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August 5, 2014

Ms. Hannah F. Hadley
U.S. Army Corps of Engineers
CENWS-EN-ER
P.O. Box 3755
Seattle, Washington 98124-3755

Re: U.S. Environmental Protection Agency comments on the U.S. Army Corps Seattle District Skagit River Flood Risk Management General Investigation Draft Feasibility Report and Environmental Impact Statement. EPA Project Number: 97-066-COE.

Dear Ms. Hadley:

We have reviewed the Corps' Skagit River Flood Risk Management General Investigation Draft Feasibility Report and Environmental Impact Statement (draft FR/EIS). Our review was conducted in accordance with the EPA's responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Our review of the draft FR/EIS considers the expected environmental impacts of the proposed action and the adequacy of the EIS in meeting the procedural and public disclosure requirements of NEPA.

Project Summary
The draft FR/EIS documents the process of developing potential solutions to reduce flood risk in the Skagit Basin, including: evaluation of flood risk in the Skagit River Basin; formulation, evaluation, and screening of potential solutions to these problems; and the recommendation of a plan to address flood risk in the Basin. The draft FR/EIS also includes an environmental consequences analysis of the final array of alternatives.

The purpose of the federal action is to reduce flood risks, life safety threats, and damages in the Skagit River Basin as a result of flooding. The action is needed because the Skagit River Basin experiences frequent flooding resulting in damages to both rural and urban areas throughout the basin.

More than 20 management measures - including, construction of new levees, modification of existing levees, construction of bypasses, flood proofing of existing structures, and education and outreach – were assembled into several preliminary alternatives. Alternatives in the preliminary array were then developed into the following final array of alternatives:

- No Action Alternative
- Comprehensive Urban Levee Improvement (CULI) Alternative – Tentatively Selected Plan/ Preferred Alternative
- Joe Leary Slough Bypass Wide Confined Channel
- Swinomish Bypass Wide Confined Channel

EPA Review and Rating

In our review of the draft FR/EIS, we have identified serious environmental impacts that we believe should be avoided in order to adequately protect the environment. All of the action alternatives, including the Tentatively Selected Plan/Preferred Alternative, have the potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives. The Preferred Alternative - as proposed in the draft FR/EIS - has the potential for significant environmental degradation because new levees, additional armoring on the slopes of levees, and ongoing replacement of riprap and vegetation management in the riparian zone would further degrade water quality and habitat in the already channelized and altered lower Skagit River.

Further degradation is significant because, according to the draft FR/EIS, the Skagit River produces the greatest abundance of salmonids and the greatest number of salmonid stocks in Puget Sound. The Skagit is also the only river system in Washington that supports all six species of Pacific salmon (including Endangered Species Act-listed Puget Sound Chinook salmon and Puget Sound steelhead), and sea-run cutthroat. The Skagit River and its tributaries also host the largest population of ESA-listed Puget Sound bull trout and the most abundant wild Chinook salmon populations. Approximately 30 percent of the total Puget Sound Chinook originate in the Skagit Basin. These are significant ecological resources and adding to the historic loss of channel habitat - which has been identified as one of the most significant limiting factors in the recovery of Skagit Chinook - is an outcome that should be avoided by project modification or other feasible alternatives.

We believe that implementation of the proposed action would set a precedent for future actions with the potential for significant adverse effects by locking in existing channelization pressures on riparian and aquatic habitat for at least another 50 years. It also represents a lost opportunity to take restorative actions at a time when numerous federal, state, local, and tribal entities have undertaken substantial commitments to protect and restore environmental resources in Puget Sound.

Our review has also identified a need for additional information, data, analyses, or discussion which could reduce the environmental impacts of the proposal and should be included in the final FR/EIS. Our primary interest in such additional information relates to potential impacts to fish in Baker Lake and Lake Shannon, and fisheries information that may lead to a new or modified alternative and/or additional mitigation.

Based on these concerns, we are rating the draft FR/EIS Environmental Objections – Insufficient Information (EO-2). Please refer to the attached comments for a more detailed discussion. A copy of our rating system is enclosed.

