the Lambert Bend cutoff, lies within Yamhill County, Oregon. The purpose of this geomorphic analysis is to determine the cause of the potential meander cutoff near Lambert Bend and the potential impact to floodplain mines at Weston Bend. Assessment results will aid in the development of a plan to rehabilitate this reach of the river. This analysis consists of the following six components, each of which will be discussed in detail in Sections 2 through 6.

- Geologic Analysis
- Hydrologic Analysis
- Geomorphic Analysis
- Fish Habitat Analysis
- Description of Floodplain Mines at Weston Bend
- Field Verification

LA would like to acknowledge the work efforts of all of the Stakeholder Group, but in particular those who participated in the data collection. Marc Norton and Lloyd Van Gordan of Water Resources Department; Frank Schnitzer, Dawn Marshall and Vaughn Balzer of DOGAMI; Bud Stone of Gladstone, Oregon; Joe and Tom Bernert of Joe Bernert Towing; Todd Baker of Baker Rock; George Adams of Wilsonville Concrete; Dr. John Heiser, a local landowner; Chip Andrus, fish habitat specialist of Adolfsen Associates; Kathy George, Yamhill County Commissioner; and, Edgar Peteros, Bob Gilson and Steve Rodewald of the Yamhill County Engineering and Survey Department. LA would also like to acknowledge assistance from Chip Andrus for the development of the Fish Habitat Analysis section.

2.0 GEOLOGIC ANALYSIS

Local geology was reviewed to identify geologic controls that may govern or restrict changes in river pattern near Lambert Bend. Site reconnaissance by LA indicated the cliff forming Willamette Silt Formation, near Feasters Rocks, prevents eastward migration of the Willamette River downstream of Lambert Bend. The remainder of the reach is composed of Pleistocene and Holocene floodplain deposits.

The Willamette Silt is composed primarily of quartz, feldspar, mica, clay and fine sand sediments. These sediment deposits are faintly bedded, with individual beds ranging in thickness from 6 to 14 inches (Allison, 1953; Glenn, 1965). The sediments contain glacial erratics ranging in size from pebbles to boulders (Allison, 1935, 1953). In the central Willamette Valley, the Willamette Silt has a maximum thickness of about 130 feet and forms distinct outcrops in areas like Fairfield Bar and Feasters Rocks.

Following deposition of the Willamette Silt, the last of the Pleistocene sand and gravel unit was deposited. This unit was deposited in broad swaths along the Willamette River by major braid plain stream tributaries exiting the Cascade Range. The surface morphologies and internal stratigraphy of multiple, shallow channels indicate that Pleistocene sand and gravel deposits were formed during periods of channel instability, high sediment supply, and sediment load consisting primarily of bedload (Orr, 1964). The unit is between 15 and 60 feet thick.

The Pleistocene braided river systems that formed these extensive braid plains of sand and gravel evolved into the meandering river channel that is forming today's gravel bars and silt-covered floodplains. The sand and gravel of today's modern river is approximately 20 to 50 feet thick and sits on a cohesive deposit of the Willamette Silt. The current single thread meandering stream is a product of the last 100 years of human-induced alterations to control the river. As the river is confined within its modern banks, entrenchment and redistribution of its bed and bank sediments appears to dominate the geomorphic process.

3.0 HYDROLOGIC ANALYSIS

The nearest Willamette River U.S. Geological Survey (USGS) gaging station is located 18 miles upstream from Lambert Bend at Salem, Oregon (USGS Gage ID 14191000). The drainage area for the Salem Gage is 7,280 square miles, compared to the drainage area at the site location of 7,490 square miles. Because the drainage area difference between Lambert Bend and the Salem Gage was relatively small (3%), no adjustments were made for the discharge values at the Salem Gage.

Using techniques described in Schulz, 1976, LA performed a Log Pearson Type III analysis on the peak flow data for the Salem Gage to characterize pre-dam (1942) flows on the Willamette River. To perform the analysis, LA used the DOS-Based Computer Program "Pearson," to determine the discharge for events with various return periods. The post-dam (1969) analysis of peak flow data was prepared by the USGS. Analysis results for the two periods are presented in **Table 1**.

Table 1, Flows for Various Return Periods

Flood Event Return Period	Pre-dam (1942) Construction Discharge (cfs)	Post-dam (1969-2001) Construction Discharge (cfs)
2-Year	166,322	74,500
5-Year	247,853	114,000
10-Year	309,703	160,000
25-Year	397,688	214,000
50-Year	471,544	224,000
100-Year	459,453	253,000

In 1942, flows at the Salem Gage began to be influenced by construction and closure of one dam. Subsequent to 1942, nine more dams were placed on tributaries of the Willamette River with final construction ending in 1969. These dams primarily served to reduce the larger peak flows moving through the system. The Log Pearson Type III analysis of the two periods indicates there is a distinct difference in peak flows between pre- and post-dam construction. Evaluation of the mean annual flow data for each period indicates that dam construction has increased the mean annual flow from 21,000 cubic feet per second (cfs) to 24,000 cfs. The changes in flow regime are expected because dams typically create a more balanced regime. Peak flows become dampened to reduce flooding impacts while more water is made available

during the summer for irrigation purposes. USGS average annual stream flow and peak flow data are presented in **Appendix A**.

Changes in the flow regime can have a distinct impact on channel morphology. To remain “stable” all rivers and streams seek to establish and maintain a balance between discharge and sediment transport. Lane (1955) postulated the following relationship:

$$(3.1) \quad Q_w S \sim Q_s D_{50}, \text{ where}$$

Q_w is stream discharge, S is channel slope, Q_s is sediment discharge and D_{50} is the median size of the stream sediments

Following the passage of an extreme discharge event, an alluvial channel will adjust its channel morphology, including channel geometry. The river system will remain out of balance for a period of time until some new level of equilibrium can be established. Considering the Willamette River system as a whole, in terms of discharge, the dams have leveled out the flow regime. In theory, when only discharge is considered, this should minimize the amount of change in channel morphology through time.

When sediment transport is added to the equation, the dams’ influence on channel morphology is seen as much greater. In the case of the Willamette River system, not all tributaries have dams. Sediment from these unregulated tributaries is deposited in the main stem of the Willamette River on an episodic basis - typically following heavy winter rains, mass wasting and landslides in the steep upper tributaries. With an overall reduction in peak discharge (due to dam regulation), these “slugs” of sediment are no longer flushed through the system in the relatively consistent manner that they were prior to regulation. Sediment is typically transported from “reach to reach” in response to local changes in channel gradient. Generally, sediment deposition causes local oversteepening of the channel gradient (increase in S , Eqn. 3.1), local acceleration of the flow, and bed degradation - headcut migration in an upstream direction. This generally results in a lowering of the average bed elevation and sediment production. In other words, as channel slope (S) increases, either sediment discharge (Q_s) will increase or the median size of the bed material (D_{50} of the armor layer) will coarsen.

The following equation describes an aggradational or depositional system

$$(3.2) \quad Q_s > \tau_o V^3;$$

Where Q_s is sediment discharge, τ_o is tractive force or the product of the unit weight of water (γ), depth of water (d) and channel slope (S) and V is the stream’s velocity.

The product of tractive force and velocity is stream power and where sediment discharge exceeds stream power, sediment deposition will occur. As the sand and gravel bars become excessive in size, vegetation begins to stabilize the bar and this bar becomes a permanent feature within the active channel. This bar will ultimately force the channel to meander, locally decrease the channel slope, increase local channel sinuosity and induce additional deposition (decrease in sediment discharge (Q_s)). Eventually the new meandering system will result in opposite bank erosion, thereby imparting additional sediment, albeit finer into the fluvial system.

Channel cutoffs and channel realignment will also significantly affect channel slope and sediment production. In returning to Lane's Equation (eqn. 3.1), a channel cutoff will shorten the channel length and thereby increase channel slope at Windsor Island, over 2,000 feet (28%) of its channel length was "cut off" by channel straightening. This local increase in channel slope resulted in a significant increase in sediment production and overall channel bed degradation.

Changes in channel morphology are not restricted to channel incision, but may include channel widening, increase in channel sinuosity (bank erosion) and bed aggradation. The system and its behavior become even more complicated when bank revetment works and channel grade controls don't permit natural channel response. For example, where a meandering river encounters lengthy bank revetment works, the system becomes more hydraulically efficient and may carry sediment produced from an upstream source a far greater distance than predicted until local conditions are such that deposition occurs. This activity can be seen at Lambert Bend where the upstream reaches are well protected by civil works and source material is still generated from the channel straightening at Windsor Island. Further discussion of the extension of the Lambert Bend meander as it relates to changes in hydrology and other factors will be discussed in the following sections.

4.0 GEOMORPHIC ANALYSIS

In order to address the objectives of the work effort, LA conducted a geomorphic analysis of the project area. The analysis consisted of three parts: (1) a historical bankline analysis to characterize changes in plan form over a length of historical record (67 years); (2) a longitudinal profile and cross-section analysis to characterize vertical changes both at-a-station and along a continuum (23 years); and (3) a sediment analysis, which addresses the characterization of the depositional system on a temporal basis (short term).

To perform the historical bankline analysis, aerial photographs of the Willamette River were obtained from the University of Oregon – Knight Library Document Center, DOGAMI, and the Corps. The photos depict the planimetric changes of the river between 1936 and 2003. The following aerial photographs were reviewed as part of this analysis: 1936, 1944, 1947, 1948, 1955, 1963, 1970, 1979, 1980, 1994, and 2003. LA's geomorphic interpretation of bankline changes recognized that each aerial photograph varied on the basis of scale and quality. As is true with all photogrammetric bankline studies consideration must be made for the variations in discharge (water line) at the time of the photograph, variability in scale, and the distortion at the edge of the photographs. Quantification of actual bankline changes and the erosion rates of channel banks is not very accurate due to these sources of variability.

In order to complete the historical analysis of river cross sections, LA, with the help of the Stakeholders Group identified the approximate location of the 1982 Federal Emergency Management Agency (FEMA) HEC-2 model cross sections in the field. The right and left banks of each cross section were staked in the field and a surveying effort was undertaken by combining topographic methods conducted by the Yamhill County Surveyors and bathymetric methods by Joe Bernert. Seven river cross sections were measured between RM 60.82 and 66.32 in July 2005. Additional cross section data are available in LA's files from the Palisades Ranch and Grand Island Permit to Mine applications. Joe Bernert and LA personnel completed a centerline profile survey (and geomorphic observations) between RM 59.96 and 67.63. **Figure**

1 illustrates the location of the HEC-2 cross-sections used in the analysis as well as areas where bank revetment has been constructed.

Finally, the sediment data collection program included both field measurements of the surface gravel armor (using the Wolman Count method) and bag samples of sub-armor samples. These latter samples were collected in the field and delivered to Wilsonville Concrete for textural analysis - both fine and coarse texture. LA completed a statistical analysis of sediment texture to support the evaluation related to the conditions and timing of sediment transport.

4.1 Historical Bankline Analysis

*Please note that in the subsequent Geomorphic Analysis discussion the following nomenclature is used. The **Right Bank (RB)** is the east bank or the right bank of the channel, looking downstream. The **Left Bank (LB)** is the west bank or the left bank of the channel, looking downstream.*

For the purpose of this analysis, LA subdivided the project area into seven sub-reaches based upon the relative bankline changes at a given location. For example, some locations had very little change with time while others exhibited significant change, such as a meander cutoff. Locations where a similar degree of activity occurred were grouped together to form a sub-reach. **Figure 1** shows bank revetment locations and river miles for the Willamette River study reach. Specifically, the respective sub-reaches are identified as follows:

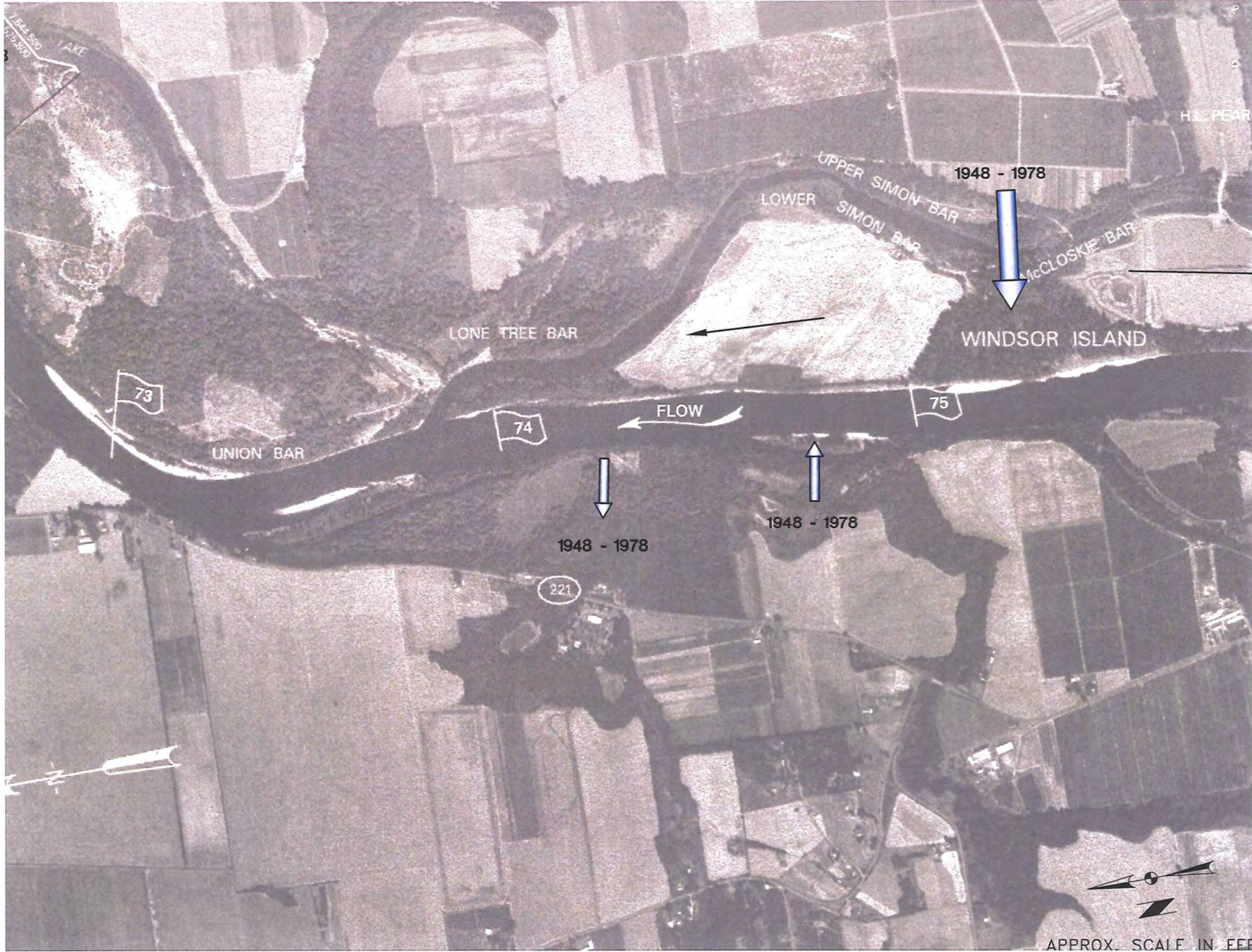
- Sub-reach A: RM 78.5 to RM 74
- Sub-reach B: RM 74 to RM 70
- Sub-reach C: RM 70 to RM 68
- Sub-reach D: RM 68 to RM 67
- Sub-reach E: RM 67 to RM 65
- Sub-reach F: RM 65 to RM 63.8
- Sub-reach G: RM 63.8 to RM 60

The following paragraphs discuss specific historical changes and geomorphic trends. To simplify the presentation, arrows indicating historical movement identify geomorphic trends. At each location, the period of time represented by the "movement" is presented on **Figures 2 through 5**. Although the following sections address channel changes on a sub-reach by sub-reach basis, these changes are linked together as a continuum of change within the Willamette River system. There is a cause and effect linkage, which must be first understood before self-sustaining solutions can be developed

4.1.1 Sub-reach A (RM 78.5 -74)

Sub-reach A is located at the upstream end of the study area, which begins at RM 78.5 and extends downstream to Lone Tree Bar (RM 74). This reach has been one of the most geomorphically active reaches and includes the Windsor Island Cutoff. The upper portion of this reach is not included in **Figure 2**.

Darrow Bar, situated against the LB near RM 78, started out as an average size gravel bar (1,000 feet). Between 1936 and 1994, Darrow Bar has grown substantially and has prograded



7342 EDD
LAKE

H.L. PEAR

1948 - 1978

UPPER SIMON BAR
LOWER SIMON BAR

McCLOSKE BAR

WINDSOR ISLAND

LONE TREE BAR

73

UNION BAR

74

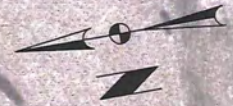
FLOW

75

1948 - 1978

221

1948 - 1978



APPROX. SCALE IN FEET

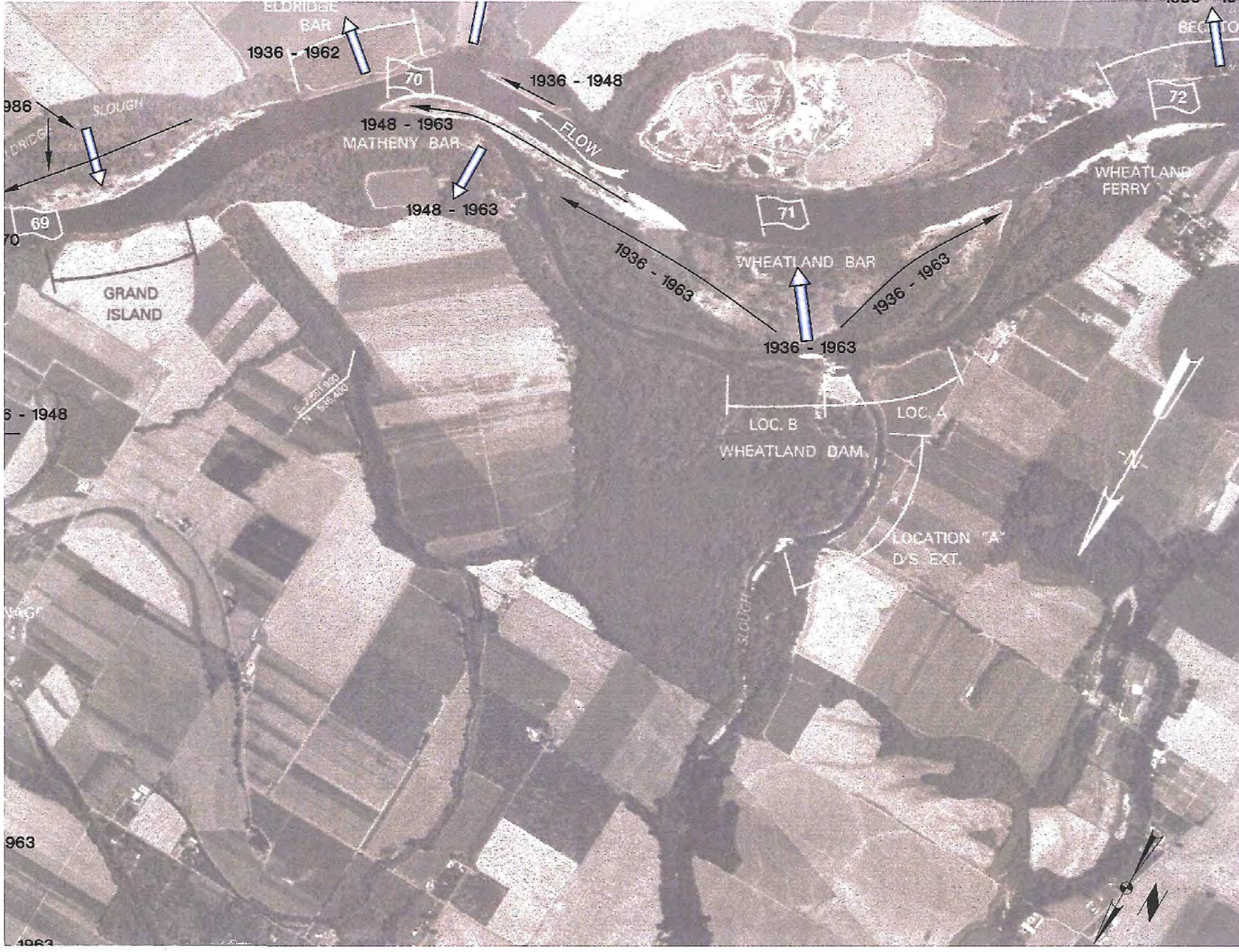
upstream and downstream approximately 2,000 feet. Downstream of Darrow Bar near RM 77, a similar process has taken place along the LB. An isolated gravel bar across from Spongs Bar has grown from a small isolated gravel bar in 1936 to a large, substantial feature averaging 4,000 feet in length by 1994. During this process, the gravel bar eventually migrated downstream to join the LB creating less meander and straightening the channel. A small channel is maintained between the gravel bar and the LB during higher flows.

