US Dept. of the Interior LETTERHEAD LETTER dated OCT 10, 2000

FROM: US Fish and Wildlife Service
Western Washington Office
510 Desmond Drive SE, Suite 102
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TO: Colonel Ralph H. Graves, District Engineer
Corps of Engineers, Seattle District
P.O. Box 3755
Seattle, Washington 98124-2255

Reference: Planning Aid Letter; Skagit River Flood Feasibility Study

Dear Colonel Graves:

This planning aid letter responds to a request by Michael Scuderi, of your staff, to provide comments on the Skagit River Flood Feasibility Study. We understand that a hydrological model has been completed and will be used to determine the effect of various flood control measures on flooding. As this "what if' analysis is to begin soon or has already begun, we provide the following comments to advise you of our interests.

In 1997, our Fish and Wildlife Coordination Act Planning Aid Report described the preferred project alternative as ring dikes around the urban areas accompanied by a series of overflow weirs. Since 1997, stakeholders have increased the array of measures that might be incorporated into a preferred alternative, including setback levees; sea dike outlets; overtopping levees; increasing flood storage, bypass channels, widening bottlenecks, and non-structural measures such as softening banks, improving bank vegetation, land use controls, flood warnings, buyouts, and flood proofing. Many of these measures, which would have potential benefits or adverse impacts to fish and wildlife, were not mentioned in our 1997 report because they had not yet been discussed. Some were not included when this project was scoped. The purpose of this letter is to provide feedback on the measures discussed recently and the planning process. We also will reiterate the points made in our last Planning Aid Report.

We are pleased that the Corps is approaching the feasibility study with the multiple objectives of minimizing flood damages and improving salmonid habitat in the Skagit River valley. We understand that the local sponsor, Skagit County, is also interested in developing a flood strategy that meets multiple objectives for flood reduction and habitat restoration.

Natural processes that create and sustain habitat in the aquatic system are often damaged by flood control projects. These processes include a natural range of variability of flows, channel meandering and flood plain storage, large woody debris recruitment, and sediment routing and transport. Such processes are important to retain or restore because native aquatic species have adapted to them and cannot thrive when they are damaged. We urge the Corps to evaluate and

prioritize alternatives, mitigation, and restoration opportunities from a process-based approach that determines whether a proposal will further degrade, maintain, or enhance natural riverine processes. We believe this approach is more likely to result in a preferred alternative that can meet the multiple objectives of reduction of flood damage and restores habitat conditions for fish and wildlife.

To this purpose, we recommend that the Corps work closely with the Skagit System Cooperative. With the Skagit Watershed Council, the Cooperative has developed a habitat restoration and protection strategy that prioritizes restoration projects based on natural processes that create and maintain habitat (Skagit Watershed Council 1998). We recommend that the Corps ensure that flood hazard reduction alternatives be consistent with the restoration strategy and that they do not further degrade natural riverine processes or preclude restoration in the future.

Skagit River Fish and Wildlife Resources

The Skagit River supports all five species of Pacific salmon, including chinook (listed as threatened under the Endangered Species Act [Act]), coho (a candidate species under the Act), pink, chum, and sockeye. In addition, steelhead trout, cutthroat trout, white sturgeon, Dolly Varden char and bull trout (a char listed as threatened under the Act), are also found in the Skagit River, the largest in Puget Sound. Although hatcheries augment some chinook, coho and steelhead stocks, all of these fishes reproduce naturally in the Skagit River (U.S. Army Corps 1997). Historically, the Skagit River supported the largest natural chinook run and currently supports the largest natural population of bull trout/Dolly Varden in Puget Sound (WDFW 1993, WDFW 1998b).

Most spawning by anadromous fishes occurs upstream of Sedro Woolley (USFWS 1997) in the mid to upper reaches of the watershed. The lower Skagit River is important for migration and for juvenile rearing for salmon. Adult salmonids use the estuaries for staging and physiological transition. Juveniles use the estuaries for foraging, physiological transition, and refugia (USFWS 1 998b).

In addition to fishery resources, the Skagit basin is rich in wildlife habitat. While much of the lower Skagit basin has been altered for human use, many areas support blacktail deer, beaver, mink, muskrat, river otter, red fox, and other mammals. The marshes and sloughs of the delta and open agricultural fields provide valuable habitat for migratory waterfowl, including trumpeter and tundra swans, Canada and snow goose, merganser, great blue heron, and dipper. Raptors, such as peregrine falcon, red tailed hawk, northern harrier, kestrel, osprey, and great horned and barn owls may be found in the lower Skagit. Bald eagles (listed as threatened under the Act and proposed for delisting) winter and nest along the lower Skagit River, feeding on spawned out salmon carcasses (USFWS 1997).