Thank you for this opportunity to comment. We look forward to working with you to address our concerns and recommendations. We recognize the challenges presented by this project and continue to believe that your efforts are key to improving and sustaining long-term system integrity for the Skagit River Basin.

If you have any questions regarding the EPA's comments, please contact me at (206) 553-2581 or by electronic mail at allnutt.david@epa.gov, or Erik Peterson, the lead reviewer for this project. Erik can be reached at (206) 553-6382 or peterson.erik@epa.gov.

Sincerely,

R. David Allnutt, Director
Office of Ecosystems, Tribal, and Public Affairs

Enclosures:

1. Detailed EPA comments on the Skagit River Flood Risk Management General Investigation Draft Feasibility Report and Environmental Impact Statement

2. EPA Rating System for Draft Environmental Impact Statements

DETAILED EPA COMMENTS ON THE SKAGIT RIVER FLOOD RISK MANAGEMENT GENERAL INVESTIGATION DRAFT FEASIBILITY REPORT AND ENVIRONMENTAL IMPACT STATEMENT

Achieving a net environmental benefit

Consistency with federal responsibilities

Because we believe major federal actions on the Skagit River should achieve net environmental benefits - especially for floodplain function and salmon - we are concerned that the draft FR/EIS's Preferred Alternative has the potential to cause significant environmental degradation by exacerbating adverse pressures on environmental resources. We also are concerned that the Preferred Alternative would represent a lost opportunity by committing flood risk management investments in a way that sets a precedent for future actions that collectively could result in significant environmental impacts.

Achieving a net environmental benefit from this project - through alternative design and/or additional mitigation - would be consistent with the Corps' and other federal agencies' responsibilities to implement the Puget Sound Action Agenda. In particular, achieving a net environmental benefit would be consistent with the Puget Sound Partnership and Tribal Habitat Strategic Initiatives and the actions identified in Strategies A5, "Protect and Restore Floodplain Function" and A6, "Protect and Recover Salmon."

Working toward achieving a net environmental benefit would also be consistent with commitments expressed by the Puget Sound Federal Caucus to address the concerns raised in the Western Washington Treaty tribes' "Treaty Rights at Risk" paper, which outlined threats to salmon habitat and other important treaty-protected resources. In this capacity, member federal agencies, including the EPA and the Corps, have agreed to work together to explore ways in which our regulations and resources can be aligned to promote recovery of resources important to treaty tribes. Any opportunity to restore natural processes in the Skagit watershed would be consistent with this broader federal effort.

We also believe working toward a net environmental benefit would be consistent with the Council on Environmental Quality's March 2013 final Principles and Requirements for Federal Investments in Water Resources.[1] The Guiding Principle "Healthy and Resilient Ecosystems" states:

> Federal investments in water resources should protect and restore the functions of ecosystems and mitigate any unavoidable damage to these natural systems....In order to protect ecosystems, alternative plans should first seek to avoid any adverse environmental impact, and when that is not possible, alternatives should minimize environmental impacts. When damage to the environment is unavoidable, mitigation for adverse effects should be provided as required by law. Restoration of ecosystems can enhance the health and resilience of the natural environment and should be part of alternative plans, where feasible and appropriate."[2]

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[1] The 2013 Principles and Requirements supersede the 1983 version that the Corps cited in the draft FR/EIS and will become effective 180 days after final issuance of related Interagency Guidelines, which has not yet occurred. In the meantime, the 2013 Principles and Requirements state that "agencies are encouraged to begin implementing the concepts laid out in these modernized Principles and Requirements consistent with law." We strongly encourage the Corps to do so. See http://www.whitehouse.gov/sites/default/files/final_principles_and_requirements_march_2013.pdf at pp. 1, 14.

[2] *Id.* at p. 4.

We believe that restoration - or, a net environmental benefit - is both feasible and appropriate for this project because significant ecological resources are present and reasonable opportunities for project modifications (through alternatives and/or mitigation) exist.

Our primary environmental concerns and related recommendations are detailed below. The recommendations specify the environmental resources, such as off-channel habitat, that we believe should experience a net benefit as a result of this project.