Within Sub-reach A, the majority of channel changes occurred between RM 76.5 and 74. In 1936, the Willamette River was a braided system with the majority of flow passing through the east channel near Lower Simon Bar, McCloskie Bar, and Windsor Island. Sometime between 1936 and 1948, channel geomorphology started to change and more flow entered the west channel. The Corps began dredging this reach in the 1940's and records indicate substantial material removal during the 1960's and 1970's. Dredge spoils were placed off channel as part of the dredging operations and may have served as a plug along the east channel. Dredging by the Corps ceased in 1975. Mining began at Windsor Island sometime in the early 1960's and a haul road and bridge were constructed over the east channel. The mine pits were diked and therefore isolated from the channel during all but higher flows. Between 1948 and 1978, LA observed continually less flow along the east channel and more flow and channel straightening along the west channel. Over time, the original string of islands (Simon, McCloskie and Windsor) became the RB of the river's main stem. Since 1978 a single side channel (slough) is present along the eastern edge of the islands and the main stem of the Willamette River passes through an unusually straight course west of Windsor Island and Lower Simon Bar (**Figure 2**). The abandonment of the east channel, realignment and straightening of the west channel through this portion of the sub-reach resulted in a channel length reduction of approximately 2,000 feet.

Since the cutoff was completed, channel bed degradation has occurred and provides an ongoing source of sediment for downstream reaches. There has been no significant lateral movement since 1978 though continued degradation of the west channel appears to be taking place. This degradation is related to (1) the original dredging and channel straightening activities of the Corps; (2) confinement of the main channel by the levees surrounding Windsor Island; and (3) the sediment poor (hungry) water originating from the upstream reach (RM 78.5 to 76.5). The bar build-up of this upstream reach (Darrow Bar and Spongs Bar) may have accelerated sediment production (channel degradation) from the Windsor Island Cutoff. Additional evidence of channel degradation at the Windsor Island Cutoff is the repair work and annual inspections of the Northwest Natural Gas pipeline at RM 75.55. Annual inspections by divers find evidence of continued scour and bedload transport. The most recent repairs to recover the pipeline under the channel bed were completed in 2000 along the RB. Concrete blocks were anchored in place by drilling into the channel bed. Earlier repairs reportedly occurred on the LB (Cliff Coulter, Northwest Natural Gas, personal communication, January 2006).

4.1.2 Sub-reach B (RM 74 - 70)

Sub-reach B begins at RM 74 and extends down to Matheny Bar at RM 70 (**Figures 2 and 3**). The majority of change within this sub-reach has occurred between RM 71.8 and 70. Between 1936 and 1948, a small amount of erosion was observed along the RB near RM 72. The Corps placed a bank revetment at this location in 1948 to prevent further erosion. After 1948, no erosion was observed at this location.



The major change in this sub-reach occurred at Wheatland Bar. In 1936, the west edge of Wheatland Bar served as the right bank of the main channel. The 1948 photo shows a channel along the east edge of Wheatland Bar. Based on the distribution and accumulation of sediment along the east channel's right bank, it appears that this channel was dredged, probably to facilitate navigation. As the east or "new" channel assumed more direct flow, it began to widen, deepen and ultimately became the primary channel. Dredging of Wheatland Bar continued through the 1970's as the Corps attempted to maintain a navigational channel through this reach.

At the same time, development of the east channel was occurring, Wheatland Bar expanded to the southwest and east. Vegetation encroached on the deposited sediments and stabilized the bar as it continued to grow. A small channel still exists along the west side of Wheatland Bar today. The realignment and straightening of this portion of the sub-reach resulted in a channel length reduction of approximately 1,500 feet.

Additional, yet more subtle changes can be seen at Wheatland, Matheny and Eldridge Bar(RM 71 to 70). Between 1936 and 1948, small amounts of erosion occurred along the RB between RM 70.2 and 69.9 followed by the formation of a gravel bar in the same area. The formation of this gravel bar appears to have stopped future erosion. Between 1948 and 1963, erosion of Matheny Bar was observed. Contemporaneous to the erosion of Matheny Bar, Wheatland Bar migrated eastward at RM 70. The extension of Wheatland Bar directed flows against the RB at Eldridge Bar causing bank erosion. By 1962, a bank revetment was placed at Eldridge Bar to protect against further erosion.

4.1.3 Sub-reach C (RM 70 - 68)

Sub-reach C begins at RM 70 and extends downstream to the upstream end of Snaggy Bend Bar at RM 68 (**Figure 3**). LA identified minor changes in channel alignment and width within this reach. In 1938 the Corps established the Ditmar Bend bank revetment along the RB (RM 68.9 – 68). This bank revetment prevented future meander migration to the east. Between 1936 and 1948 Ditmar Bar (LB at RM 68.3) became silted in and no longer conveyed flows, channelizing this stretch of the river. Between 1948 and 1986, the RB gravel bar, from RM 69.6 to 68.8, expanded toward the north and east. Through time this depositional area has become vegetated and, ultimately, relatively stable. Bar stabilization combined with the Ditmar bank revetment has resulted in river flow being directed at the LB in the vicinity of Tompkins Bar (RM 69.1 – 68.8). This shift in flow alignment removed a portion of Tompkins Bar between 1963 and 1970, creating an island.

4.1.4 Sub-reach D (RM 68 – 67)

Sub-reach D is located between RM 68 and 67 (**Figure 3**). Between 1936 and 1963, minor degradation of the gravel bar occurred along the RB between RM 68 and RM 67.7. Just downstream of this point, the RB gravel bar prograded to the north. Over time, vegetation has become established and there has been no change in the alignment of the right bank. Coinciding with changes to the RB, erosion to the LB at Alison Bar (RM 67.6 – 67) has occurred. Together, the erosion and deposition processes have resulted in a slight shift of the channel from east to west, straightening this reach of the Willamette River. A comparison of the 1963 and 2003 aerial photos revealed almost identical channel alignments and width, indicating that the channel in this reach has been relatively stable for approximately 40 years.

4.1.5 Sub-reach E (RM 67 – 65)

From 1936 to 1963, the LB at RM 66.9 prograded slightly to the north and over time has become stabilized through the establishment of vegetation. Since 1963, the bar ceased to grow at this location. Minor bankline recession occurred along the LB between RM 65.6 and 66. The Corps placed a bank revetment along this reach in 1952 to prevent further erosion.

Between 1963 and 1970, bankline recession occurred near the upstream end of the 1952 bank revetment at RM 66.1. An extension to the previously described revetment was constructed in 1972 and since that time no further erosion was noted in the subsequent aerial photos. The remaining change noted in the photographic record was the development of a bar near RM 65.3, sometime between 1980 and 1994, which is visible on **Figure 4**.

Although this sub-reach has been geomorphically inactive during the aerial photograph period of record, significant changes occurred prior to 1938. An abandoned meander exists on the LB floodplain between RM 67.8 and 66.3. At one time, this meander may have continued across the existing channel, on to the RB floodplain and extended to just upstream of Feasters Rocks. The existing slough on the RB floodplain was likely connected to the abandoned meander on the LB.

4.1.6 Sub-reach F (RM 65 to 63.8)

This sub-reach has been one of the most geomorphically active within the study area for the aerial photo period of record and is the principal area of concern. The historic Marion/Yamhill County line was surveyed along the centerline of the Willamette River channel. Throughout most of the study area the historic county line still approximates the existing main channel. However, within this sub-reach significant differences exist.

At the time the county boundaries were established, the Willamette River channel formed a sharp meander bend near RM 64.4. By 1936, the river had partially cut off this meander, forming an island just upstream of RM 64. Significant sedimentation occurred adjacent to the island, which ultimately closed off the island and formed a point bar. Since 1936, the point bar has prograded into the main channel, forcing more flow onto the LB (**Figure 4**). Since 1995, this gravel bar at Lambert Bend has accelerated in growth and exceeds 15 feet in height. The existing main channel is now northeast of the pre-1936 channel and has aggraded significantly.

The 1936 photo shows spur dikes on the LB at RM 64. Despite the dikes, the channel migrated northeastward and has created a meander bend with a very tight radius of curvature. The dikes and Corps authorized maintenance dredging were effective for the short term based on the nominal rate of bankline change from 1936 to 1968. Maintenance dredging ceased in 1975. LB erosion began soon after dredging stopped. By 1968 the Corps designed and built the Finnicum Dike to address this erosion at RM 64.25. Although the Corps was the lead agency in this project, additional funding support was obtained from the Yamhill County Soil and Water Conservation District, the Soil Conservation Service and the Oregon Department of Agriculture. A 400 foot-long revetment built with quarry crusher waste and faced with stone was placed with a 3 foot by 3 foot toe in the channel bed. The toe has eroded away and the structure is being undermined. The structure blocked an overflow channel and has successfully protected the tip of the Lambert Bend meander from developing a cutoff. However, the Finnicum structure moved the cutoff location upstream to the neck of the meander at RM 64.4.



From 1968 to 2005, the rate of channel migration in a northeastward direction significantly increased. Over the last 20 years, the increasingly more direct impingement of stream flow onto the left bank and the associated hydraulic conditions has resulted in severe erosion. Increased deposition in the immediate area of Lambert Bend has resulted in overbank flooding at more frequent intervals. Seasonal flood events have inundated topographically low areas within Lambert Bend. Area inundation has initiated the formation of a large headcut, extending southward from RM 62.2. This headcut has moved nearly 1,000 feet and if allowed to develop further will result in the eventual cutoff of Lambert Bend. The impact of this “cut-off” will be described in later sections.

4.1.7 Sub-reach G (RM 63.8 to 60)

This reach appears to have remained relatively stable during the period covered by the aerial photography. Subtle changes appear to be the result of erosion at Lambert Bend (Sub-reach F).

Bedrock control at Feasters Rocks (RM 63) prevented channel movement along the right or outside bank of the meander. The inside of the bend experienced minor amounts of deposition and an increase in vegetative cover. Abandoned meander scars, which indicate historical channel movement, are visible in the photographs but the majority of movement occurred pre-1936 with the exception of the area west of Five Islands and Coffee Island bars

Beginning in 1955, noticeable sedimentation started to affect several features between RM 62.8 and 60.6 (**Figure 5**). Increased amounts of deposition were noticed along the west side of Five Islands (RM 62), the northeast side of Five Islands Bar (RM 61.6), and resulted in the elongation of Coffee Island. Some of the deposition is related to the instream disposal of dredged materials by the Corps. Conversely, this deposition created minor amounts of erosion on the opposite banks due to the impingement of flow in these areas. Erosion was observed along the southeast side of Five Islands Bar (RM 62) and across from Coffee Island between RM 61.3 and 60.6. Additional erosion was observed along the RB at RM 60.6, downstream from Coffee Island, just upstream from the Weston Bend Bank Revetment.

Since 1936, Weston Bend has been fixed keeping it from migrating any further north. In contrast, Weston Bar (LB near RM 60), has evolved from several islands to a single consistent gravel bar that has migrated north into the channel. Since 2000, the Weston Bar has been stable.

4.2 Longitudinal Profile and Cross-Section Analysis

In July 2005, Yamhill County and Joe Bernert surveyed the centerline of the Willamette River from RM 67.63 to RM 59.96 and seven cross sections, under the direction of LA. The cross sections were surveyed between RM 66.32 and 60.82 and replicated the 1982 FEMA cross section locations. Data were downloaded, rectified and adjusted to a similar survey datum used in the 1982 FEMA study to provide a reasonable comparison of the changes in bed elevation over a 23 year period.

Figure 6 provides a comparison between the 1982 and 2005 average channel bed elevations. To facilitate a reasonable comparison, the average channel bed was calculated at seven cross sections between RM 66.32 and 60.82 and the distance between each cross section was interpolated. **Figure 7** compares the 1982 minimum channel bed elevation (from FEMA cross