Impacts Due to Human Development:

The value of habitat for fish and wildlife in the lower Skagit basin has been degraded through changes in land use and flood control. Most of the lower Skagit valley has been converted from natural conditions to agriculture, residential, and urban development. Flood or erosion control has resulted in over 70 miles of levees, 39 miles of sea dikes, and water storage behind dams in the upper watershed. In the river delta, sea dikes isolate 45,000 acres of land from saltwater influence, resulting in the loss of estuarine habitat and saltwater mixing in dendritic channels and sloughs (U.S. Army Corps 1997). For chinook salmon, this loss of estuarine habitat is a limiting factor (Wasserman, pers. com.). Of the types of habitat alteration reviewed in the 1997 Skagit Fisheries Investigation Feasibility Study, channelization of rivers and streams had the most severe impacts on fish populations (U.S. Army Corps 1997).

Levees have channelized the river and isolated the flood plain, nearly eliminating flood plain storage of water, sediments, and nutrients. The loss of flood plain function has exacerbated flood problems and disrupted ecological functioning. By precluding lateral movement of flood waters, levees reduce groundwater recharge, important for retaining a natural range of variability of flows to which salmon have adapted. Routing of nutrients is also disrupted.

Flood and erosion control have resulted in the loss of opportunity for the river to meander and avulse, natural processes that create habitat such as side channels, oxbows, and wetlands. Bank armoring or channelization in one place tends to transfer erosive energy or flooding downstream. This results in additional bank armoring or flood protection in other locations with a cumulative loss of habitat. Not only is more habitat lost through these activities, but the opportunity for natural processes to create more habitat is progressively eliminated through time.

Bank hardening, whether for levees or for erosion control, destroys riparian vegetation. On older levees, where trees might become established over time, the Corps' own vegetation management standards prescribe tree removal. The loss of riparian vegetation degrades habitat for fish. Juvenile salmonids use the margins of large river channels where, under natural conditions, vegetation and large woody debris create slower velocities and provide cover. Without these refugia, small fish can be flushed prematurely out to marine waters during high flows, where they perish. Studies comparing fish densities next to hardened versus natural river banks found that the highest numbers of fish were found adjacent to natural river banks. Older levees where vegetation had been allowed to grow had more fish than new or recently "maintained" levees, although fewer than natural banks (USFWS 1 998a, Skagit System Cooperative 1998).

Flood Hazard Reduction Alternatives

Setback levees

Of all the structural measures discussed as part of the Skagit River Flood Feasibility Study, we believe that setback levees hold the most promise for restoring natural processes in the Skagit. Setback levees would increase the river 5 connectivity with its flood plain and would allow more

room for water storage and conveyance in high flow events. Loss of flood plain storage has worsened flooding and habitat for fish, so it makes sense to reverse that process by pulling back the levees. In addition to levee setbacks downstream of the forks, we also recommend that the Corps examine the river bend area for potential setbacks and explore means of roughening the channel in the stretch between Mt. Vernon and Burlington. This area is currently like a pipe, providing little resting or refuge for juvenile salmonids. We also support measures that would restore tidal and freshwater mixing to diked sloughs. These measures would include dike breaching or the retrofitting of tide gates to allow more mixing of salt and freshwater.

Nonstructural measures

Nonstructural measures should be incorporated wherever possible because they would have little impact to, and in some cases could help restore, natural processes. Nonstructural measures include relocation or removal of structures, improving bank vegetation, land use controls, flood warnings, and flood proofing.

Ring dikes

We are interested in the feasibility of ring dikes around urban areas, discussed in the original scoping document. Ring dikes should impose few adverse impacts to fish and wildlife if combined with setback levees and substantial increases in flood plain storage, although some wetlands could be impacted. Ring dikes in the urban areas would be a less damaging alternative to new or upgraded levees providing flood protection for rural areas. Ring dikes would not preclude restoration measures in the future.

Flood bypass

The flood bypass alternative has the potential to cause adverse effects to natural resources in Padilla Bay. Padilla Bay has one of the largest eelgrass beds on the West Coast of the United States-over 7,000 acres-constituting a resource of national importance. The eelgrass provides habitat and forage for juvenile salmonids and other fish, crabs, migratory waterfowl, and shorebirds. These animals are prey, in turn, to larger species of fish and wildlife, including peregrine falcons and bald eagles.