Water quality

With regard to water quality, given the designated use for cold water aquatic life, we are concerned that the removal of trees on revetments and placement of rock along the river would increase temperatures through decreased shade and the effect of thermal retention and light reflection from the rocks. The increase in water temperature may locally reduce dissolved oxygen levels in the water.[3]

In addition to directly and indirectly increasing temperature and reducing dissolved oxygen, the Preferred Alternative represents a lost opportunity to protect water quality because it would maintain and increase channelization of the river, exacerbate sedimentation concerns, and perpetuate diminished riparian habitat for at least the next 50 years. Such outcomes increase the likelihood of future temperature and dissolved oxygen problems.[4]

Recommendation

We recommend that the final FR/EIS include project modifications and/or mitigation that would increase shade and decrease dissolved oxygen and sedimentation concerns.

Riparian Habitat

We appreciate the draft FR/EIS's clear impact statement about the Preferred Alternative, "Effects to riparian habitat would be exacerbated with this alternative."[5] Exacerbating effects to riparian habitat in the project area represents significant environmental degradation because the riparian zone downstream of Sedro-Wooley is fragmented and provides inadequate protection of habitats and refugia for sensitive aquatic species such as salmon. The Preferred Alternative represents a lost opportunity and sets a precedent for ongoing adverse impacts, because levee maintenance, such as vegetation removal, would maintain the existing condition of an improperly functioning riparian corridor.

Recommendation

We recommend that the final FR/EIS include project modifications and/or mitigation that would result in a net improvement for shade, fine and large woody material and nutrient inputs, organic and inorganic debris accumulations, and improved terrestrial insect and riparian-associated wildlife habitat.

Aquatic habitat

We are concerned about even minimal impacts to Large Woody Debris (LWD) and off-channel habitat and tidal channels. Impacts to LWD are a concern because of the importance of LWD in creating and maintaining habitat complexity, and because, at present, LWD is limited in the Skagit River system. Similarly, off-channel habitat provides critical rearing and refuge functions in the floodplain and has

[3] Draft FR/EIS, p. 95.
[4] Draft FR/EIS, p. 95.
[5] Draft FR/EIS, p. 108.

been substantially reduced by diking. Impacts are of even greater concern when climate change is taken into account, as the draft FR/EIS usefully discusses.

> Cumulative impacts to off-channel habitat would derive from increases in channel depth and associated inundation combined with the extensive diking of the Skagit River that has already led to the loss of much of this habitat in the system, particularly through the urban corridor. Climate change could exacerbate these impacts by way of more frequent and intense flood events, greater storm surge, and sea level rise, thereby increasing depths and frequencies of inundation of any remaining off-channel habitat.[6]

Recommendation
We recommend that the final FR/EIS include project modifications and/or mitigation that would result in a net improvement for off-channel habitat and tidal channels. We also recommend that the final FR/EIS include project modifications and/or mitigation that would result in net improvements for LWD. We note our preference for restoring LWD to the system through the restoration of natural processes, as compared to installing logjams which require long-term monitoring and maintenance.

Wildlife and fish
We believe that the Preferred Alternative's exacerbation of adverse pressures on fish from diking, agricultural activities, dams, insufficient riparian vegetation and large woody debris recruitment, and developed floodplains would represent significant environmental degradation. The U.S. Fish and Wildlife's 2001 Fish and Wildlife Coordination Act letter - usefully included in Appendix D of the draft FR/EIS - confirms our concern, "Because the lower river has been so severely channelized and altered, any further degradation to fish habitat would be inconsistent with salmon recovery."

In the short term, we are concerned about added pressure from this project's proposal to remove riparian vegetation from a system where it is already insufficient. In the long term, we are concerned and agree with the EIS's assessment, that adding armoring to the slopes of levees will perpetuate poor conditions in the urban corridor, limiting refuge habitat for fish and making them more vulnerable to predation.[7] Also, we are concerned that additional water in the system under the preferred alternative may result in a reduction of off-channel and shallower littoral habitat - which is currently limited and provides important rearing habitat.