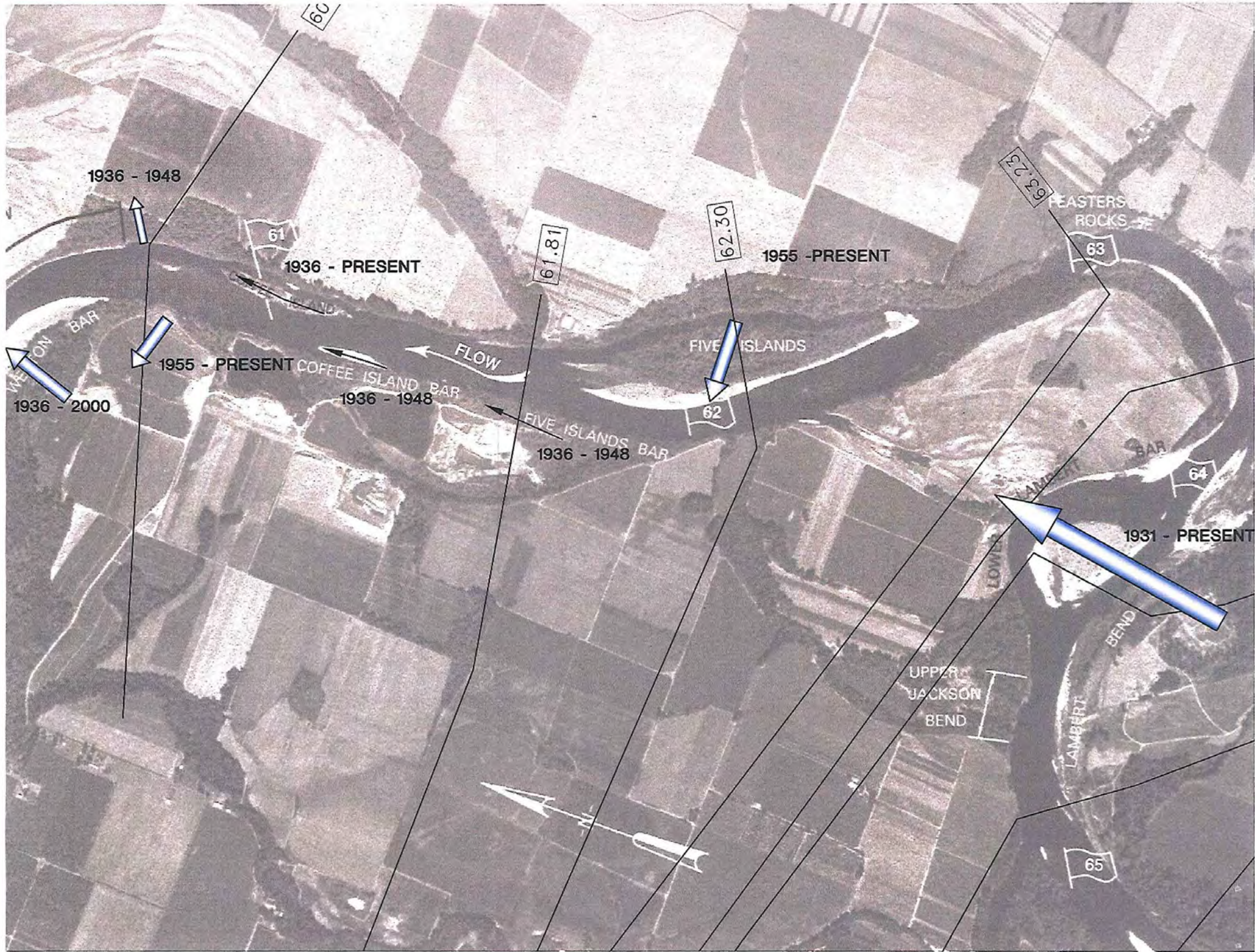


Figure 6

Average Channel Bed Elevation Comparison

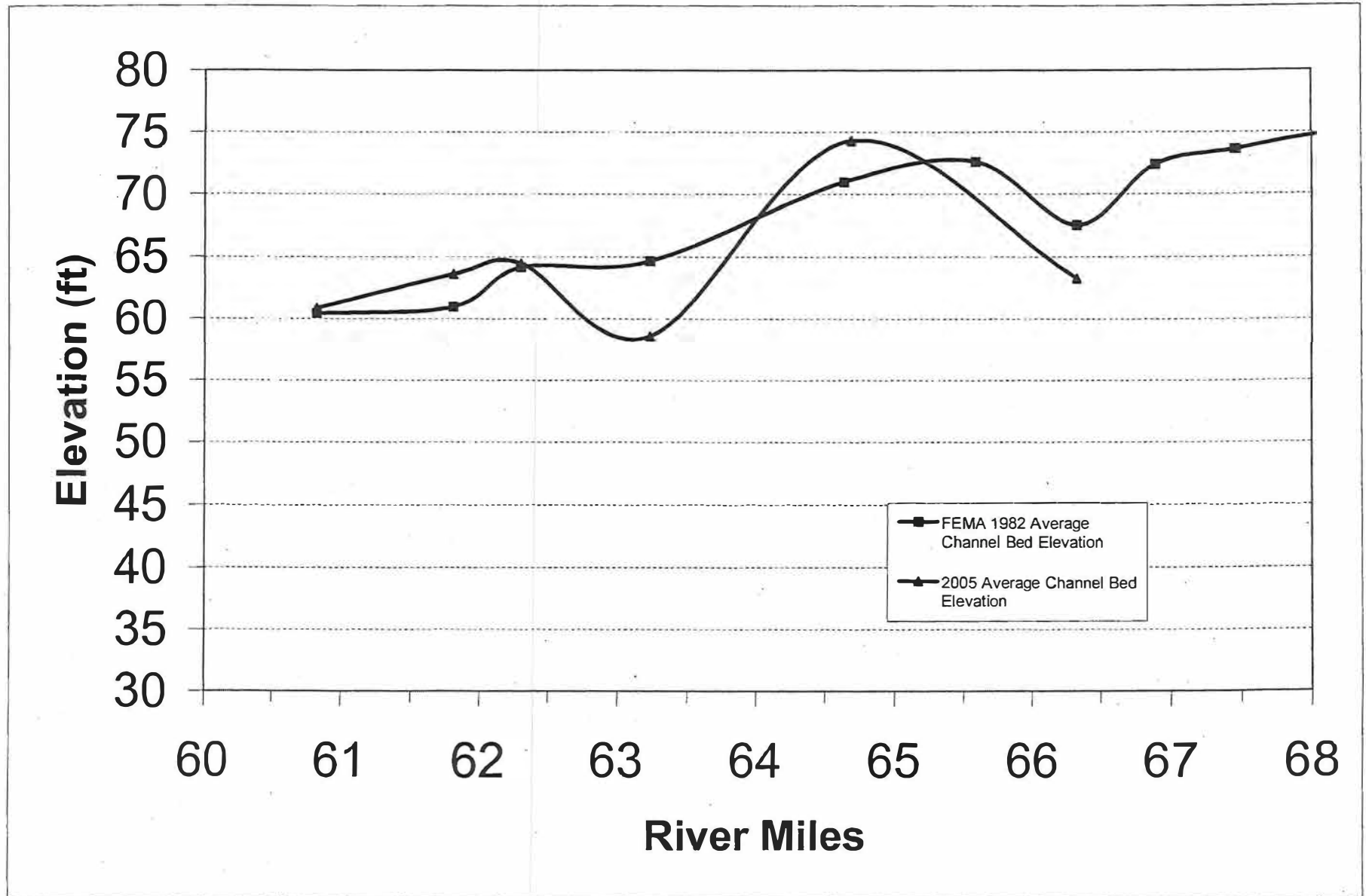
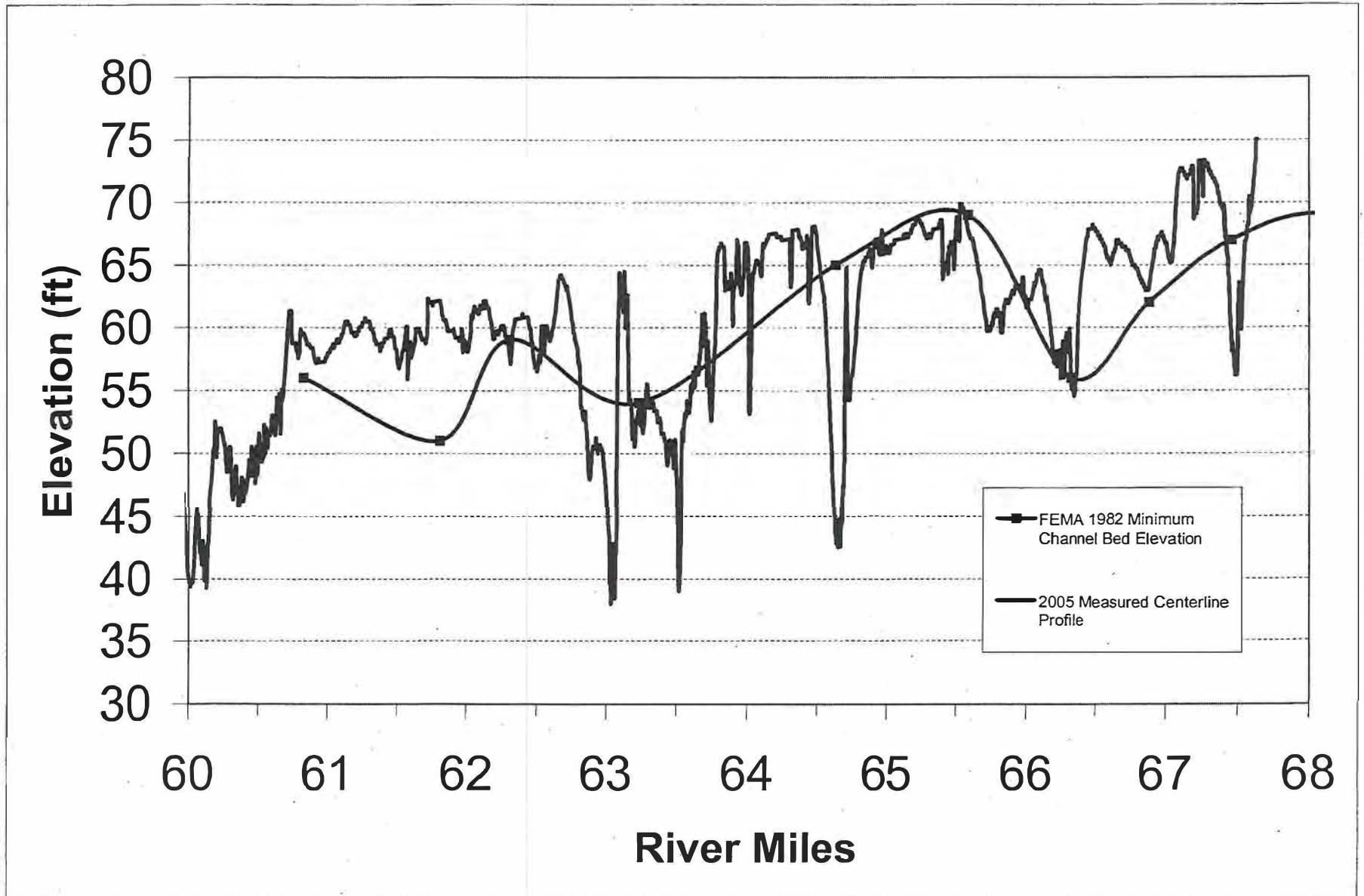


Figure 7

Willamette River Profile Comparison



section data) versus a continuously measured 2005 centerline profile. The **Figure 7** comparison begins at RM 67.6 and continues downstream to RM 60.82. Both figures roughly demonstrate similar river behavior over a period of 23 years. These data can be summarized as follows:

- aggradation from RM 67.6 to 66.3;
- slight degradation to minimal change (except local scour) from RM 66.3 to 64.8;
- significant aggradation within the Lambert Bend reach, RM 64.8 to 63.7;
- degradation between RM 63.7 to 62.5; and,
- general aggradation from 62.5 to 60.8.

When comparing the profile data to the changes in plan form (comparison of bank line analysis), an interesting picture arises. Upstream aggradation (bar development and progradation) was identified along Snaggy Bend, Tompkins Bar, Matheny Bar and Wheatland Bar (RM 68-71). This aggradation likely continued downstream to RM 66.3 as demonstrated in the profile analysis and on a local basis oversteepened the channel slope. Immediately downstream from this reach, from Duke Bar to Upper Jackson Bend, there was limited change due to adequate sediment conveyance through this reach. Beginning near Upper Jackson Bend, the channel slope significantly flattens and data suggest approximately 5 feet of aggradation, within the Lambert Bend reach (RM 64.8 to 63.7), has occurred over the 20 year period. **Figure 8** presents a comparison of the 1982 to 2005 cross section at Lambert Bend (RM 64.68). The growth of the huge point bar at Lambert Bend and its related opposite bank erosion is the manifestation of this aggradation. Again, the aggradation at the Lambert Bend reach oversteepened the local channel slope resulting in the degradation between RM 63.7 and 62.5. The remaining reach (RM 62.5 to 60.8) is characterized by general aggradation, including the growth of Five Islands, Five Islands Bar and Coffee Island. Cross section data, **Figures 9 and 10** indicate bank erosion and some degradation is occurring within this reach (RM 63.23 and RM 60.82) - on a local basis, opposite bank erosion. Additional cross-sectional survey data comparisons are available in **Appendix B**.

4.3 Sediment Analysis

Finally the Stakeholders Group project evaluated sediment data of the Lambert Bend portion of the river system to determine whether steady state (well sorted, well graded) sediment conditions exist or if the system is inherently active, episodic and disruptive. The Stakeholders Group completed fourteen Wolman Counts of the surface material at several gravel bar locations and collected ten sub-armor samples for sieve analysis. The Wolman Count is a field method that actually provides a textural analysis of the armor (or coarse surface) layer on the surface of a bar. The sub-armor was analyzed by the more traditional sieve analysis method.

In a natural, stable channel a well-developed coarse armor will protect the underlying and significantly finer, sub-armor. This coarse armor develops on the surface of a bar after numerous smaller events have winnowed away finer sediments. Only during the more extreme events (generally greater than the 5-year) will the armor actually move and will the sub-armor become mobile. The average grain size of the armor is typically an order of magnitude or greater than that of the sub-armor. Because of its significantly larger particle size and its resistance to entrainment under lower flow conditions, the armor layer (which on a spatial basis reflects less than 1% of the channel bed alluvial materials) will often dictate the conformation of the channel bed (Schumm, 1977).

Figure 8

Cross Section Comparison At River Mile 64.68

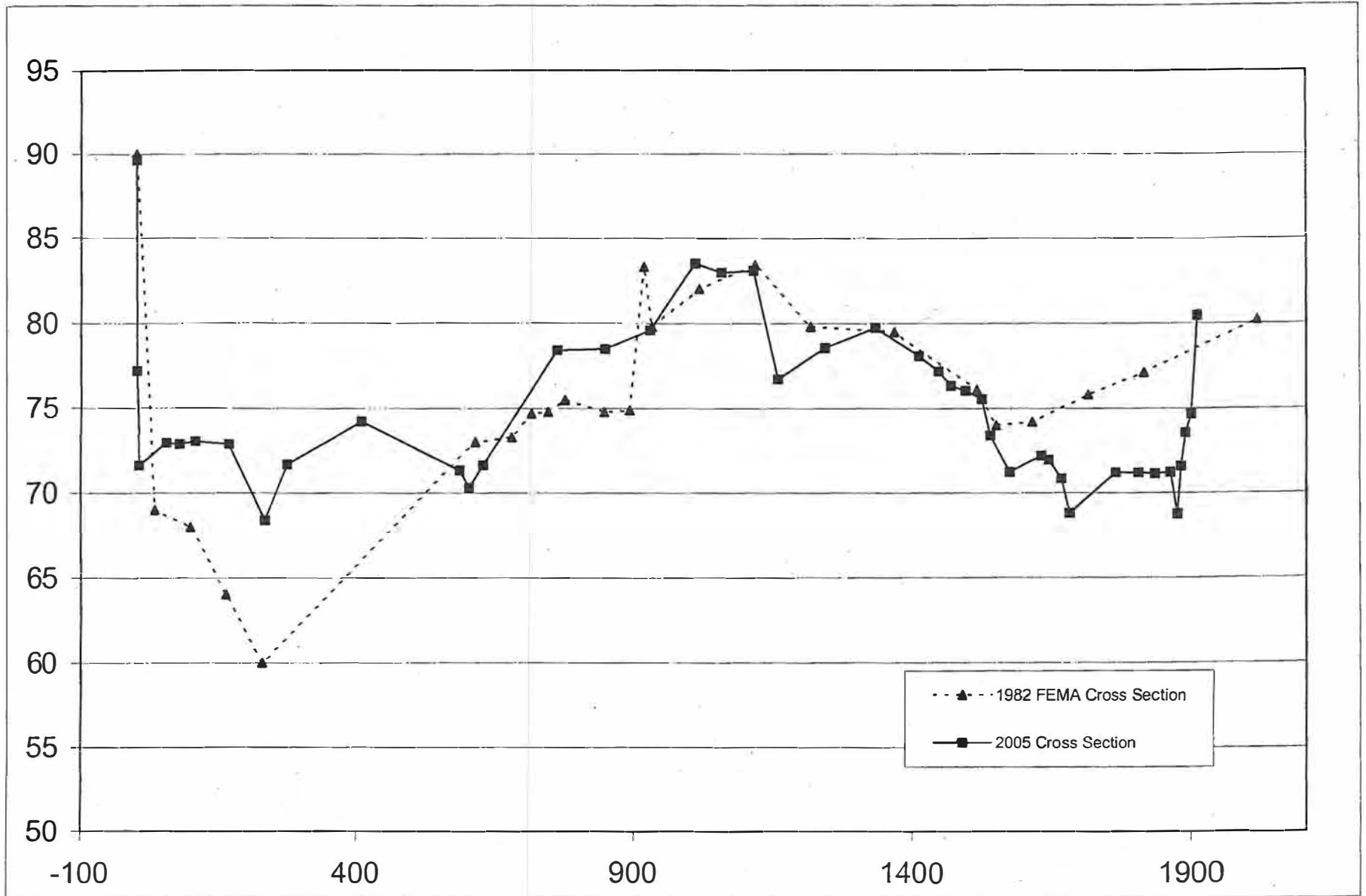


Figure 9

Cross Section Comparison At River Mile 63.23

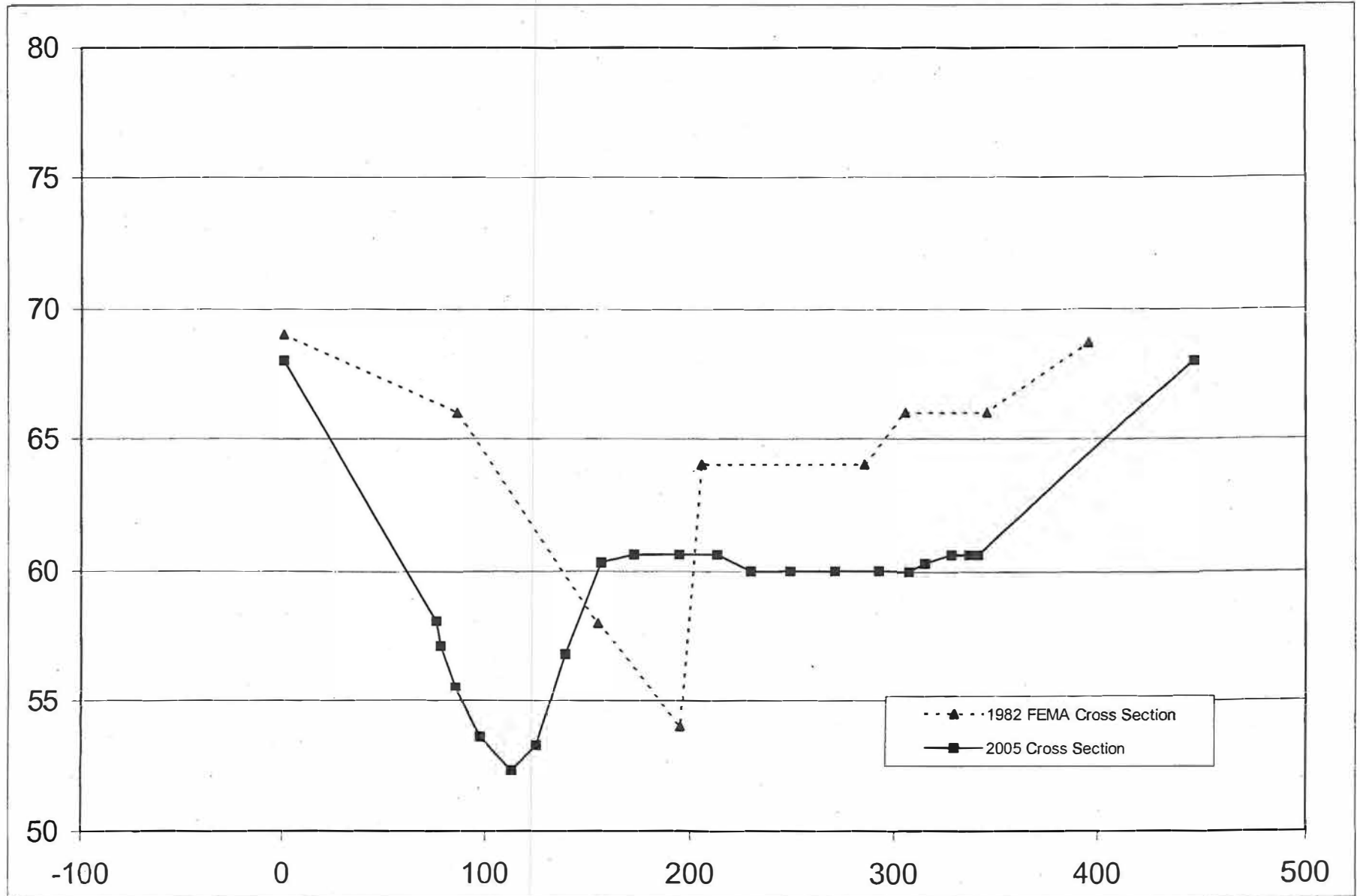
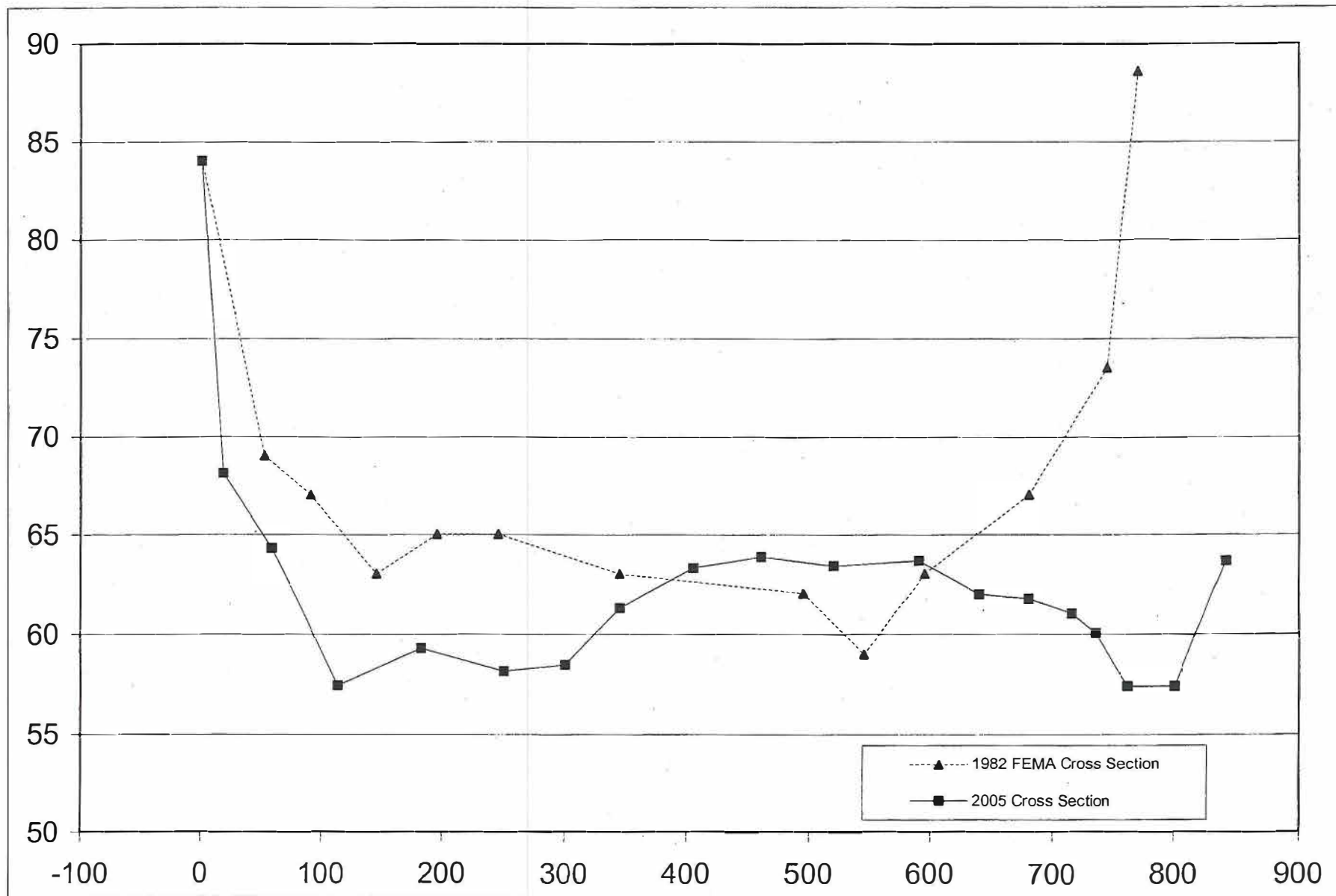


Figure 10

Cross Section Comparison At River Mile 60.82



The absence of an armor layer indicates disruption of the bed by an extreme flow event or an unstable river system, where sediment transport and deposition is episodic and disruptive. Parallel to this thought, where an armor layer is not present or has been disrupted, the channel bed is very responsive to nearly all high flow events and as such may be seen as unstable. **Table 2** compares armor to sub-armor grain size in paired samples. A graphical mean, rather than a median (D_{50}) grain size was used to describe the different strata, due to the poorly sorted character of the sample. The graphical mean is superior to the median because it is based on the average of three points on the curve (D_{16} , D_{50} and D_{84}), rather than simply one (D_{50}).