A bypass project could provide some benefit to fish if it incorporated year-around flows to marine waters and was designed with large scale wetland restoration and opening up of dendritic channels. However, potential impacts may far outweigh any benefit. Potential adverse impacts would include the following: 1) a bypass channel could allow silt to bury areas of eelgrass with the potential disruption of an entire ecosystem. Silt carried into the bay from flood events could continue to affect the eelgrass long after the original siltation occurred through resuspension by currents; 2) eelgrass may be adversely affected by reduced salinity that comes from inputs of freshwater; 3) a bypass channel could act as a flume to flush juvenile salmonids out to marine waters prematurely, before they have had a chance to acclimate to salt water, 4) alteration or damage of eelgrass habitat could directly or indirectly affect numerous species listed under the

Act, including Puget Sound chinook, Coastal Puget Sound bull trout, marbled murrelet, and the bald eagle; and 5) the bypass could result in instability of the channel or of flows, which could result in fish stranding.

If a bypass included year-around flows, it could have adverse impacts on in stream flows. The Department of Ecology recently proposed a rule providing minimum in stream flows that would ensure estuarine function for salmonids. Any bypass measure would need to be evaluated for impacts to in stream flows and salmonid habitat.

Evaluation methods would need to be carefully developed to weigh the potential benefits and impacts of such an option. The bypass option was dropped from detailed consideration during reconnaissance because of economic and environmental concerns. The concept was never included during scoping. As the bypass alternative has recently been brought forth by the Skagit Flood Risk Management Workgroup, it appears that more attention will be given to this alternative. If the Corps decides to seriously consider a bypass alternative, the project should be rescoped to allow adequate development of studies necessary to properly evaluate the impacts of a bypass.

In order to be acceptable to resource advocates, we believe the bypass option would need to be developed as a large scale estuarine restoration. If the Corps decides to seriously consider this option, it should contract with an independent party known for expertise in eelgrass and estuarine ecology. This approach could be very costly to develop and implement.

We have other general concerns about the bypass option, including: 1) a bypass would leave little incentive to breach dikes or do levee setbacks, actions which would benefit fish and wildlife by restoring flood plain processes; 2) a bypass could result in further development and encroachment of the flood plain, since the flooding problem "would be solved." If a bypass alternative made further development of the flood plain more feasible, it would be contrary to the intent of Executive Order 11988, which prohibits federal agencies from participating in projects that encourage development in the flood plain; 3) the bypass would increase conveyance, but do nothing to increase flood plain storage, thus doing little to help restore natural processes; and 4) some kind of structural mechanism would need to be installed at the inlet of the bypass to ensure year around flows and stability of the inlet..

Overtopping levees

We have concerns about any alternative that relies upon overtopping segments of existing levees because of the potential to increase stranding of adult and juvenile fish. It is difficult to model the numbers of fish that might be stranded due to overtopping segments. Any estimate of the potential loss of fish in planning compensatory mitigation for this measure, therefore, would need to assume a worst case scenario and would necessarily be conservative. Compensatory mitigation to offset potential impacts under this alternative could be very costly.

Upgrading existing levees

Upgrading existing levees is likely to preclude future restoration, and therefore we would not support this measure at this point in the planning process. Once a levee is upgraded using federal funds, it becomes part of the federal management of levees. This investment in existing levees would make future proposals such as setbacks, dike breaching, or reconnecting off channel habitat unlikely to be carried forward. Upgrading existing levees does nothing to restore flood plain function or natural processes that create and sustain habitat conditions. In addition, upgrading existing levees would remove vegetation that has become established with time and that provides much-needed habitat for fish and wildlife.

New levees

We oppose building any new levees that would increase channelization of the river. The concept of building a new, overtopping levee in the Nookachamps area was introduced in recent meetings of the Skagit Flood Risk Management Workgroup. This option would add yet another constriction to a river system that has already lost much of its flood plain function to levees. Frequent flood events are important for fish in terms of habitat creation. Building any new levees, even though they would be overtopped by higher flood events, would further reduce flood plain function and processes that create and sustain habitat. New levees would have a potential to impact wetlands and riparian areas. Should the concept of the Nookachamps levee be carried further, the project would need to be rescoped to allow input for studies to evaluate impacts of this alternative.

We appreciate the opportunity to provide comments at this point in the process of developing an array of alternatives for flood hazard reduction and habitat restoration on the Skagit River. We look forward to continued cooperation with your staff in planning of this project. This planning aid letter is being provided under the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661, et seq.), but is not intended to fulfill Section 2(b) of this Act. If you have any questions concerning this letter, please contact Lou Ellyn Jones at 360-753-5822 or Lynn Childers at (360) 753-5831.

Sincerely

Gerry A Jackson, Manager Western Washington Office

cc: EPA, Seattle
NMFS, Lacey (Ziliges)
WDFW, Region 4
WDOE

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