In addition to concerns about impacts to fish in the lower river, we have concerns about impacts to fish - especially sockeye salmon - that could result from Baker Dam operational modifications. We agree that holding reservoir pools at a reduced level for flood storage will affect fish communities in Lake Shannon and Baker Lake. Decreasing the volume of the euphotic zone has the potential to reduce fish populations, as the volume of water with sunlight sufficient for photosynthesis is critical to the productivity of aquatic systems. Spatial and temporal changes to the littoral drawdown zone, the area between reservoir water level before drawdown and after pool drawdown, also has the potential to reduce fish populations by reducing the amount of spawning substrate, dewatering redds that may have been established before drawdown, decreasing the amount of external debris input into the reservoir, and preventing access to Baker Lake delta tributaries at an important time for migrating adult sockeye. Impacts to natural spawners are of concern because of their unique ecological function to the overall

[6] Draft FR/EIS, p. 115.
[7] Draft FR/EIS, p. 128.

sockeye rebuilding effort. Despite changes to the euphotic and littoral zones, the draft FR/EIS concludes that "...overall impacts to fish would be minor due to several mitigating factors."[8]

We are concerned that the draft FR/EIS does not contain sufficient information to support the conclusion that overall impacts to fish in Baker Lake and Lake Shannon would be minor. First, the statement that there will be no change in the start date of October 1st for drawdown at Upper Baker does not provide a basis to conclude that peak spawning would be minimally affected. The start date issue does not address concerns about lower water levels between October 15 (the proposed flood storage requirement), and November 15 (the current flood storage requirement). Of particular interest is impacts to Sockeye migration and spawning. Second, we are concerned that the draft FR/EIS has insufficient information on the sockeye carrying capacity of Baker Lake and Lake Shannon (which is only qualitatively discussed) under the alternatives. Sufficient consideration of impacts to fish in Baker Lake and Shannon Lake is especially important because the related sockeye fishery is a critical tribal resource.

Recommendation
To address our concern about impacts to fish from the Baker Dam Operational Modifications management measure, we recommend that the final FR/EIS include additional information on impacts to fish from earlier overall drawdown at Baker Lake, and, additional information on the sockeye carrying capacity of Baker Lake and Lake Shannon under the alternatives.

Tribal consultation
Special attention should be paid to environmental impacts on resources held in trust or treaty resources. To disclose your efforts, we believe that discussing in the EIS how your consultation process has addressed the conceptual phases identified in the document, "EPA Policy on Consultation and Coordination with Indian Tribes" would be generally consistent with Executive Order 13175 and full disclosure under the NEPA, and, in line with the spirit of the President's executive memorandum of September 22, 2004. The phases are identification, notification, input, and, follow-up.[9]

Natural process alternative
Consistency with federal responsibilities
The draft FR/EIS's inclusion of a Levee Setback Alternative in the preliminary array of alternatives was partially responsive to our September 9, 2011 scoping letter recommendation for full consideration of an alternative that would maximize opportunities to restore natural processes. That alternative had, for example, potential to improve floodplain connectivity, riparian vegetation and wetland development. Elimination of the Levee Setback Alternative from the final array of action alternatives, however, is unresponsive to our recommendation because the draft FR/EIS, as a result, does not fully consider a natural process alternative.

Our scoping comments noted our strong support for actions that restore natural processes and specifically recommended that the Corps fully consider a natural process alternative in the EIS because we believe that full consideration of such an alternative would be consistent with the Corps' responsibilities to implement the Puget Sound Action Agenda, which the EPA has approved as the Comprehensive Conservation and Management Plan for Puget Sound under the Federal Clean Water Act.