Table 2, Sediment Data from Select Locations

	Location 1		Location 4		Location 9		Location 10	
	Armor	Sub-armor	Armor	Sub-armor	Armor	Sub-armor	Armor	Sub-armor
Mean Dia. (mm)	23.5	10.9	21.2	13.3	42.5	19.3	21.7	13

In LA's review of these data it is clear that the difference in the mean particle size of the armor to the sub-armor is very small, indicating that either the rate of deposition is too great to allow much sorting and winnowing or recent flows have been so significant that the surface armor was disrupted. At the time of this sampling exercise (July 2005) no extreme event flows had occurred along the Willamette River since 1999, so the more likely scenario is that each deposit of bed material on the sampled bar has been episodic, catastrophic and unsorted. There has been insufficient opportunity for the development of a typical well-sorted armor to sub-armor ratio.

This information is further borne out by a statistical analysis of five channel bar sub-armor samples. **Figure 11** presents the grain size distribution curve for five samples collected in the vicinity of Lambert Bend. Samples 05-01, 05-02 and 05-03 were collected in a downstream to upstream direction along the LB bar between RM 64 and 63. Samples 05-04 and 05-05 were collected at Lower Lambert Bar near RM 64.64. All five samples are poorly sorted and strongly fine skewed indicating that they were deposited in a non-uniform and unstable flow and sediment transport conditions.

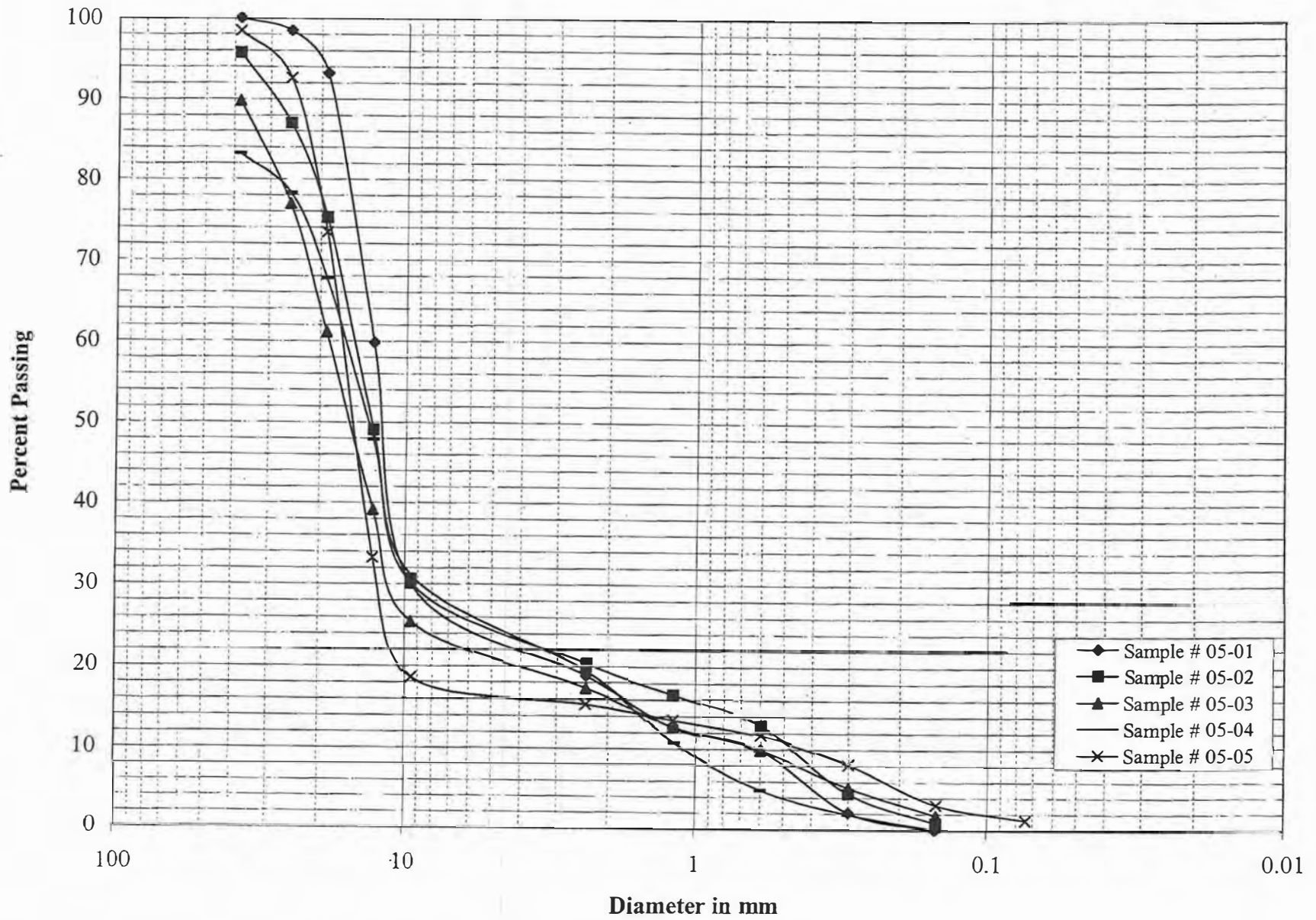
5.0 FISH HABITAT ANALYSIS

This portion of the river is used by the federally listed Chinook salmon and steelhead trout, as well as several dozen other native and non-native species. Although this portion of the river is generally too warm for juvenile Chinook salmon during the summer, they will find pockets of cool water to survive. Cool water can be found seeping into the river at the downstream end of gravel bars and the bottom of deep pools. Both steelhead and Chinook have been found in the alcove on the east side of Windsor Island.

The current geometry of the river between RM 65 and RM 63 results in fish habitat features that are now relatively rare along the Willamette River and are conducive to rearing of salmonids and other native fishes. The long alcove created by the expanding headcut across Lambert Bend (upstream of RM 62) provides fish refuge from high-velocity water during the winter and year-round feeding opportunities. The alcove probably gets too warm for salmonids during the

Figure 11

Sieve Analysis Results



hottest part of the summer, although they may find a pocket of cool water to retreat into at the most upstream end of the alcove. The large island of gravel at the upstream end of Lambert Bend probably has cool water exiting from its downstream face and provides refuge for fish during the hot part of the year.

For the majority of the year, the water in the alcove is still and supports aquatic organisms that are preferred food for fish. This area is in contrast to the main channel, where the river is usually too fast for fish during high flow events and fish will retreat to the margins of the river at other times of the year. Flood plains, when inundated, provide fish large quantities of terrestrial food and they will feed vigorously during major overbank episodes.

The outside of the river bend between RM 63.8 and 63 flows against a hard bank (Feasters Rock), which creates an unusually deep thalweg (or deeper channel). Here, adult salmon and steelhead on their way to spawning grounds will rest. Salmon and steelhead do not spawn in the Willamette River but use cool tributaries instead. The proximity of slow water on the inside of the bend to fast water on the outside allows resident fish to conserve energy when they feed by stationing themselves in the slow water and darting out into the fast water to retrieve food items that float by.

If the river were to cut through Lambert Bend, the existing channel between RM 63.8 and 63 and the alcove would exchange characteristics. The existing main channel would become a side channel with relatively slow water or may completely dry up. The alcove would become a turbulently unstable feature, where the water would be swift and standing waves would create a fish barrier during the more extreme flood events. Over time the abandoned main channel (meander) would likely plug with gravel at the upstream end and become an alcove. For the initial years following the capture of the alcove by the Willamette River, the undersized "new channel" would actively widen, continue to headcut and contribute sediment to downstream sources. The alcove would be an unstable channel feature until the Willamette River through this reach achieved a new state of final equilibrium.

Both the existing condition and a "long term" scenario where the river cuts through Lambert Bend offers good habitat for native fishes. Each includes areas of refuge from fast water, preferred feeding areas, and refuge from high summer temperatures in the main channel. One must recognize that there will be a "short term" impact associated with the channel cutoff. In particular this impact will include unstable channel geometry and adjustments of the channel bed. As described later in this report, should the river's cutoff of Lambert Bend also result in the capture of downstream gravels by the river, fish habitat would be affected negatively for a much longer period of time. Each of the captured pits would become sinks for bedload and lead to a reduction of fresh gravels in downstream reaches. Also, if the gravel pits had no egress channel for fish to escape back to the main channel, fish stranding could occur and lead to summer mortality when the water in the pits warms. Multiple pit captures may cause abandonment of the current mainstem channel at Weston Bend. If the channel shifts south and west of Weston Bend via multiple pit captures, this new deep channel could strand fish in the abandoned channel at Weston Bend.

6.0 FLOODPLAIN MINES AT WESTON BEND

Mining near Weston Bend has been on-going for the last four decades with increased mining activity over the last two decades. **Table 3** lists these floodplain sites including permit holder, mine depth, total acres zoned for mining, acres disturbed, etc., for each site. Off-channel mining began in the mid-to-late 1960s at the Youngblood Pond, DOGAMI ID 36-0015. By 2005 Yamhill County had rezoned a significant portion of this floodplain for mining. Existing permit boundaries and pre-law sites are delineated on **Figure 12**. The depth of mining for the earliest mines was limited by the type of equipment used to excavate below the water table. These early draglines were capable of mining below the water level to a depth of approximately 15 to 20 feet. The depth of actual gravel (and potential depth of mining) varies from 20 to 60 feet. As the demand increased in the 1980s, the operators began de-watering operations to access additional resource. One can anticipate that mine pits, which were developed during the modern (post 1980's) period fully extract the mineral resource and mine depth will range from 30 to 50 feet below the existing thalweg of the Willamette River. A total of 169 acres have been disturbed by mining and related activities. A total of 191 un-mined acres are located within the approved permit boundaries established by the county and DOGAMI. As of 2005, a total of approximately 11 million yards have been mined from these sites.

DOGAMI regulates mining activities on post-1972 areas to ensure that each mining company completes their reclamation in accordance with their approved reclamation plan. There is no mechanism in statute to require new reclamation plans of previously issued permit approvals or invoke reclamation requirements for pre-law sites. Older permits were unsophisticated in terms of requirements to protect the river and fisheries. Likewise, there are no legal requirements for adjacent operations to integrate floodplain reclamation and flood control strategies into a comprehensive plan. Newer permits have been written to protect migrating fish, which may enter the ponds during flooding and to stabilize floodwater entry points.

6.1 Coffee Island Bar and Youngblood Pond

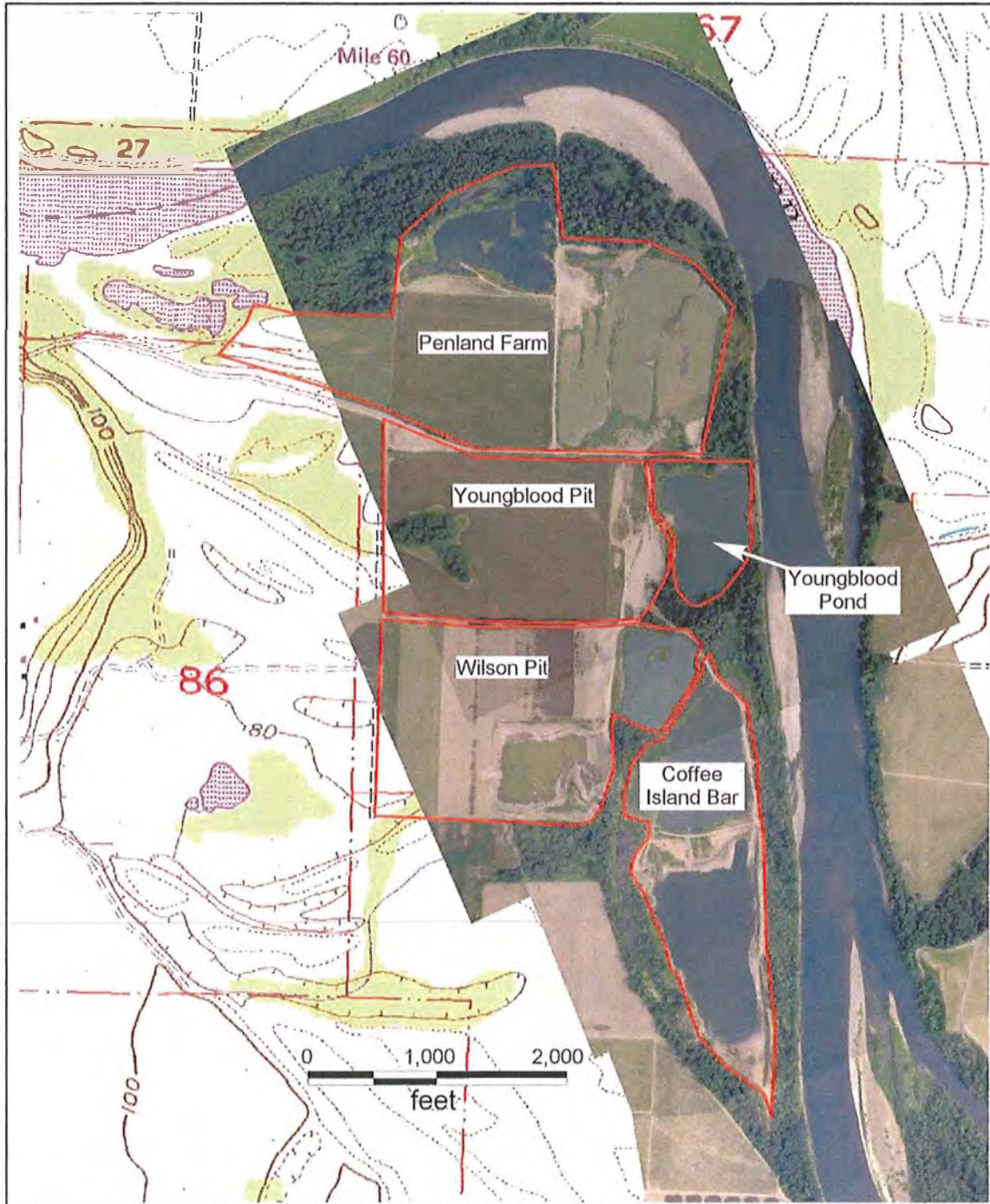
These older gravel ponds are the most vulnerable to pit capture. They are located near river mile 61.5 within a riparian area. The Coffee Island Bar excavation site was permitted in 1976 with an undisturbed 300-foot setback from the ordinary high water line of the Willamette River. The Coffee Island Bar ponds have been excavated to a depth of 60 feet below ground level. The more shallow Youngblood Pond was dug with a 50 foot off-set from the Willamette River and likely extends no deeper than 20 feet below ground level.

6.2 Penland Farm

The permit boundary was expanded in 1995 when an additional 67 acres were zoned for mining. The amended permit requires the use of riprap or flat slopes to stabilize the entry point for floodwaters. The permit also requires monitoring for the presence of fish and reporting during pit de-watering. This monitoring is particularly important following a flooding event which results in a temporary connection of the pit to the Willamette River. Depth of these off-channel pits range from 25 to 45 feet below ground level.

Table 3, Floodplain Mine Sites Near Weston Bend

DOGAMI ID No.	Site Name	Mine Depth	Date of Reclamation Plan	Exempt Acres	Disturbed Acres	Permitted Acres	Permit Status	Permittee/ Operator	Ownership
36-0049	Penland Farm	25 to 45	08/19/86	0	57	144	Permitted	CC Meisel Co., Inc.	Same
36-0054	Youngblood Pit	Stockpile Yard (35' proposed)	09/10/98	0	9	58	Permitted	Baker Rock Crushing Co.	Same
36-0050	Wilson Pit	50	04/06/92	0	34	80	Permitted	CC Meisel Co., Inc.	Wil Wilson
36-0037	Coffee Island Bar	60	11/01/76	0	54	54	Permitted	Baker Rock Crushing Co.	Wil Wilson & Baker Rock Resources
36-0015	Youngblood Pond	20	NA	15	15	NA	Pre-law, inactive	Dayton Sand & Gravel	Baker Rock Resources



Floodplain Mine Sites Near Weston Bend

Photo Date: 6-30-2004

Oregon Dept. of Geology and Mineral Industries
 Mineral Land Regulation and Reclamation Program

Figure 12

6.3 Youngblood Pit

This site was permitted in 1998 but has not yet been mined. A fish ingress/egress channel is required along with rock-lined spillways into the pond. DOGAMI permit requirements also require partial backfill of the pre-law Youngblood Pond to widen the distance between the Willamette River and the proposed pit and pre-law pond.

7.0 FIELD VERIFICATION

During July 2005, LA performed a cursory field reconnaissance of the project area and through visual observation, identified reaches of instability. This analysis was not comprehensive. The purpose of this analysis was to provide examples and base photography for areas of immediate concern. As discussed in several previous sections, the left bank near river mile 64.2 is actively eroding. Erosional activity has been ongoing for several decades and the bank showed no signs that it is beginning to stabilize. Currently, the river's dominant flow path is along the natural meander curve towards Feasters Rocks. At higher flows, the Willamette River overtops the left bank at RM 64.2 and flows toward the north where it reunites with the river (RM 62.2) at the Lambert Bend cutoff. Overflow channel development has resulted in creation of a headcut where the flood flows rejoin the river at RM 62.2. In the summer of 2005, members of the Stakeholders Group placed several thousand tons of rock and buried a rock weir (Rock Riprap Barrier Project) as an interim measure to slow further upstream migration of the headcut. The riprap was donated by CC Meisel Company and was placed by Baker Rock Resources. **Figures 13 and 14** illustrate the actively eroding bank near RM 64.2 and the headcut near RM 62.2.

Observations indicate that the right bank upstream from Feasters Rocks (RM 63.8) is relatively unstable. A dense stand of trees and brush along the right bank are slowly slumping into the main channel (**Figure 15**) but there is no evidence the channel is migrating.

The left bank downstream from the headcut (between RM 62.4 and 61.8) is also actively eroding. At this location, the river is characterized by steep nearly vertical banks that are littered with trees originally anchored to the bank as seen in **Figure 16**.

8.0 ANALYSIS CONCLUSIONS

The various sources of information can be compiled to trace the river's historic geomorphic behavior and to provide a basis for inferences about future changes. Geomorphic analysis of historical bank line changes suggests that the Willamette River, within the study area, is a geomorphically active channel reach. Abandoned channels, flood scars, and oxbow lakes are present on both the right and left bank floodplains. During the photographic period of record (1936 to 2003), active bank erosion and sedimentation has occurred and LA has identified three locations that have exhibited large scale geomorphic changes. They are Windsor Island (RM 75), Wheatland Bar (RM 71), and Lambert Bend (RM 64.2).

Since 1936 the Willamette River at Windsor Island and Wheatland Bar has displayed an overall channel straightening and evolved from a braided (multiple channel condition) to a single thread system. These changes have been man induced. On a watershed basis, RM 78.5 to RM 60 of the Willamette River has decreased its sinuosity (meandering tendency) and by so doing, has

Figure 13
Erosion at Lambert Bend



Figure 14
Headcut Erosion at River Mile 62.2



Figure 15
Minor Erosion Upstream of Feasters Rocks at River Mile 63.8



Figure 16
Bank Erosion Near River Mile 62



increased its hydraulic efficiency to convey sediment. The increased hydraulic efficiency or stream power has resulted in erosion which has generated both bank and bed material for transport downstream. In particular, this increased erosion has arisen from channel straightening (and dredging) projects, resulting in degradation at Windsor Island and Wheatland Bar. Material generated from these locations is conveyed through a well-protected (well revetted) and hydraulically efficient river reach and is now being deposited at three sites: Lambert Bend, Five Islands and Coffee Bar. The data suggest that a combination of upstream dam construction, channel straightening through the Corps dredging program, and Corps bank revetments, which have resulted in improved conveyance capacity, has changed the balance between sediment load and discharge. Five years of relatively low peak flows along the Willamette River (2000 through 2005) and very limited maintenance dredging has allowed such bars as Lambert Bar to grow into such large features that they are locally controlling the river's behavior. These bars are no longer transient alluvial features but have grown to such proportions that they have developed into permanent features within the historic channel banks.

A second factor in the increase in downstream channel instability was the dam construction on Willamette River tributaries, which created a sediment deficient environment. Water discharged from the dams is "hungry," meaning the river is looking for sediment to transport. The river reacts by downcutting below the dams and the channel bed serves as a source of sediment material for the lower channel reaches. Coinciding with dam construction in 1942, LA observed an increase in sediment deposition between RM 78 and RM 66. Sedimentation reduced the meander amplitude of the river by depositing material between gravel bars and closing side channels in areas like Windsor Island and Wheatland Bar. Simultaneously, bank revetment projects were constructed within the study reach to reduce bank erosion initiated by this increased level of sedimentation. Since 1963 the channel geomorphology of the river between RM 78 and 66 has remained relatively stable. LA believes the combination of channelization and bank revetment projects has increased the conveyance capacity within this reach and created channel degradation near Windsor Island. Sediment derived from this area moves through the system more quickly and appears to be depositing between RM 65 and 60.82, specifically, near Lambert Bend (RM 64.2), Five Islands, and Coffee Bar. Active bank erosion has occurred along the left bank and sedimentation or "progradation of the bar" has occurred along the right bank.

9.0 PREDICTIONS OF CHANNEL RESPONSE UNDER A DO NOTHING ALTERNATIVE

LA's primary geomorphic concern with respect to Lambert Bend is an impending channel cutoff near RM 64.2. The hydraulic conditions in the bend and variations in bank material have caused an enlargement in meander amplitude and a decrease in radius of curvature. The continuation of these processes will ultimately result in a meander cutoff. At the apex of the meander (Feasters Rocks), the presence of bedrock control prevents any further and significant enlargement of meander amplitude; this condition will increase the riverine stresses to decrease the radius of curvature of this bend - leading to an inevitable cutoff. The Corps has unsuccessfully attempted to "protect" the left stream bank at RM 64. Since the completion of the Finnicum Dike construction, landowners working with the Yamhill County Improvement District No. 1 and the Yamhill County Soil and Water Conservation District have attempted to obtain permits to mine Lambert Bar in an effort to obtain funds for increased levels of bank protection

along the rapidly eroding left stream bank. The necessary permits were not obtained and over the last 20 years, the increasingly more direct impingement of stream flow onto the left bank and the naturally occurring hydraulic conditions have resulted in accelerated rates of erosion. Should no effort be made to prevent this cutoff from occurring, the geomorphic trend data indicate that the Willamette River will respond as follows:

- The ensuing cutoff will initially oversteepen the channel gradient. This will cause scour upstream and deposition downstream. On a local basis and in the immediate vicinity of the meander cutoff, the channel bed will initially deepen and then widen to a new equilibrium condition. The process of channel widening is a long-term process and will generate tremendous quantities of sediment for deposition along downstream channel reaches. Channel widening will continue until the channel cross sectional geometry reaches its new equilibrium state with channel slope. The channel will "seek" a balance between sediment transport capacity and discharge by adjusting its slope, width, depth and plan form.
- Hydraulic analysis of the existing versus the post-cutoff condition suggests that there may be an initial 30% increase in post-cutoff channel velocity at the RM 64.68 cross section at the relatively low flow (less than 2-year flood frequency) of 40,000 cfs. A flush of sediment will be transported to and deposited within the downstream reach (RM 62.3 to RM 60.5). This reach includes Five Islands and Coffee Island Bar, as well as active mining operations of CC Meisel and Baker Rock. Once deposited, this flush of sediment will force additional plan form changes including an increase in channel sinuosity and channel meandering. As one can see (from **Figure 5**), this LB area of the Willamette River is unprotected and any increase in channel meandering will result in severe bank erosion and ultimately the capture of multiple off-channel mine pits between RM 61.9 to 61.0.
- The pits closest to the river have been mined to depths up to 60 feet and are located at RM 61.8. Once this deep mine pit is captured, the resultant thalweg change will result in more channel erosion, channel bed and bank instability and ultimately a new cycle of multiple pit captures. The resultant cycle of pit captures will initiate another meander cutoff at Weston Bend. The net result of these channel changes will be thousands of tons per year of newly recruited sediment to downstream reaches, resulting in additional channel instability. Disequilibrium at this location will translate upstream and downstream through the system. The post capture bed lowering at each capture point will also result in partial de-watering or abandonment of the existing channel bed and headcut migration upstream for significant distances.

10.0 RECOMMENDATIONS

10.1 General Philosophies Considered in Alternative Development

There are three general philosophies to be considered in the development of alternatives for a Master Reclamation Plan for the area around Lambert Bend. These philosophies are (1) to allow the river to develop its course and allow pit capture, excessive bank erosion and channel

instability; (2) implement structural and non-structural control measures that would lessen the potential or stop the meander cutoff from occurring; and (3) control the source, delivery and deposition of the sediment that is initiating the cutoff. A combination of these philosophies may be appropriate. Before the alternatives are introduced, one should address the consequences of inaction.

Neither the cause nor the effect of the river's behavior at Lambert Bend is a fully natural process. It has been initiated by the historic human-induced alterations to the system and intervention will be required to address it. Specifically, the Willamette River is a dynamic system and is currently out of equilibrium. By allowing the river to continue at its present state, one can anticipate that the river will continue to erode north towards the existing headcut and eventually a meander cutoff will occur. This action will cause a significant adjustment in channel geometry, thereby establishing a prolonged period of channel disequilibrium upstream and downstream of the cutoff. The consequences will allow the direct flow of the Willamette River towards Five Islands. This will create a new sediment source that will impact channel geomorphology. Channel changes at Lambert Bend can initiate pit capture. There will be tremendous loss of farmland and it may also cause erosion and scour in the existing riparian areas. The conveyance capacity of the "captured" system will be grossly altered resulting in additional upstream and downstream impacts.

These anticipated adverse impacts lead the Stakeholders Group to the conclusion that human intervention is necessary to protect the channel. The most desirable conclusion is the implementation of strict control measures to stop the meander cutoff from occurring, improve reach conveyance and develop local sediment storage opportunities. Alternatives will be discussed further in the following sections.

10.2 Recommended Alternatives

With the above approaches in mind, LA in conjunction with the Stakeholders Group has developed several alternatives. The key to any design alternative will be the design flow or the probability of failure. The following alternatives are conceptual in nature and will require additional geomorphic study and engineering design work. Other alternatives may develop through coordination with regulatory agencies. The following discussion is for informational purposes and *should not* be construed as a design since a detailed design and hydraulic analyses were not conducted.

10.2.1 Alternative A: Construct Bank Revetment and Upgrade Grade Control

Alternative A involves the implementation of structural and non-structural control measures at the impending Lambert Bend cutoff. Structural measures include additional earthwork, excavation and placement of additional rock in the vicinity of the recently constructed (2005) grade control. Slope, hydraulic stability and rock launching will have to be addressed in the design. Coupled with these improvements (above the Ordinary High Water Line) this alternative should include some stabilization of the left bank near RM 64.2 and the construction of stream barbs to improve sediment conveyance between RM 62.4 and 61.0. Biotechnical slope protection, native vegetation and large woody debris will enhance the project. Improvements of the alcove at the mouth of the Lambert Bend cutoff will help maintain the alcove feature, which is a preferred winter habitat type for juvenile salmonids. This alternative recognizes that removal of the bar may not be an option due to the difficulties in obtaining permit approval to remove

gravel from the system. Some right bank channel improvements to enhance sediment conveyance at Five Islands should be evaluated during final design.

10.2.2 Alternative B: Construct New Structure at Lambert Bend Cutoff and Remove Finnicum Dike

Alternative B requires a redesign and implementation of the structural controls at the impending Lambert Bend cutoff, removal of Finnicum Dike at RM 64.25 and the development of non-structural controls. This alternative would consist of additional earthwork, excavation, and regrading of the headcut and construction of a rock chute (drop) into the headcut. Rock from the recently constructed (2005) grade control will be integrated into the design. Energy slope and hydraulic stability of the proposed structure will be addressed in the design. Finnicum Dike removal would open a historic flood channel blocked by the dike construction. The rock removed from the dike could be used in the construction of the rock chute at Lambert Bend cutoff. Dike removal will provide habitat diversity within a wetland complex now isolated from flushing flows. Flooding within this historic channel could also improve local channel complexity. An alcove constructed where the flood channel joins with the mainstem could provide off-channel habitat for salmonids. Coupled with these improvements (generally above and partially below the Ordinary High Water Line) this alternative includes some stabilization of the left bank near RM 64.2 and the construction of stream barbs to improve sediment conveyance between RM 62.4 and 61.0.

Biotechnical slope protection, native vegetation and large woody debris will enhance the project. Improvements at the mouth of the Lambert Bend cutoff will help maintain this alcove feature. This alternative recognizes that removal of the bar may not be an option due to the difficulties in obtaining permit approval to remove gravel from the system. Some right bank channel improvements to enhance sediment conveyance at Five Islands should be evaluated during final design.

10.2.3 Alternative C: Regrade, Reshape, and Partial Removal of Gravel Bar

Alternative C requires working below the Ordinary High Water Line. This work would consist of removing a large amount of material (reducing overall height) and reshaping the gravel bar (the island) in the form of a chevron. Reshaping the gravel bar can be done in a way that will maintain and possibly enhance fish habitat and certainly improve channel geometry through the curve at Lower Lambert Bar. With the bar geometry modified, the left bank of Lambert Bend can be meaningfully protected. A series of stream barbs or bendway weirs will be constructed to redirect flow towards the reshaped gravel bar, increasing conveyance capacity of the reach. These structures will also allow for some sediment storage along the left bank. This alternative can and should be integrated into Alternative A or Alternative B and will address and integrate fisheries and improvements to the existing fishery habitat.

10.2.4 Alternative D: Regrade and Relocate Gravel Bar (EFS)

Alternative D requires working below the Ordinary High Water Line but would not remove gravel from the system. Within-channel barforms are a dominant form of new riparian land formation along the Willamette River. Progressive abandonment of the active channel by its infilling with sediment allows the bank to prograde or grow outward as the bar becomes attached to the bank (Dykaar and Wigington, 2000). Alternative D would use natural geomorphic processes as a template. The work would be designed to create conditions which would accelerate the

attachment of Lambert Bar to the left channel bank at the upstream end. An artificially constructed log-jam and gravel plug could be placed at RM 64.6. Downstream of the log-jam and gravel plug the channel would be left open to allow the formation of a new alcove between the bar and the downstream left channel bank. Adding large woody debris to the gravel plug may facilitate subsurface flow into the alcove. This work would consist of regrading Lambert Bar in the form of a chevron and/or gravel removal down to low-water elevations along the south edge of Lambert Bar. This would provide more conveyance capacity for the RB channel and would develop backfill quantities to close off the low-water left bank channel at RM 64.6. With the bar location modified this would essentially result in the formation of a point bar on the left bank with a downstream alcove. The bar would be stabilized with cottonwoods and other riparian plantings. A series of stream barbs or bendway weirs may be needed to facilitate additional sedimentation along the left bank and redirect flow towards the right bank channel, and to increase conveyance capacity through reach. This alternative can be integrated into Alternative A or Alternative B and could result in fisheries improvements by creation of additional diversity of existing fish habitat. Maintaining adequate conveyance capacity along the left bank and ensuring no new erosion at this location is an essential engineering design consideration.

10.3 Final Comments Regarding Implementation of Alternatives

Alternatives will require a 404 permit from the Corps, a fill/removal permit from the Department of State Lands and a Yamhill County floodway permit. Approval from the U.S. Department of Agriculture – Natural Resources Conservation Service for any work inside of the Emergency Watershed Protection easement at Lambert Bend will also be required. Coordination with area landowners, Oregon Department of Fish and Wildlife, National Oceanic and Atmospheric Fisheries (for Endangered Species Act (Section 7) consultation), the U.S. Fish and Wildlife Service and other interested groups or organizations will also be necessary. Due to fisheries issues, the Stakeholders Group should be prepared to address and work under limited time frames when working in the river. During the design phase fisheries impacts will be evaluated. If the Stakeholders Group, in consultation with other agencies and interested parties, decides on an alternative or combination of alternatives that would potentially alter the river's course, detailed hydraulic designs will need to be prepared. Design criteria will require mutual agreement to ensure full understanding of all aspects of the project, including the natural dynamics of the system.

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JUNCTION CITY WATER CONTROL DISTRICT

95282 Hwy 99 East
Junction City, Oregon 97448

JUNE 2019

(The following comments regarding the Willamette Valley System Operation and Maintenance Environmental Impact Statement are provided by Junction City Water Control District, Junction City, OR (jcwatercontrol@Yahoo.com).)

The Junction City Water Control District (hereinafter referred to as "JCWCD") is a special district located in Lane and Benton Counties, Oregon, created in 1962 pursuant to Oregon Revised Statutes Chapter 553 (Water Control Districts). The district was originally created in an effort to reclaim agricultural land from annual flooding and its Sub-District 1 constructed, and now maintains, a system of ditches intended to control ground water flooding of that land. Its Sub-District 2 was created six years later for the purpose of constructing and maintaining a system of ditches to move purchased stored water from Fern Ridge Reservoir to lands within Sub-District 2 (via the Long Tom River) for irrigation and other beneficial uses. Operation and maintenance of the Willamette Valley System (hereinafter referred to as the "System") has a direct impact on JCWCD and its constituents and two of the System's authorized uses, flood control and irrigation, are directly related to the agricultural success of the district's constituents.

FLOOD CONTROL

Prior to the establishment of JCWCD and the subsequent construction of a flood control ditch system, agricultural lands between the cities of Eugene and Monroe, Oregon, were annually inundated with flood waters for months on end. Those lands were rendered virtually useless for farming. In the late 1960's JCWCD borrowed and bonded nearly one million dollars for the construction of the current ditch system. The ditches allow for successful agriculture by draining off much of the ground water that would otherwise drown most crops. Changes to the System that would result in additional flooding of agricultural land within JCWCD would have a direct, negative, impact on all farming operations thereon.

IRRIGATION

Many of the agricultural operations on land within JCWCD maintain individual groundwater wells that are directly affected by river levels and stream flows. Any changes to the System must take into account subsequent effects on agricultural wells that are located along the entire length of the System.

In 1968, following construction of a diversion structure and an irrigation ditch system for Sub-District 2, JCWCD entered into a contract with the United States for the purchase of stored water (Fern Ridge Reservoir via the Long Tom River) for irrigation and other beneficial uses.

The original contract provided entitlement to JCWCD to irrigate 2,768.7 acres with stored water purchased from the U.S. Department of the Interior, Bureau of Reclamation. Thirty-seven properties currently receive that water and the contract has been amended over the years to now include 3,237 acres entitled to receive 8,067.5 acre-feet of stored water for irrigation purposes.

The current contract, with all amendments, has a term of 40 years and requires the United States to release water from Fern Ridge Reservoir each year to JCWCD during an irrigation season from March 1 to October 31 for irrigation of land served by JCWCD.

JCWCD objects to any changes to the System that would affect the ability of the United States to perform its obligations under the contract to provide stored water to JCWCD. Reducing the amount of stored water in Fern Ridge to a level incapable of annually providing 8,067.5 acre-feet of it to JCWCD would have a destructive affect on the farming operations within the district. Any changes to the System must account for negative affects that result on authorized uses of System. The authorized uses of flood control and irrigation are critical to JCWCD and its constituent farmers. Any curtailment of either authorized use will result in the district's thousands of acres being rendered useless for agriculture as they were prior to the 1960's.