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[8] Draft FR/EIS, p. 131.
[9] See page 4 at: http://www.epa.gov/indian/pdf/cons-and-coord-with-indian-tribes-policy.pdf

We reiterate our belief that full consideration of a natural process alternative would be consistent with the Department of the Army's Planning Guidance Notebook, which states "It is national policy that ecosystem restoration, particularly that which results in the conservation of fish and wildlife resources, be given equal consideration with other study purposes in the formulation and evaluation of alternative plans."[10]

We also note our belief that full consideration of a natural process alternative would be consistent with the Council on Environmental Quality's March 2013 final Principles and Requirements for Federal Investments in Water Resources. The final Principles and Requirements section "Evaluation Framework" requires that Federal investments be evaluated using an ecosystem services approach in order to capture all effects (economic, environmental and social) associated with a potential Federal water resources investment, and to ensure that potential Federal investments in water resources are justified by public benefits. In addition, CEQ specifically recognizes that ecosystem services and effects relevant to a water resources evaluation include aquatic and riparian habitat as well as maintenance of biodiversity. CEQ further states that, "A narrow focus on monetized or monetizable effects is no longer reflective of our national needs, and from this point forward, both quantified and unquantified information will form the basis for evaluating and comparing potential Federal investments in water resources to the Federal Objective."[11] In light of CEQ's updated perspective, we are concerned that the draft FR/EIS's final array of alternatives may not include an alternative that would achieve public benefits.

The inclusion of a natural process alternative in the final FR/EIS would be consistent with CEQ's final Principles and Requirements because we believe it could be designed in a way that would achieve overall public benefits as described in the 2013 Principles and Requirements - as opposed to achieving a net benefit relative to the superseded the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies dated March 10, 1983. A natural process alternative would perform better if it achieved flood risk benefits as well as net benefits for water quality, aquatic and riparian habitat and the maintenance of biodiversity.

Recommendation
To address our concern that the draft FR/EIS does not fully consider a natural process alternative, we recommend that the final FR/EIS include a modified alternative with both flood risk and ecosystem benefits. Consider the following modifications.

- Variable levee setbacks, especially in locations with potential for both flood management and ecosystem benefits.
- Rebuilding or retrofitting the BNSF railroad bridge. The BNSF railroad bridge creates a flow bottleneck that promotes upstream flooding and may limit the effectiveness of downstream levee setbacks.

Clean Water Act Section 404(b)(1) Guidelines
Alternatives analysis
We believe that alternative designs, and project configurations should be investigated and developed to further reduce impacts to the aquatic environment and ecological processes from our Clean Water Act Section 404 oversight role. To thoroughly demonstrate compliance with the 404(b)(1) Guidelines at 40

[10] Department of the Army Regulation 1105-2-100, p. C-12.
[11] See http://www.whitehouse.gov/sites/default/files/final_principles_and_requirements_march_2013.pdf at p. 6.

CFR Part 230.10(a) a thorough analysis of all practicable alternatives is needed to achieve the basic purpose and ensure selection of the least environmentally damaging and practicable alternative.

Recommendation
To address our concern about alternatives from a Clean Water Act Section 404 oversight perspective, we recommend that the final FR/EIS, including Appendix D, address other scenarios or project configurations that could further reduce impacts to the aquatic environment and ecological processes. Consider, as recommended in the natural process alternative section above, a more thorough examination of alternative scenarios that reduce the extent of disconnection of the Skagit River from its floodplain - such as variable levee setbacks.

Impact analysis
Impacts that need to be more fully characterized under the 404(b)(1) analysis for the preferred project alternative include: addressing the total direct footprint of fill material placed in wetlands, the Skagit River below the ordinary high water mark, and any/all work in streams and sloughs (culverts, tide gates, bridge crossings, etc); and addressing the indirect, secondary, and cumulative impacts associated with further fragmenting or disconnecting the Skagit River from its floodplain. Then, it will be important to take a hard look at project design element refinements to further reduce impacts caused from disconnecting the Skagit River from its floodplain, wetlands, streams, and sloughs.