June 24, 2019

Col. Aaron I. Dorf

U.S. Army Corps of Engineers District Commander'

Portland District

P.O. Box 2946

Portland, OR 97208-2946

Sent by email to: Willamette.eis@usace.army.mil.

Attn: CENWP-PME-E

Dear Col. Dorf,

The McKenzie Flyfishers respectfully submit these comments to the U.S. Army Corps of Engineers (Corps) regarding the scoping period for the Notice of Intent to Prepare an Environmental Impact Statement for the Willamette Valley Systems Operations and Maintenance.

We appreciate the opportunity to offer our ideas on how some aspects of the project should be managed and maintained. These considerations relate to recovery of the fisheries of the Willamette Basin and, in particular, the recovery of the threatened species listed under the Endangered Species Act (ESA). This policy development seems particularly appropriate as the Corps has re-initiated formal consultation of Section 7 of the ESA with the National Marine Fisheries Service (NMFS) which will result in a revised Willamette Basin Biological Opinion (BiOp) better defining the threats resulting from the current operations of the Willamette Project.

We start our evaluation with the recognition, supported by all knowledgeable experts both within and outside of the "action agencies involved in the management of the Willamette Valley fishery: There is a very strong likelihood that within the next ten years the populations of ESA threatened species could be extirpated. Reversing this threat, in the face of continuing decrease of these populations will require aggressive and intelligent actions. Accordingly, in your preparation of the EIS, the McKenzie Flyfishers, based in Eugene, Oregon recommends the following considerations:

1. **Uncertainties Surrounding Down-stream Passage for Juvenile Fish:** The programs currently being developed for fish passage down from high-head dams in the basin will all involve technological solutions for the problem of moving juvenile fish safely and

efficiently from rearing habitat to waters below the dam. From the various pilot studies to date, it seems clear that attributes of each system are somewhat unique in above dam rearing habitat, reservoir conditions, unique dam structure and probably other factors that will emerge, each requiring the development program to resolve site-specific issues. The uncertainties inherent in the effectiveness of each of these projects are reinforced by the varying results from other fish passage projects in the Pacific Northwest. (Kock, T.J., et.al., 2019) Given this situation, it is important that each project is carefully monitored and, as indicated, studies carried out to assure that the project is proven to contribute to the recovery of the local fishery.

2. **Variation in the Timing of Outmigration Among and Within Species:** A related issue is the necessity for each fish passage program to recognize that recent research has demonstrated that anadromous fish migrate at various times, both between species (i.e., salmon and steelhead) and within species for reasons that are not entirely understood. The reason to consider this factor is that most trap-and-haul operations have assumed that migration is a calendar-specific event so that there is only seasonal support; increasingly we are seeing data which challenge this assumption. (see Schroder, K., et.al, 2016) This is an issue that could favor volitional fish passage systems and the advantages and disadvantages of that approach should be carefully evaluated for each program.

3. **Program to Assure That Fish Passage Programs Support Above-dam Wild Fish Sanctuaries:** Most of the documentation regarding the fish passage programs do not specify procedures to assure that fish moved above formerly barrier dams are actually wild fish and consistent with their ESA-listed designations. In some cases, using the criteria of fin-clipped and unclipped might suffice, but with steelhead particularly this may not be sufficient, as various non-winter steelhead have been imported into the basin. The general point is that there is a presumption that the above-barrier spawning populations represent **a wild fish sanctuary**. To assure that this happens, an active program needs to be in place. Particularly helpful will be genomic characterization of the various populations of native and out-of-basin introduced populations to assure that we can discriminate between groups. Also helpful will be an expansion of the current parentage analysis program to each of the fish passage projects. The results of these studies will provide a much-improved idea of the efficiency of each programs and as well as improved estimates of the actual effective population size compared to relying on redds counts.

4. **Dealing with the Uncertainties of Climate Change:** To date, Corps documents relating to the Willamette Project have not shown estimates of the likely effects of climate

change or how this could impact the allocation of project water. Given the limited basis that we have for extrapolating local effects into the future, this is not surprising. However, we do know that it is occurring and can result in unexpected and rapid changes in local environments. The example of the effect of the climate change and the drying Western United States and the resulting forest fires seems to support this position. Given this, the management and maintenance of Willamette Basin Dams should have sufficiently flexible policies and procedures to deal with the unexpected and not be constrained by rigid parameters, such as fixed rule curves, which make needed accommodations difficult.

5. **Allocation of Resources (Water) Managed by the Willamette Project:** In a recently-drafted policy document (ACOE, Willamette Basin Review Feasibility Study, 2017) the Corps proposed allocation of water to stakeholders based upon fixed percentages of the entire pool of the project. It seems that this is not currently an issue as, according to the Corps, there is sufficient water to meet the requirements of each stakeholder. Going forward, as discussed in 4 above, this may not be the case. Anticipating this possibility, it is necessary that any management policy for the allocation of resources from the Willamette Project meets the obligations of the Corps to meet standards by NMFS in the forthcoming revised BiOp. Secondly, it needs to be recognized that, from a conservation perspective, the Willamette Basin is not a single pool of water, but a complex system of spawning and rearing sites for ESA Listed fish and other species, which vary in their ability to respond to increased stress. For this reason, changes in water management in the project must allow for considerations of these constraints on allocations inherent in the obligation of recovery of the basin fishery and, particularly, their obligations under the ESA.

Thank you for accepting these comments and we hope that they will be implemented and prove to have some value in guiding this very important project.

Sincerely,

David Thomas

Secretary,

McKenzie Flyfishers



25 June 2019

U.S. Army Corps of Engineers, Portland District
P.O. Box 2946, Portland, OR 97208-2946
willamette.eis@usace.army.mil

Attn: CENWP-PME-E

Subject: Operations and Maintenance of the Willamette Valley System (WVS) — scoping comments

Please accept the following scoping comments from Oregon Wild concerning the Operations and Maintenance of the Willamette Valley System (WVS) Project, <https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/>. Oregon Wild represents 20,000 members and supporters who share our mission to protect and restore Oregon's wildlands, wildlife, and water as an enduring legacy. Our goal is to protect areas that remain intact while striving to restore areas that have been degraded.

The Corps operates and maintains 13 multipurpose dams and reservoirs in the Willamette River Basin in Oregon, and hatchery programs. Since 1980, operations have been modified and structural improvements for fish passage and temperature control have been implemented to address effects of the WVS on ESA-listed fish. NEPA evaluations since the 1980 EIS have been project-specific. The Corps has re-initiated formal consultation under Section 7 of the ESA on the National Marine Fisheries Service's 2008 Biological Opinion for the Willamette River Basin Flood Control Project. This NEPA process will inform the ESA Section 7 consultation process.

The Willamette Valley Project was designed and constructed at a time before environmental concerns were well-integrated into our river and floodplain management systems. Through ESA consultation and other efforts, progress was made in adjusting Willamette Valley operations to harmonize with modern environmental values, but more can be done.

We are concerned that the [separate ongoing efforts to allocate stored water](#) in the Willamette system might limit restoration options under this planning effort. We urge the Corps to integrate these planning efforts and avoid making commitments in the Willamette Basin Review process that would limit options for conservation and restoration under this planning effort.

We hope the current planning effort can continue and expand past efforts to allow the rivers and floodplains and ecosystems to function more naturally. We urge the Corps to consider alternatives that will:

- Allow rivers to be more dynamic in terms of flow and floodplain interaction. Maybe revetments can be removed in some areas to allow the river to access its historic floodplain. Consider targeted land acquisition in the floodplain to facilitate avulsion and river dynamics.
- Remove weeds from river banks and gravel bars so that native plants can continue to play their role in river ecology. Upstream from Corvallis some nasty weeds such as Japanese knotweed, purple loostrife, and scots broom, are just getting a foothold. They could be much more easily addressed now than in 10 years.
- Expand efforts to conserve native species such as salmonids and river otters, as well as less charismatic species such as lamprey, mussels, turtles, salamanders, frogs, macroinvertebrates. There may be beneficial adjustments to system operations, or more targeted habitat restoration efforts, that would benefit these species.
- Favor native fish populations over hatchery fish.
- Plan for changes expected as a result of global climate change, such as less snowpack, higher and more frequent bank-full flows, lower summer stream flows. The reservoirs in the Willamette Basin can only do so much to mitigate for these effects. The Corps should consider working with managers of public and private land in the Willamette Basin to maintain and increase carbon storage in forests to help reduce the effects of climate change, and reduce land management activities that exacerbate peak flows and low flows. These activities include cumulative landscape coverage of clearcuts, roads, dense young plantations. See Jones, J.A., Grant G.E., "Peak flow response to clear-cutting and roads in small and large basins, western Cascades, Oregon," *Water Resources Research*, 32(4) 959-974, April 1996
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<http://onlinelibrary.wiley.com/doi/10.1002/eco.1790/full>.

Thank you for considering our comments.

Sincerely,



Doug Heiken
dh@oregonwild.org

**COMMENTS ON WILLAMETTE VALLEY SYSTEM (WVS) - ENVIRONMENTAL
IMPACT STATEMENT (EIS) - SCOPING**

COMMENT TYPE: Challenge – Keeping NEPA Current

On the Corps' web page, the Corps states, "Since 1980, operations have been modified and structural improvements for fish passage and temperature control have been implemented to address effects of the WVS on ESA-listed fish. NEPA¹ evaluations since the 1980 EIS have been project-specific. There is also new information relevant to the environmental impacts of operating the WVS."

I hope the Corps develops a strategy or plan so that changes to the operations, commitments & new listings under the ESA, addressing hazardous algae blooms (HAB) in many of the reservoirs that are also released downstream, etc., are vetted through the NEPA process and to the public before decisions are made and actions are taken, unlike what was done with the federal listing of fish under the ESA and changes in operations as a result of implementing the 2008 biological opinion (BiOp.)

If the Corps will take notice of Judge Simon's 2016 opinion and order on the Federal Columbia River Power System (FCRPS), Judge Simon noted, "... the ... decisions of the Corps and BOR adopting and implementing the 2014 BiOp triggered those agencies' obligation to comply with NEPA."

With the WVS, we have a similar situation. The Corps engaged with the Services (NMFS and USFWS) and agreed to implement a BiOp in 2008. The decision of the Corps to implement BiOp changed the operations of the WVS significantly different than that described in the 1980 EIS, and the public was due outreach from the Corps and analyses of effects as required by NEPA before implementing the BiOp. If the Corps looks at the Council of Environmental Quality (CEQ) implementing regulation 40 CFR §1500.1 (b), it states, "NEPA procedures must insure that environmental information is available to the public officials and citizens before decisions are made and actions are taken." In this case, we as the public did not get our tax money's worth from the Corps when the Corps significantly altered its operations without a NEPA analyses and outreach to public officials and citizens.

I hope in the future the Corps keeps in mind CEQ regulation 40 CFR §1502.9 (c), "Agencies (2) Shall prepare supplements to ... environmental impact statements if: (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."

¹ NEPA is the National Environmental Policy Act.

Certainly the federal listing of salmonids and Oregon chum qualified as significant new circumstances bearing on the proposed action, and the changes to the operation and the proposed construction facilities identified in the 2008 BiOp qualify as substantial changes in the proposed action.

Again, please develop a strategy so this is not repeated in the future for this complex system

COMMENT TYPE: Opportunity/Solution – Keeping NEPA Current

I suggest all levels of management of the Corps at Portland District get some NEPA training.

COMMENT TYPE: Challenge – Cooperating Agencies

I see nothing on the Corps' website about possible decisions from cooperating agencies. Are there no cooperating agencies on this EIS development? Not even the USDOJ Bureau of Reclamation (BOR) that has responsibility for the water behind the dam?

I suggest the Corps revisit this issue so as the taxpayers' don't have to review duplicate documents.

COMMENT TYPE: Opportunity – Costs of Operation and Mitigation

I hope the Corps lays out the cost of operating the WVS, including all the costs of mitigation for listed fish and the mitigation for the dams via fish propagation at the hatcheries. I think if we look at today's situation, the federal government might be operating a system that is no longer cost effective. Is there some other way to achieve flood control? If that could be resolved, we might be able to get rid of the WVS or portions of it, and its severely adverse effects to ESA-listed fish.

COMMENT TYPE: Challenge – Potential Violation of NEPA

While the Corps is developing this WVS EIS, it is also developing another NEPA document for another decision on the WVS. This project is called the Willamette Basin Review (WBR).

On the Corps' web page, <https://www.nwp.usace.army.mil/willamette/basin-review/>, the Corps and OWRD are developing feasibility study to determine if and how space in the reservoirs can be reallocated during the spring and summer to

provide stored water for municipal and industrial water supply, irrigation, and fish and wildlife uses.

I see this action as being premature and a waste of taxpayer money. We as the public, and likely the Corps as well, do not know the overall effects of operating and maintaining the system today. How can one understand this proposal in the WBS without understanding the overall effects of operating the WVS? Further, if the Corps looks at 40 CFR § 1506.1 (c) “While work on a required program environmental impact statement is in progress and the action is not covered by an existing program statement, agencies shall not undertake in the interim any major federal action covered by the program which may significantly affect the quality of the human environment unless such action:

- (1) Is justified independently of the program;
- (2) Is itself accompanied by an adequate environmental impact statement; and
- (3) Will not prejudice the ultimate decision on the program. Interim actions prejudices the program when it tends to determine subsequent development or limit alternatives.”

Without an adequate and current EIS and ROD for the WVS, pursuing allocation of reservoir storage/water would prejudice any possible alternatives and decisions on the WVS. Further allocation cannot occur without the WVS operation and maintenance, and therefore is not justified independently of the WVS program.

Finally the draft feasibility study/EA for the WBR does not address HAB, which would occur under the authorized use of stream purification. Wouldn't reallocation affect how the Corps can address HAB situations?

COMMENT TYPE: Opportunity – Potential Violation of NEPA

The Corps, in cooperation with OWRD and BOR could take this opportunity in the development of this EIS to also study allocation as part of the water management. This will save the Corps on another NEPA process, the Services on developing additional biological opinions, the public time and money in project reviews, and taxpayer money.

COMMENT TYPE: Opportunity – EIS Baseline

What is the baseline as the Corps is actively modifying it under the Willamette Basin Review? Per the following statements made by Ms. Joyce Casey in the April 20, 2018, Columbia Basin Bulletin. “ESA requires agencies to be aware of, and consider, new information and changing conditions as that agency

implements a Biological Opinion... Therefore, we believe that reinitiating consultation is an appropriate action. The Corps remains fully committed to implementing the current BiOps while reinitiation is underway." Regarding the Willamette Basin Review, the same Corps website also states, "The Recommended Plan no longer includes leaving some storage space in joint-use; i.e., the recommended plan is to reallocate all of the conservation storage. The recommended allocation volumes are: 159,750 acre-feet of conservation storage for municipal and industrial water supply, 327,650 acre-feet of conservation storage for agricultural irrigation, and 1,102,600 acre-feet of conservation storage for fish and wildlife." The Basin review would not be consistent with RPA measure 3 and possibly others by implementing this. Therefore, what is the baseline going into this EIS?

COMMENT Type: Challenge – Hazardous Algae Blooms (HABs)

I hope the Corps takes a hard look at this issue on the WVS. If subsequent analyses proves otherwise, we know these HAB thrive in warmer waters with increased nutrients. I suspect, for example at Detroit Lake, the nutrients are loaded into the lake from the increase in recreation use (summer boat use) and possibly the waste system of the cabins on the lake are contributing the nutrients needed for the HABs to grow in Detroit Lake. Therefore the impoundment leads to opportunities to provide the nutrients that help the HABs grow. Hopefully the

Further, I hope the Corps takes a hard look at the direct, indirect and cumulative effects of this issue, especially in light of climate change. It really is a bad situation when we can't recreate on the lakes due to the harmful fumes of these HABs, and when the municipal areas downstream that use the Willamette River as their water source need to rely on bottle water when the HABs are sent downstream. Essentially, two of the authorized uses are not met when this situation arises.

COMMENT TYPE: Opportunity – Look at Other Ways to Meet the Project Purpose

Council of Environmental Quality (CEQ) regulation 40 CFR § 1502.14 (c) tells agencies that they shall, "Include reasonable alternatives not within the jurisdiction of the lead agency."

I hope the Corps takes a hard look on how to meet the authorized project purposes without the use of the dams and their challenging effects on our precious wild listed fish. I hope to see such an alternative as the Corps is one of the best engineering organizations in the nation.

COMMENT TYPE: Error on Listed Authorized Use

The poster boards for the meeting show navigation as being an authorized purpose, but this is no longer the case according to the draft feasibility study/EA for the Willamette Basin Review. In this draft feasibility study/EA, the Corps states, "Navigation was an authorized purpose of the WVP, but due to a lack of commercial navigation traffic in the upper Willamette River, the WVP was de-authorized for navigation by the Water Resources Development Act of 1986. Reservoir discharges are no longer regulated for navigation above Willamette Falls Lock."

In addition to making this correction, I see the Corps is pursuing the EIS with all of the authorized project purposes. Will the project need be to meet these authorized purposes?

COMMENT TYPE: Issue/Concern – Sites with Hazardous Materials on the WVS

I understood when I worked for the Corps that there are many hazardous materials in the WVS from when the dams were constructed. It would be nice to know where these sites are and how the public is protected from them – either by direct contact or through inadvertent downstream release.

COMMENT TYPE: issue/Concern – Safety of Dams on the WVS

I hope the Corps shares what the safety ratings are for each of the dams, and what those ratings mean.

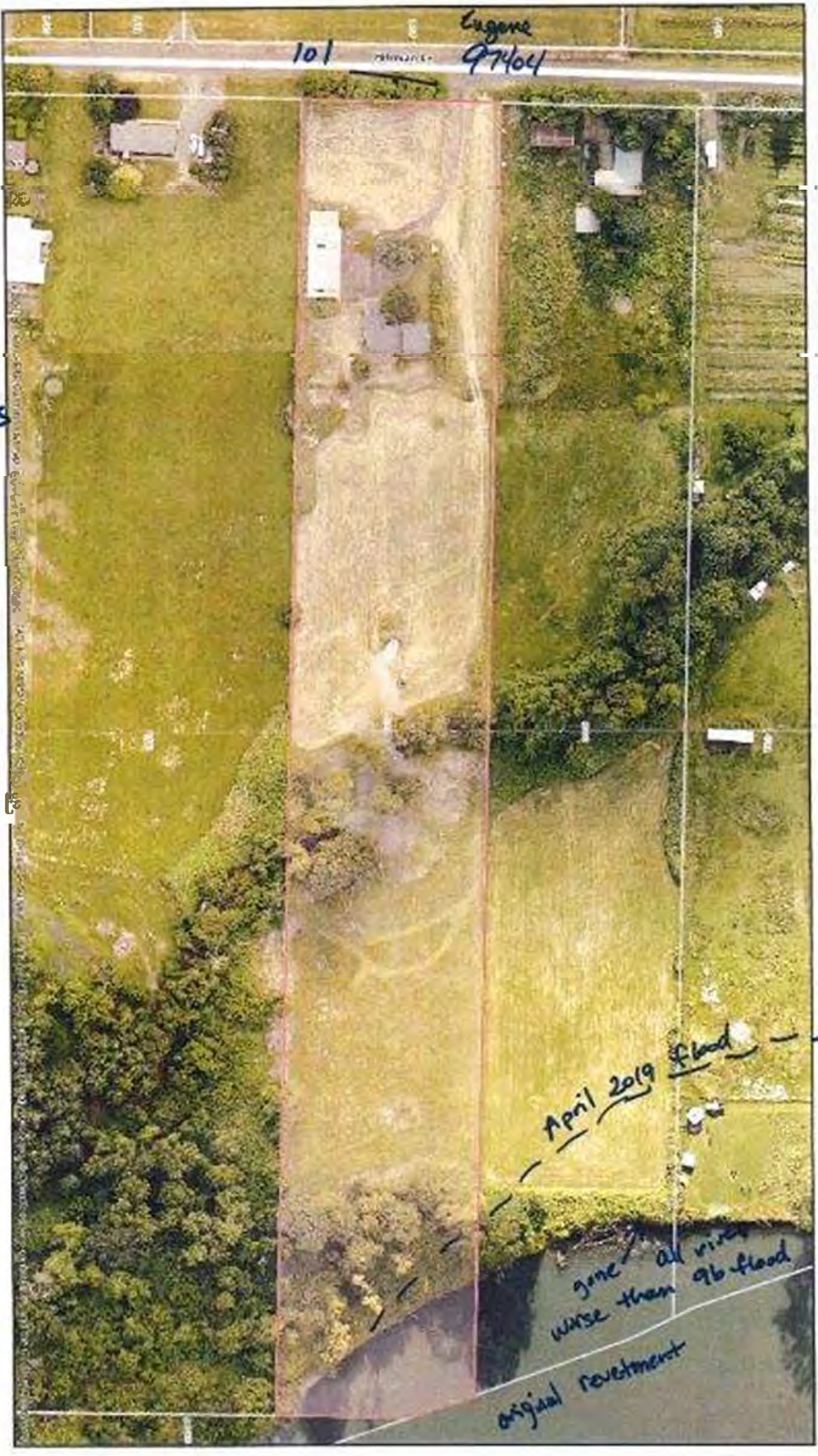
6/4/19 massive shoreline erosion & damaged revetment

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Bill
Land
968-
9766



1" = 100'



Lugene
97404

101

April 2019 flood

gone all river
worse than 96 flood
original revetment

DATE: June 21, 2019

TO: Suzanne Hill, EIS project manager, U.S. Army Corps of Engineer

REGARDING: The US Army Corps of Engineers request for comments in preparation of an Environmental Impact Statement, (EIS) on the Willamette River System.

FROM: Sam Sweeney – Family farmland owner, Willamette River Floodplains
1070 Ferry St.
Dayton, OR 97114

Dear Susan Hill,

Please accept and consider the following comments in the CORPs preparation for the Environmental Impact Statement, (EIS) for the “continued operations and maintenance of the Willamette Valley System”.

Our family owns and farms land in the Willamette River Floodplains in the Yamhill County near Lambert Bend, (RM 64) on the Willamette River. We have witnessed the floods of 1996 and 1997 destroy farmland through bank erosion and river capture. This year the flood in April caused scouring and the access road to the adjacent farmland was almost eroded away. It is evident, even to a casual observer that this area will experience even more severe and significant river capture effecting farmland up and downstream from this site during future flooding events.

In recent correspondence with Ed Weber, a retired employee of USDA NRCS and also Oregon Department of Agriculture (ODA); he said that damaging flooding events could be reduced by cooperation and the sharing of up to date collected data between federal agencies. Ed’s lifetime career was in natural resources and while at ODA, he did an erosion analysis of the Willamette River System and published his findings in a book called: “Willamette River Erosion Analysis Project”

While at NRCS, Ed gained extensive experience in gathering stored water accumulations from snowtel sites that were used to predict water runoff within the Willamette Basin. Ed said this program has been used since 1934 and has a high 90% + accuracy rate in predicting a current year’s water runoff.

Page two – CORP requested comments

From his correspondence, it is my understanding that the CORPS uses a management tool called the “Rule Curve” required by congressional law to manage the reservoirs and downstream releases. It would be an advantage if the law was amended to allow reliable use of local real time data that would assist the CORPS to “fine tune” management decisions regarding storage and downstream releases.

This would certainly help in situations where flows and flow conditions do not match long term averages. Having management flexibility will be even more important in the future since it is predicted that climate change will cause even more erratic fluctuations in weather patterns.

As mentioned before, our family is a landowner in the basin that is affected by damaging floods. Therefore, I strongly urge the CORPS in planning future “Continued Operations and Maintenance of the Willamette Valley System” to take the necessary steps to develop working relationships with other federal and state agencies that would result in the sharing of up to date information. I also encourage the CORPS to use the latest up to date technical tools that would result in better management of the water in the Willamette Basin. Using reliable current data and tools is absolutely critical in managing the water resources that the basin citizens depend on for their needs.

Sincerely,

Sam Sweeney

1070 Ferry St.

Dayton, OR 97114

sweeneyfarm@aol.com

fn: YS&WCD 2019-5-A

John Zielinski

Name (First, Last)

Marion County Farm Bureau

Organization

Salem OR

City, State

john@ezorchards.com

Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

Will the TMDL be a part of the EIS, if ag land has increased flooding it would stand to reason

that there would be increased mercury deposits.

With a changing climate the need for water is increasing. I would like to see

the Allocation for Ag to be higher than

the current 327.5^{MM} Aaft.

Bank erosion is an issue for many farmers with property bordering the Willamette

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

Doug Heiken
Name (First, Last)

Oregon Wild
Organization

Eugene, Oregon
City, State

dhe@oregonwild.org
Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

Remove restraints where possible. Let river dynamics happen.

Remove weeds on banks + gravel bars + islands, ^{manual removal and} maybe using high flows.

Does Dexter need ~~more~~ better upstream fish collection?

Enhance system for lamprey conservation/restoration.

Adjust system to conserve/restore freshwater ^{macroinvertebrates.} mussels + turtles.

Land acquisition in floodplain to allow ^{river otters, salamanders, frogs} avulsion, river migration.

Don't let water reallocation process limit options for conservation.

Favor native fish over hatchery fish.

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

KRISTIN, KESSLER
Name (First, Last)

Organization

EUGENE, OR
City, State

KRISTINKESSLER18@gmail.com
Email

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

I THINK THAT ENDANGERED SPECIES SHOULD TAKE PRECEDENT
OVER OTHER MISSIONS IN THE WWS. I THINK THAT
CREATIVE SOLUTIONS FOR ISSUES LIKE FLOOD CONTROL
SHOULD BE CONSIDERED FOR THE SAKE OF MAKING RADICAL
CHANGES TO THE SYSTEM THAT WILL SERVE ENDANGERED
SPECIES. SOLUTIONS LIKE RECONSTRUCTING FLOOD PLAIN SYSTEMS
THAT INCREASE FLOW AND SERVE OTHER ECOLOGICAL SYSTEMS
THE DELTA
SUCH AS ~~RAVENS~~ PONTS PROJECT IN EUGENE AND THE USE
OF NATIVE GRASSES FOR FLOOD MITIGATION. WITH GLOBAL
BIODIVERSITY DECREASING, THE WILLAMETTE VALLEY NEEDS
TO DO ITS PART TO PRESERVE ITS NATIVE SPECIES.

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

Richard D Brust, MD

Eugene Yacht Club

Name (First, Last)

Organization

772 W. Craven St

Thank you for Having the Public

Medford, Oregon, 97501

Have meetings

City, State

Email

It was very nice meeting & talking
to so many representative of the Corp.

Please check if you would like to receive
email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

My concerns & suggestions have to do with Fern Ridge Reservoir.
It would be nice if you can extend the use of FRR by altering
the guidelines for sailing & with drawdowns to extend the use
of Fern Ridge, a month or March & October.
My concern is that the Corp of Engineers are unaware of the
impact that FRR has on the Mental Health and Recreation
that Fern Ridge provides for the largest number of people, it
being the only Reservoir close to a major population center.
Fern Ridge provides the best Sailing Venue in Oregon and
possibly the West Coast for Major small boat National
Regattas including Thistles, Santana 20, kido 14, Day sailers,
Stripes and others. As the growth of Sailing, canoeing,
kayaking, Paddleboards, fishing, bird watching grow, the
Ability to access Fern Ridge waters provides a greater
Health, and well being for the greatest number of people.
One half of Fern Ridge water is in the Top 3 1/2'. By adjusting
this 3-3 1/2' still provides access to the water for an
extended use of this major facility.

Thus I would suggest you consider the
potential of extending the season's usability
by modifying the guidelines and allowing
for more human input and judgment.

Respectfully / Richard D Brust

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

Scoping comments for Willamette System Environmental Impact Statement

Att: Suzanne Hill and to whom it may concern,

June 28, 2019

It is well established that major changes need to take place in order for us to restore the Willamette Valley fisheries to their original population levels. The greatest barrier to our fish populations is the existing dams in the Willamette Valley. To be clear, I am NOT recommending the removal of any existing dam.

First some observations:

1. Variation in Dams: The taller the dam, the greater challenge due to the basic laws of physics. More specifically, the taller the dam, the greater pressure changes fish experience as we force them into human constructed devices attempting to move them downstream. And from your experiments, (this has been thoroughly tested) the variety of transporting devices result in low survival rates.

The location of the dam relative to the overall watershed impacts fish migration and influences big-picture outcomes as we move forward with mitigation. For example, choosing a dam location for a successful mitigation device or campaign will have a greater overall affect when positioned furthest from the ocean versus a dam located closer to the ocean. By choosing a dam site furthest upstream, we will provide more opportunities for fish to exploit other nearby habitat, e.g. small streams and slack water areas, thereby increasing overall density and diversity in the population.

2. Temperature: The immediate response of fish returning to the base of Cougar reservoir was phenomenal. This response is clearly an unquestionable correlation/causation event regarding the temperature selection facility installed on the dam. We need to capitalize on this relationship to restore fish populations. However, the cost was over priced due the overbuilt design and unnecessary features. I talked to the owner of the construction company who did the remodel. He suggested focusing on shorter dams and simply using prefabricated siphon tubes that could be trucked onto the sites in two or three pieces and bolted together to lay over the inclined spillway to reduce costs.

(More on this topic in the discussion below...)

3. Early historical fish introduction: Salmon fingerlings were introduced into Cottage Grove and Dorena reservoirs back in the 1980's. Regardless of the high mortality rate caused by the existing primitive outlets on the dams, salmon survived and continued to return to the base of these dams for several years causing 'Shoulder-to-Shoulder' fishing along the base of these reservoirs. Salmon continued to return into the early 90's but slowly dwindled due to lack of upstream passage (and other negative river qualities such as temperature, etc.) I've had countless conversations with local individuals who remember these events. Fact: The planted fish returned.

4. Recent fish introductions: Five or six years ago (?) salmon fingerlings were released in a variety of locations near the vicinity of Dorena and Cottage Grove

dams. This time, the response was different as the fish were released below the reservoirs in areas not near the dams to prevent fish from congregating at the base of dams. Initial fishing reported catching large native (unclipped) Steelhead in large quantities in a variety of different areas. One such (unclipped) fish was presented to a local meeting of the Coast Fork Watershed group. The Steelhead occurrence was explained by their feeding on the recently released fingerlings. This outcome was not surprising and clearly shows if we have proper habitat conditions, fish populations (some more than others?) will prosper.

5. Listing of historical costs(?): In the vicinity of \$10 million has been spent over the last two decades on the renovation of the gravel ponds near Valley River Center in Eugene, Oregon. Another \$3 million (?) spent on a side canal of the Willamette River for fish habitat improvement and replenishing an aquifer for Springfield's drinking water wells. The final cost of the temperature selection valve on Cougar Reservoir was astronomical (~\$30 million+?). The research costs of trying to determine the survival rate of downstream passage from Detroit Dam is still ongoing(?). Lots of additional examples exist.

Proposal:

Short term:

1. Expand temperature control on smaller dams in the upper reaches of Willamette River watershed. For example, temperature data and ongoing monitoring already exist for Dorena reservoir. At this location, temperature impairment has been identified to occur during specific short time periods where the needed outflow for flood management is relatively low (~ 100 cfs) and therefore, could be handled or corrected by a small-scale siphon device.

This would be a keystone game-changing event. Correcting the temperature of a dam's outflow would synchronize the flora/fauna cycle to match the life cycle of the native fisheries. It's no mystery that ODFW salmon traps catches very few salmon when placed at the confluence of the Coast Fork of the Willamette and Row River. The extreme temperature fluctuation that exists in this area, causes premature fish egg development followed by lack of insect and other food sources due to abnormal stream temperatures.

I would like to think that I'm 'preaching to choir'. You know the results of temperature management by the fish response at Cougar Reservoir. (Note: watch the episode on 'Oregon Fieldguide' titled "Hot Fish, Cold Fish" and look at the state employees' faces as they describe the fish response,)

<https://www.opb.org/television/programs/ofg/segment/hot-fish-cold-fish/>

All future funding should be dedicated to correcting water temperature outflow from all dams starting with the most upstream locations. Appropriate sized siphons need to be constructed avoiding the design flaws/extra costs that occurred at Cougar Reservoir. For example, paying for a costly (stainless steel) valve design that allows for any depth of water selection when you are only going to select from a few know depth locations is completely unnecessary. This will

substantially lower your construction costs. Since you will only need this during specific times of the year that are not during the typical winter/spring high flood management events, the siphons can be smaller and will not impede Corp's control of water at critical times.

Also, if these devices are prefabricated and transported to the dam site lowered into place, you will avoid the cost of clearing out the drain at the bottom of each dam (approximately \$19 million for Cougar reservoir?) and the subsequent washing down toxic sediments as you drain the reservoir to build a separate temperature selection unit/tower. This is what occurred at the Cougar dam site. Hmm...Have I left anything out...? Perhaps there are more cost saving that could implemented?

Note: There would be a 'domino-affect' when a dam's outflow temperatures begin to approach optimal conditions for fish habitat. Nearby streams would not be overshadowed by the dam's incorrect temperature regime. For example, Mosby Creek which is located downstream of Dorena dam is masked by the larger volume of colder water being released from Dorena during the summer months. As we know, fish will not enter a stream when temperatures are not within a specific temperature range. We know this by observing fish at the mouth of the Willamette and our experience of the outflow of Cougar Reservoir prior to the installation of the temperature selection gates.

This is just one example, what about all the other side creeks downstream of all the dams? This leads us to the next suggestion.

2. Pay landowners to improve riparian habit. First step is offer seminars on proper land management for fish habitat. Pay for their attendance. Second step offer additional financial incentives to allow riparian habitat to naturally reestablish. Next level of incentives is to pay those landowners for additional efforts to enhance riparian habitat, e.g. tree planting, etc. This could be monitored by drones and/or satellite mapping, etc. Before and after pictures could be used to verify/quantify habitat improvements and subsequent payments to landowners. Offer recognition awards to those owner who go the extra mile, etc. Cost is probably less that \$150,000 and well worth it.

3. Fund science educational field trips at local schools and follow up with examples of other school programs that have demonstrated success with improving fish habitat. Provide schools with fish aquariums to raise and release fish in local streams.

Long term:

1. Create an endowment for property acquisition that is funded by placing a 1% surcharge on all habitat enhancements regardless of the funding source. This fund is for the sole purpose of purchasing streamside property from all sources; timber companies, land owners, municipalities. It is not to be used by watershed groups. This is about non-partisan land procurement facilitating future

generations toward habitat protection. Its focus should be on the headwaters of all major tributaries in the Willamette Valley Basin.

2. Coordinate with ODFW to study the impact of algae blooms by radioactive isotope tagging of fertilizer used by timber growers to track nutrient flow into reservoirs. This will take us to the next level of water quality as the fish populations return.
3. Stop the flow of mercury into Dorena and Cottage Grove reservoirs by limiting logging in areas of high mercury concentration within the soil substrate. This will allow more individuals to enjoy our natural fisheries without the concern of mercury poisoning. Also, this will allow Oregon DEQ to uphold its promise to Native Oregonians that mercury concentrations will be reduced allowing native cultures to consume a traditional higher fish diet. (Note: last major flood event from Dorena shows DEQ's annual mercury estimate transporting through the Dorena dam actually occurs in 36 hours. I have other data sets showing the same results.)
4. Coordinate with NOAA to track salmon migrating to the ocean to determine 'what, where, when, and why' about their ocean habitat. What are the food sources of Salmon while in the ocean? If they rely on young herring, it's not going to be pretty. (Will their food source go away like the sardine?) Permitted catch of herring in southeast Alaska has gone from 220,000 metric tons to less than 1000 metric tons over the past two decades. This year they closed the season because insufficient numbers. So, we could do everything just perfect and the salmon will die in the ocean due to lack of food or what?

Summary:

We all wait for a fish passage solution for the 13 dams located in the Willamette River Basin. For now, we need to take a step in the direction of rebuilding the entire river basin habitat to protect fish populations before they disappear completely. By not addressing the temperature impairment of our rivers, our waterways contain a limited number of acceptable habitats and, at the same time, contain a high density of predators at those few locations. (Think Valley River ponds in Eugene, Oregon). Even if we developed a fish passage device that achieves a 45% survival rate, would this be enough to sustain our fish populations? Could they survive their developmental stages with limited access to quality habitat? My position is they would not survive.

The clock is ticking. The longer USACE procrastinates on improving fish habitat and fish passage, the harder it becomes to stop our salmon's downward spiral toward extinction. Get on with it!

John Steele
Former chair of the Row River Watershed Group
34882 Spillway Rd
Cottage Grove, Or 97424
nonstopchange@gmail.com

Addendum to John Steele's comments for the Willamette System Environmental
Impact Statement.
June 28, 2019

Att: Suzanne Hill and to whom it may concern,

If it's possible, I would like to submit an additional page/statement to my original document that was submitted earlier today. If this causes complications or is not permissible, then I would request that this addendum be omitted and my original 4 page document stand as my submitted comment.

Additional observation:

6. There's an elephant in the room. There seems to be a credibility issue with the USACE regarding meeting environmental standards when it comes to fish passage. For example, how can a \$24 million hydroelectric plant be built in the Willamette River Basin and not include any fish passage? I'm referring to the Dorena Hydroelectric project.

Initially, it was described as ~\$9.3 million project on paper and ends up costing around \$24 million with no fish passage. All through the initial stages the builder complained about how the project could not afford the cost of adding fish passage of any kind. Meanwhile, they had not legally acquired any contractual agreement with any profit or non-profit electrical company to purchase the produced power. So, they ended up spending \$870,000 to bury a 6.5 mile underground power line to sell the power to Pacific Power.

During construction, the USACE agrees to enter a 'working agreement' with the builder/owner to always "work-out" any conflict through negotiations? Did the owner/builder abuse this working agreement? Was the relationship with the builder/owner more important than a working agreement with the people who live and work around Dorena Reservoir?