Compensatory mitigation
The 404(b)(1) Guidelines at 40 CFR Part 230.10(d) further require adequate compensatory mitigation for all demonstrated unavoidable impacts to aquatic resources. The draft FR/EIS gives a generic list of some of the things that could be done as compensatory mitigation, but does not link the types and kinds of compensatory mitigation that could offset specific impacts to aquatic resources. For unavoidable impacts, compensatory mitigation should be consistent with the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.[12]

The EIS should include a discussion of all mitigation options, including on-site mitigation. For unavoidable losses to aquatic resources, compensatory mitigation should be implemented in advance of the impacts to avoid temporal habitat losses. To the extent possible, the following information from a Clean Water Act Section 404 related draft mitigation plan should be included in the EIS:

- A description of the resource type and amount that will be provided, the method of compensation, and the manner in which the resource functions of the compensatory mitigation project will address the needs of the ecoregion, physiographic province, or other geographic area of interest.[13]
- A description of the factors considered during the compensatory mitigation project site selection process.[14]
- A description of ecological performance standards that will be used to assess whether the project is achieving its objectives.[15]
- A description of parameters to be monitored in order to determine if the compensatory mitigation project is on track to meet performance standards and if adaptive management is needed.[16]

[12] 33 CFR 325 and 332, and 40 CFR 230.
[13] 40 CFR 230.94 (c)(2).
[14] 40 CFR 230.94 (c)(3).
[15] 40 CFR 230.95.
[16] 40 CFR 230.94 (c)(10).

- Descriptions of the long-term management plan, adaptive management plan, and financial assurances.[17]

Impacts to proposed restoration sites

We appreciate the draft FR/EIS statement that the preferred alternative "...would not impact or compromise any of the completed or proposed restoration sites in the Basin."[18] We are concerned, however, that no supporting information is provided. To support this claim, we recommend that the final FR/EIS include additional information - such as a list and/or map, or cross-reference - which identifies completed or proposed restoration sites in the Basin that could be impacted or compromised. We believe these would include completed or proposed restoration sites which are located in the lower Skagit River basin, in nearby tributaries and sloughs.

Climate change

We appreciate your effort to account for climate change impacts in the draft FR/EIS. For example, we appreciate that you conducted a sensitivity analysis to consider the effects of climate change even though the Corps has not established a procedure for addressing potential hydrologic changes caused by future climate change.[19] While we appreciate the effort to account for climate change impacts, we believe the analysis can be improved for the final FR/EIS.

First, we are concerned that climate change impacts such as higher flood discharges could substantially reduce the effectiveness of the project's flood risk management measures. The existing reservoir and levee system provides the lower river basin with flood risk reduction only up to the 4% annual chance of exceedance (ACE) level, or, as a return-interval, the 25 year flood level. This level of flood risk protection is, according to the draft FR/EIS, unacceptable for the residential, commercial, and industrial infrastructure of the cities of Burlington and Mount Vernon and is a threat to life safety.[20] Our concern is that management measures designed to the 1% ACE, due to potential climate change impacts such as increases in flood discharges, may only achieve a 4% ACE.[21] Failing to achieve estimated benefits due to climate impacts is of concern because the project would serve only to maintain what is currently viewed as an unacceptable amount of flood risk protection.

Recommendation

The final FR/EIS should provide additional information describing how, under climate change, the Preferred Alternative meets the project's basic purpose and need.

Our second climate change related concern is that the draft FR/EIS Benefit-Cost Analysis does not include results which are informed by climate change sensitivity analysis. According to Appendix C's Benefit-Cost Analysis, "The .4% ACE CULI Alternative scale provided the greatest contributions to National Economic Development (NED) as it maximizes net benefits (annual benefits less annual costs) at $9.2 million and results in the greatest benefit-cost ratio of 1.9."[22] We are concerned that this benefit-cost ratio would be lower if climate change sensitivity were taken into account. The benefit-cost ratio(s) would be lower given climate change because the costs remain the same, but the benefits - reduced flood

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[17] 40 CFR 230.94 (c)(11-13).
[18] Draft FR/EIS, p. 100.
[19] Draft FR/EIS, Appendix C, p. 67.
[20] Draft FR/EIS, p. 10.
[21] Draft FR/EIS, p. 76.
[22] Draft FR/EIS, Appendix C Economics, p. 66.

risk - are diminished by increasing flood discharges. The draft FR/EIS qualitatively addresses this issue of diminished performance due to climate change related flood discharge increases,[23] but we believe additional information is warranted.

Recommendation
The final FR/EIS should include additional information addressing how the .4% ACE CULI - or other alternative(s) - would perform given climate change sensitivity. Based on information in the draft FR/EIS it appears that costs would remain the same or similar but the likely benefits would decrease.