The list of questions goes on and on regarding the Dorena Hydroelectric project. How could this hydroelectric project be built without any fish passage?

Once again you're asking for comments regarding fish habitat, who are you going to listen to now...?

John Steele
Former chair of the Row River Watershed Group
34882 Spillway Rd
Cottage Grove, Or 97424
nonstopchange@gmail.com

Name (First, Last)

Organization

City, State

Email

04/19

Please check if you would like to receive email notifications about this project.

Comment(s). Please use this space to provide comment(s) to the Corps.

Started in 1967

River Rd Water Control Sub District

5 on elected board

9 reworkments no funding for repairs/replacement

John Bryce, ^{board} president

Bryan @ harpers farm

30747 Loma Pine Drive
St. City

- any data for history of reworkments

- historic survey 1890

list of affected reworkments - damage & shoreline erosion

Harbor 2R 1964

Harbor extension 1935 completed 1958

1961 Jx City

1961 km² reworkment

1973 km² extension

1963 Marshall Island

1960 Kelso (big thing we upstream at time)

1974 Lassen

1955 Location of downstream extension

Notes taken by Wendy Jones, Natural Resource Manager, USACE

PUBLIC COMMENT PERIOD CLOSING DATE: JUNE 28, 2019

Online Public Comment Portal Comments

Comment Name	Location for Comment	Organization	created_date	Comment Type	Description (1000 Character Limit)
Detroit Dam Reservoir - Water Levels	Detroit		5/21/19 16:59	challenge	The solution to algae blooms and warm water behind the Detroit dam is rather simple. Allow the dam to hold back water so the reservoir fills. Today the Army Corps allows to much water during the winter and spring months to spill out of the dam. If there is more cold water algae blooms will either not happen or will be much less than they are today. I remember fishing at the reservoir in the 1960's and 1970's when the reservoir was full and algae blooms were a periodic small nuisance. If the water is cold algae is less active, if there is a full reservoir the dilution of an algae bloom is greater. The rules that require the Corps to dump water need to be changed to support human health, fiscal responsibility and store more water behind the Detroit dam. The proposed project costs too much money and will in the end result in more damage to the regional environment.
Fern Ridge Recreation	97448, Junction City, Oregon	Eugene Yacht Club	6/5/19 21:15	opportunity	I only wish to ask the USACE, as it undergoes the EIS process, to not undervalue or underestimate the recreational opportunities at projects such as Fern Ridge which are close to the growing population bases in the Willamette Valley. This probably amounts to several hundred million dollars. Recreational access also needs to be adequate to the types of needs and to be safe.
Below Reservoir Recreational Flows	97448, Junction City, Oregon		6/14/19 3:05	opportunity	Below Fern Ridge Reservoir there is a small drop structure at Kirk Park. For over a decade the feature that this structure creates (when the flows in the Long Tom river are just right) has been a local resource for whitewater paddlers to surf. It's a great spot for beginners, safe, reliable, predictable and the access is easy via the park. Unfortunately, the range of flows where this feature is usable is narrow (900-1500 cfs). These flows only occur during the fall draw-down at fern ridge. They are also highly unpredictable on how long it will be "in," and usable. I would like the corps to consider this established downstream recreation opportunity when planning the flow curves for the Long Tom during draw down. Ideally, the duration of the ideal flow range would be maximized over the course of the draw-down to create the most boatable days at this spot. Additionally, I'd like the corps to consider some scheduled "release days" during the summer for whitewater paddlers to be able to plan for recreational releases. Even one weekend a summer would be a great boon to the local paddling community. Kayaking is a more accessible recreation activity in terms of cost than lake boating and some predictability of flows and consideration of paddlers could create additional opportunities to expand the user group locally. See attachment on next page.

Attachment from Comment Name "Below Reservoir Recreational Flows"



Attachment from Comment Name "Below Reservoir Recreational Flows"



Attachment from Comment Name "Below Reservoir Recreational Flows"



Online Public Comment Portal Comments

Additional Features for Whitewater Paddlers	97448, Junction City, Oregon	1982	6/14/19 3:13	opportunity	I'd like the Corps to consider the addition of recreation amenities for whitewater paddlers that would include the construction of additional features in the Long Tom channel that would accommodate use at a wider range of flows. The current structure that incidentally supports use as a whitewater feature is only usable during a narrow range of flows (900-1500 cfs). While it's understood that this is not the intended function of this structure, it's value as a local resource is significant among the paddling community. There is an opportunity for the Corps to consider constructing additional structures that would be usable at both lower, and higher flows. The presence of additional features here would make the site usable for paddlers more than a handful of days a year during draw down, and create opportunities for use at winter's higher flows, as well as lower flows. While I'm unsure of national examples of USACE projects to create these kinds of in-water amenities for paddlers, there are numerous examples of these kinds of projects being done in USACE partnership.
Adjust Draw Down Flow For Whitewater Paddling	97424, Cottage Grove, Oregon	1982	6/14/19 3:18	opportunity	During the fall draw down, the corps should consider a flow curve in the lower Row that supports ideal flows for whitewater paddling. The lower Row is an exceptional local resource for beginner to intermediate paddlers and is often many local paddler's first Class III whitewater. A predictable flow schedule within safe boatable ranges would be ideal build some certainty into the opportunities available for local paddlers. Additionally, one or two planned summer releases for local paddlers would be a huge value to the local community and add to the summer recreation opportunities available that support the local economy.
Optimize Botable Flows at Fall Draw Down	Big Fall Creek Rd, Fall Creek, Oregon, 97438		6/14/19 3:21	opportunity	During the fall draw down, the corps should consider a flow curve in the lower Fall Creek that supports ideal flows for whitewater paddling. Lower Fall Creek is a great beginner run and usually has a pretty short window of boatable flows during the fall draw down. A flow curve that optimizes fall draw down flows for whitewater recreation would be ideal for local paddlers.
Improve Boater Access to Middle Santiam	97329, Cascadia, Oregon		6/14/19 3:26	challenge	Access to the Middle Santiam below Green Peter reservoir has been complicated by inconsistent feedback from local law enforcement and a lack of clear signage/amenities on how boaters can legally and safely access this stretch of river. The Middle Santiam between Green Peter and Foster is an exceptional summer resource during power generating releases and one of the few consistent intermediate/advanced whitewater opportunities during the summer in the Willamette valley. Improved or clarified access would improve use.
Fall Draw Down Schedule for Whitewater Kayaking	97329, Cascadia, Oregon	1982	6/14/19 3:28	opportunity	Scheduling a fall draw down in such a way to optimize flows for whitewater paddling, or at least communicating the draw down schedule and plan, will support the ability of local paddlers to be aware of and plan for access to this local resource.

Online Public Comment Portal Comments

Improve Recreational Access to Lower Long Tom	97333, Corvallis, Oregon	1982	6/14/19 3:30	opportunity	Improved access to the lower Long Tom river will improve recreational opportunities for upstream communities and clarify/formalize access points to this local resource for canoeing, paddle boarding, fishing, etc.
Optimize Draw Down Flows for Whitewater Recreation	97413, Blue River, Oregon	1982	6/14/19 3:33	opportunity	Optimization and scheduling (and improved awareness) of fall draw down to support whitewater paddlers on the lower river would support access and use of this resource for intermediate paddlers.
Review USACE Revetments on Amazon Creek	Eugene, Oregon	Long Tom Watershed Council	6/14/19 3:43	resource	Habitat value of Amazon creek diversions and opportunities for resource enhancement (if any) through a more naturalized channel should be evaluated
Boater Accesses	97329, Cascadia, Oregon		6/14/19 4:05	other	This runs only safe access point puts you fairly close to the dam. Ive heard other boaters having the cops called on them by employees at the facility. It would be nice if boaters could have a designated access point.
More Ideal Flows	35235 Row River Rd, Cottage Grove, Oregon, 97424		6/14/19 4:10	other	Would be cool if draw downs took boat-able flows into consideration.
Whitewater draw down of Dorena Lake	97424, Cottage Grove, Oregon	University of Oregon	6/14/19 16:33	opportunity	Please consider improving whitewater flows during the fall draw down of Dorena Lake. The lower Row provides excellent whitewater opportunities to recreational boaters in the Willamette Valley. Summer whitewater releases would also benefit the paddling community and the economy in the surrounding communities.
Fern Ridge Outflow Recreation	97448, Junction City, Oregon	University of Oregon	6/14/19 16:38	opportunity	There is a small whitewater feature below the Fern Ridge Dam that is usable in the narrow range from 900-1500 CFS. This is a great & safe spot for beginners to advanced boaters. Please consider adjusting fall draw down schedules to increase whitewater paddling opportunities. Additional scheduled recreational releases, especially during summer months, would also be very beneficial.
Eugene/Springfield whitewater feature	Alton Baker Park	University of Oregon	6/14/19 16:46	opportunity	Please consider developing a whitewater feature either along the Willamette River in the Eugene/Springfield area, or along the canoe channel that runs through Alton Baker Park. Similar parks have proved beneficial to the local economies of towns across the nation. The whitewater parks in Bend and other locations have contributed to thriving whitewater and river surfing communities, and have more broadly contributed to the attractiveness of these towns as places to live and work. Further, increased recreational activities in the parks area will increase the safety of all parks users by increasing the number of park users, thereby reducing the vulnerability of individuals using the park alone.

Online Public Comment Portal Comments

Public Hazard	Western, Eugene, Oregon	Willamette Kayak and Canoe club	6/14/19 21:06	challenge	For many years, rip Rap and historic weirs have blocked passage and flow just upstream of the current I-5 freeway bridge over the Willamette. This man made debris creates a navigation and recreational hazard for river users at a popular section of the river in the Eugene/Springfield area. Many rescues have been required over the years by individuals and the sheriffs Marine Patrol. It is also a ecological disruption interrupting the natural flow of the river. Cost of remediation and mitigation would be inexpensive since it involves removal rather than installation of man-made material. This hazard is blatant, dangerous and conspicuous in regards to current management practices. Someone will die here if nothing is done.
Jesse Nicola	97342, Detroit, Oregon		6/19/19 7:05	opportunity	Please consider summertime weekend releases in late July through August for the North Santiam. Other rivers become low during this time, and having additional water in the Santiam would help provide for whitewater recreation and bring more people to that area as well providing economic opportunity.
Green Peter to Foster Lake access	97329, Cascadia, Oregon		6/21/19 16:03	challenge	I would urge the Corps to take steps to improve access to the short, 2-mile stretch of whitewater between Green Peter Dam and Foster Lake. This stretch of river is high-quality, class IV whitewater that is good for intermediate paddlers. The current problem is two-fold: (1) the local sheriff has prevented some kayakers from accessing the river, and (2) the access to the put-in is difficult. I would urge the Corps to communicate to the local sheriff that this activity is permitted. Second, I would urge the Corps to allow kayakers to park closer to the put-in, and provide a small stairway down to the water so that we don't have to climb over railing to reach the river.
Bank erosion	97026, Gervais, Oregon	Marion County Farm Bureau	6/21/19 23:00	challenge	In the past there were sloped banks on this section of the Willamette, when water levels were high the water would rise up the slope and then flood out onto the plain. Now there is bank erosion that puts more sediment in the river, erodes the bank taking farm land, and can potentially change the course of the river.
Junction City Water Control District	97448, Junction City, Oregon	Junction City Water Control District	6/24/19 18:14	resource	Agricultural Issues with River Levels and Stream Flows (stored water/irrigation)
floodplain and side channel habitats	97333, Corvallis, Oregon		6/27/19 17:07	resource	The Corps should look for opportunities to increase the frequency and duration of inundation of floodplains and side channels to provide refugia and foraging habitat for native fish, including ESA listed species. Initially flows could be prescribed to inundate low elevation floodplains that have the least impact to private property. In the longer term the Corps should work with the greater conservation community to identify locations where additional inundation would proved fish and wildlife benefits and consider voluntary property acquisitions working with non-profit and state partners.

Online Public Comment Portal Comments

Winter flows	97448, Junction City, Oregon		6/28/19 0:33	resource	Manage winter/early spring releases to increase river-floodplain connectivity. Increase inundation frequency and duration of floodplain habitats that provide more productive, lower velocity habitats for juvenile native fish. Increasing winter/early spring flows would also address natural river processes that increase sediment mobility, river corridor disturbance to restore riparian vegetation and geomorphic processes.
Habitat restoration and land acquisition fund	97448, Junction City, Oregon		6/28/19 0:39	opportunity	Establish a funding program to support habitat conservation, land trust support for purchasing conservation properties, and replacing river training infrastructure that limits river-floodplain connectivity. Conservation organizations have purchased and restored properties throughout the mainstem Willamette River. As the valley develops, habitat will continue to be converted for agriculture and residential/commercial/municipal development. River corridor should be prioritized for purchase. Existing developed properties in key locations could be restored to enhance habitat and reduce flood risk to other properties.
Revetment replacement cost share program	97448, Junction City, Oregon		6/28/19 0:48	opportunity	Develop a cost share program to repair and replace stone revetments on the Willamette River and tributaries. As revetments age and fail, landowners are likely to rebuild revetments with stone. Repairs offer an opportunity to enhance river channel, bank, and upland habitats with bioengineering. Providing a cost share program would improve habitat conditions and river corridor functions. The program could also support revetment modifications to increase river-floodplain connectivity. Examples include removing/replacing undersized drainage culverts, removing relict revetments, and reconnecting blocked side channels and other floodplain habitats.
Cougar Dam - Run of River Operation	NF-1993, Blue River, Oregon, 97413		6/28/19 0:55	resource	Develop upstream fish passage strategy and operate Cougar Dam as a run-of-river reservoir to promote downstream passage of juvenile salmonids. Investigate similar opportunities for Blue River and other facilities.

Online Public Comment Portal Comments

<p>Fish Passage in the Middle Fork Willamette</p>	<p>97431, Dexter, Oregon</p>	<p>Middle Fork Willamette Watershed Council</p>	<p>6/28/19 21:03</p>	<p>resource</p>	<p>Fish passage in the Middle Fork Willamette Watershed remains the primary obstacle for endangered fish species recovery, as well as the sustainability of other aquatic species. Successes at Fall Creek with the new fish collection facility for upstream transport, as well as the drawdown for downstream fish passage, show that this issue can be addressed with ingenuity and even nontraditional approaches. The MFWWC and partners have been investing significant resources in restoring floodplain habitats in the Upper Middle Fork Willamette Watershed (e.g., Staley Creek, Coal Creek, Indigo Springs, etc). Upper Willamette River spring Chinook salmon are listed as threatened under the Endangered Species Act, and the Middle Fork population is considered a core genetic legacy population (Upper Willamette Chinook and Steelhead Recovery Plan (ODFW, NMFS 2011)) in the basin. Historically 20% of the Willamette Basin’s spring Chinook run returned to the Upper Middle Fork Willamette River (approximately 2,500 fish) (Upper Middle Fork Willamette Watershed Action Plan 2009). With our partners, we are observing near-immediate positive responses from our river restoration efforts in terms of fish response once habitats are created. We believe that if fish passage is addressed throughout the Middle Fork Willamette Watershed, significant gains can be made not only for listed species recovery, but for the prevention of listing of other species such as Pacific lamprey in the future. Upstream and downstream passage at Hills Creek, Lookout Point, and Dexter will be critical for sustaining successful populations of spring Chinook, steelhead, Pacific lamprey, and bull trout.</p>
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Online Public Comment Portal Comments

Rule Curve / Flow Release Timing	97431, Dexter, Oregon	Middle Fork Willamette Watershed Council	6/28/19 21:06	resource	<p>Flows in the Middle Fork Willamette or are severely departed from historic conditions in order to meet congressionally approved rule curves. The rule curve scenarios are dated and pose not only a risk to aquatic ecosystem health and recover, but also may pose a risk to human populations. The effects of climate change and future precipitation scenarios should be considered for flood risk mitigation as well as effects on fish species life stages and the creation and maintenance of dynamic aquatic habitats. Floodplain restoration downstream of ACOE dams is very difficult to address within the current rule curve operational framework. In functioning ecosystems floodplain habitats are created and maintained through natural disturbance processes such as flooding, sediment mobilization and transport, landslides, etc. In the absence of these natural processes, floodplain features often become stabilized, disconnected, vegetated and no longer serve their ecological function. Functioning floodplains are important for both endangered species recovery and protection of downstream communities located within the built environment. We recognize the functions the dams provide in terms of flood-risk management to Oregon residents and communities, but believe there are more tolerances and innovative approaches to dam release and timing that would be specifically targeted to bolster floodplain restoration, creation, and function, especially within the Middle Fork Willamette. The existing body of data from USGS, ODFW, and others could assist in the re-evaluation of the existing rule curve and flow release timing, such as: Wallick, J.R., Bach, L.B., Keith, M.K., Olson, M., Mangano, J.F., and Jones, K.L., 2018, Monitoring framework for evaluating hydrogeomorphic and vegetation responses to environmental flows in the Middle Fork Willamette, McKenzie, and Santiam River Basins, Oregon: U.S. Geological Survey Open-File Report 2018–1157, 66 p.,</p>
Revetments/Levees	97431, Dexter, Oregon	Middle Fork Willamette Watershed Council	6/28/19 21:08	resource	<p>Existing revetments/levees in the Middle Fork Willamette prevent access to, and function of, floodplain habitats. We encourage the ACOE to consider working with partners and land managers to consider if some of these revetments could be decommissioned & deauthorized in areas where there is no risk to life, significant infrastructure, or private property. Additionally, we suggest a streamlined 408 process. In some cases, decommissioning levees could result in a positive benefit for both endangered species through habitat creation and downstream communities through flood-risk mitigation.</p>
Restoration	97431, Dexter, Oregon	Middle Fork Willamette Watershed Council	6/28/19 21:10	opportunity	<p>The MFWWC is grateful to ACOE partners who are actively working with us to jointly plan and implement habitat restoration projects in the Middle Fork Willamette Watershed that benefit both species and communities. We hope that this partnership will continue in the future.</p>

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Temperature	97431, Dexter, Oregon	Middle Fork Willamette Watershed Council	6/28/19 21:12	challenge	Temperature downstream of large dams in the Middle Fork Willamette remains a challenge for migration timing, as well as pre- and post-spawning mortality of ESA-listed species. We encourage the ACOE to continue to consider innovations around flow releases and timing to attempt to mimic historic temperature conditions as much as is practically possible. Other management strategies (floodplain restoration, revetment/levee removal, and flow release timing) may also address temperature issues.
General - Middle Fork Willamette	97492, Westfir, Oregon	Middle Fork Willamette Watershed Council	6/28/19 21:13	opportunity	Many state, federal, and private partners are working diligently to restore habitats and function in the Middle Fork Willamette Watershed. Without the participation and partnership of the ACOE, many of these projects can't and won't achieve their full potential. We recognize the often times conflicting purposes that the ACOE has to manage for within the Willamette Project, yet we encourage the ACOE to continue to actively work with us on these issues so that we may all achieve our goals.