Mitigation
Achieve a net environmental benefit
We emphasize our belief that the net result of this project plus mitigation should be a benefit for environmental resources in the Skagit Basin. As described above, achieving a net benefit is appropriate to consider for this project because of the Corps' commitment, along with that of other federal agencies, to protecting significant ecological resources which are covered by the Puget Sound Action Agenda and of interest to Western Washington Treaty Tribes.

Our primary interest is to achieve a net environmental benefit for water quality and riparian and aquatic habitat. Based on the impacts disclosed in the draft FR/EIS, benefits should be apparent for: riparian shade; fine and large woody material and nutrient inputs; organic and inorganic debris accumulations; and terrestrial insect and riparian-associated wildlife habitat. The project plus mitigation should also result in a net improvement for off-channel habitat and tidal channels.

Restore natural processes
We also emphasize our perspective that restoring natural processes should be a key goal of any mitigation planning. Natural process type mitigation, such as setting back levees or constructing side channels, is preferred because it has a higher likelihood of providing long-term benefits. The difference between installing habitat features and the restoration of natural processes, and the importance of focusing on processes is well articulated in the Skagit Watershed Council's 2010 *Strategic Approach*[24] and numerous academic articles such as Beechie et al's 2010 BioScience article *Process-based Principles for Restoring River Ecosystems* and 2013 River Research and Applications article *Restoring Salmon Habitat for a Changing Climate.*

The *Strategic Approach* is an excellent source for Guiding Principles that should be applied to any mitigation planning on this project. Target Areas and Priority Objectives such as, "Reconnecting isolated floodplain areas and restoring mainstem edge habitat by removing relocating, or improving hydromodifications and floodplain structure or road that restrict natural floodplain and fan functions",[25] should inform mitigation planning.

Work collaboratively to develop an approved model

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[23] "If we design for the .4% ACE scale, the urban areas would most likely still benefit from a 1% ACE protection over the 50-year project life and the benefits associated with the proposed Federal action would still be largely realized." Draft FR/EIS, Appendix C Economics, p. 67.
[24] http://www.skagitwatershed.org/uploads/council_docs/pdf/SWC_Strategic_Approach_2010.pdf.
[25] See http://www.skagitwatershed.org/uploads/council_docs/pdf/SWC_Strategic_Approach_2010.pdf at p. 7.

We also note your intention to use "an approved model" to further develop mitigation.[26] We are concerned that the draft FR/EIS does not describe the process for approving such a model. We suggest that approval depends on input from federal and state resource agencies, interested tribes and stakeholders.

Address CEQ's key mitigation concepts

We reiterate our support for following CEQ's January 14, 2011 guidance on the Appropriate Use of Mitigation and Monitoring.[27] This guidance addresses establishing, implementing, and monitoring mitigation commitments made during the NEPA process. Broadly speaking, the mitigation information in the final FR/EIS should clearly address the following key concepts from the CEQ guidance:

- Ensuring that mitigation commitments are implemented;
- Monitoring the effectiveness of mitigation commitments;
- Remedying failed mitigation; and
- Involving the public in mitigation planning.

Consider giving special attention to Section II's information on "Monitoring Mitigation Implementation" and "Monitoring the Effectiveness of Mitigation." Inclusion of implementation monitoring information in the EIS, such as identification of responsible parties, mitigation requirements, and enforcement clauses will help to ensure that those commitments are carried through permits or other agreements.

Flood inundation maps

Flood inundation maps, such as Figures 6-1 and 6-2 from the draft FR/EIS's Appendix B, should be created for all of the project's alternatives and included in the final FR/EIS. To the extent possible, we believe climate change predictions should be incorporated into the predicted flood inundation maps.

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[26] Draft FR/EIS, p. 200.

[27] CEQ, *Memorandum for Heads of Federal Departments and Agencies,* Subject: Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact, January 14, 2011, http://ceq.hss.doe.gov/current_developments/docs/Mitigation_and_Monitoring_Guidance_14Jan2011.pdf.

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections
The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns
EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections
EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory
EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.