

## CURRENT HABITAT ISSUES

The Habitat Committee (HC) will meet on Friday, March 5, 2010. At this meeting, the HC will hold committee elections and discuss California Central Valley water issues and Sacramento River salmon issues, Western Straits of Juan de Fuca coho habitat issues, ecosystem-based management, and the National Fish Habitat Action Plan. In addition, the HC has prepared a draft letter on the Biological Opinion on Federal Columbia River Power System Operations (Attachment 1).

At the November meeting, the Council directed staff to send a letter to the Bureau of Reclamation (BOR) concerning their long-term operations of the Central Valley Water Project. The letter supported the salmon essential fish habitat (EFH) conservation recommendations made to the BOR by National Marine Fisheries Service (NMFS). Since then, the BOR has responded to NMFS' EFH conservation recommendations. The letter from BOR to NMFS is attached (Attachment 2) for the Council's information.

### **Council Action:**

**Consider comments and recommendations developed by the HC at its March 2010 meeting.**

### **Reference Materials:**

1. Agenda Item C.1.a, Attachment 1: Draft letter on the Columbia Basin Biological Opinion.
2. Agenda Item C.1.a, Attachment 2: Letter from BOR to NMFS on EFH Conservation Recommendations for the Central Valley Water Project.
3. Agenda Item C.1.b, Supplemental HC Report.
4. Agenda Item C.1.d, Public Comment.

### **Agenda Order:**

- a. Agenda Item Overview
- b. Report of the Habitat Committee
- c. Reports and Comments of Agencies and Advisory Bodies
- d. Public Comment
- e. **Council Action:** Consider Habitat Committee Recommendations

Jennifer Gilden  
Joel Kawahara

PFMC  
02/22/10



## Pacific Fishery Management Council

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David W. Ortmann, Chairman Donald O. McIsaac, Executive Director

April XX, 2010

The Honorable Gary Locke, Secretary  
U.S. Department of Commerce  
1401 Constitution Avenue, NW  
Washington, DC 20230

Dear Secretary Locke:

The Pacific Fishery Management Council wishes to comment on one of the greatest challenges facing both of our agencies: the protection and restoration of Pacific salmon. As you know from your tenure as Washington's Governor and now as Commerce secretary, salmon play a crucial role in both the ecology and the economy of the West Coast. Their recovery is of enormous importance to the three coastal states, the inland empire of Idaho, and the fishing communities that depend on recreational, commercial and tribal fisheries served by the Council.

Salmon declines have had severe impacts on coastal and rural economies throughout the Pacific states. With thousands of jobs and billions of dollars already lost and more at stake, reversing these declines and returning salmon to abundance must be a shared goal. The management of the Columbia-Snake River Basin represents an opportunity to alter the trajectory of both salmon and the communities that depend upon them. As NOAA Fisheries engages in the latest, and most likely final, remand of the 2008 Biological Opinion for the Federal Columbia River Power System, the Pacific Council urges the Department of Commerce to ensure that the remand results in a robust, legal salmon plan that is based on the best available science and incorporates the most recent information on climate change, consistent with District Court advice.

A lawful, science-driven plan must be part of a longer-term commitment to restore the Columbia Basin's wild salmonid runs. To that end, we also ask that the Department of Commerce convene a "solutions table" where stakeholders from throughout the Basin can work with state and federal agencies and Northwest Tribes to craft a long-term blueprint for meaningful salmon recovery. Recreational, commercial, and tribal fishing communities must be an integral part of this process from the beginning.

Finally, we urge the Department of Commerce to commit to the goal of salmon abundance, and to the return of harvestable, self-sustaining runs of wild salmon and steelhead – to rebuild struggling fishing communities, keep fishermen on the water, end the now-annual cycle of salmon collapses and subsequent disaster relief, and ensure that wild salmon remain an integral part of the West Coast's ecosystem and culture. This larger objective should guide our collective efforts to protect, restore, and manage our salmon resources.

Thank you for your time.

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# United States Department of the Interior

BUREAU OF RECLAMATION  
Mid-Pacific Regional Office  
2800 Cottage Way  
Sacramento, California 95825-1898



IN REPLY REFER TO:

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Mr. Garwin Yip  
National Marine Fisheries Service  
650 Capitol Mall, Suite 8-300  
Sacramento, CA 95814-4708

Nat'l Marine Fisheries Svs.  
Sacramento, CA

Doc # SAC00871

Subject: Response to Essential Fish Habitat Conservation Recommendations on the  
Long-Term Operations of the Central Valley Project and State Water Project

Dear Mr. Yip:

This letter transmits our response to your Essential Fish Habitat Conservation Recommendations on Long-Term Operations of the Central Valley Project and State Water Project. The Bureau of Reclamation and the California Department of Water Resources developed this response to address the requirements of the Magnuson-Stevens Fishery Conservation and Management Act.

If you have questions on this matter, please contact me at 916-978-5025.

Sincerely,

Michael A. Chotkowski  
Regional Environmental Officer

cc Mr. Russ Stein  
Department of Water Resources  
Executive Division  
1416 9<sup>th</sup> Street, Rm 1155  
Sacramento, CA 95814

## Response to Essential Fish Habitat Conservation Recommendations

NMFS recommended that a list of general conservation recommendations from Appendix A of Amendment 14 to the Pacific Coast Salmon Plan be implemented in the action area. Although these are general recommendations without specific actions, the list was designed to indicate to the Bureau of Reclamation where opportunities exist within authorities to compensate for the effects of the proposed action within other actions undertaken by Reclamation. Reclamation agrees to follow these recommendations on actions where the general recommendations may apply.

The following are responses to the specific Essential Fish Habitat Conservation Recommendations.

### *A. Clear Creek*

*1) Reclamation should increase the frequency of flood control spills from Whiskeytown Reservoir consistent with the RPA to improve channel maintenance and habitat variability.*

There is a safety and liability issue over providing an increase in spills from Whiskeytown Dam. Therefore spills will continue to occur during the larger precipitation events.

*2) Reclamation should continue funding the CVPIA Clear Creek Restoration Program, the Gravel Augmentation Program, the (b)(2) water for anadromous fish, and the adult separation weir every year.*

The Department of Interior will continue to implement the Central Valley Project Improvement Act (CVPIA). The first three items are CVPIA programs and are funded from the CVPIA Restoration Fund. The adult separation weir will continue subject to the prioritization of projects within the Clear Creek Restoration Program.

*3) Reclamation should replace the Whiskeytown Reservoir Temperature Curtain by March 2010 to retain the original design efficiency and improve cold water releases to the Sacramento River.*

Reclamation is in the beginning stages of replacing the Whiskeytown Temperature Curtain. The target for completion is June 2011 as specified in RPA Action I.1.

*4) Reclamation should implement short duration spring-time pulse flows (500 to 600 cfs) every year in order to attract spring-run Chinook adults before flows are reduced in the summer months.*

We intend to implement RPA Action I.1.1 which specifies this action.

*5) Reclamation should provide short duration (one to three days) fall spawning attraction flows of 500 cfs, as recommended by Denton (1986 op. cit. CVP/SWP operations BA), in October and November.*

This action is not specified in the RPA. This action would be implemented if approved by the Clear Creek technical team and if sufficient b2 water is available for additional Clear Creek flows.

*6) Reclamation should manage flows for listed and non-listed salmonids only after all of the four IFIM studies planned for Clear Creek have been completed. A new flow prescription should not be implemented until these study results can be reviewed and discussed by the Clear Creek Technical Team and agreement reached between the fish agencies. The final flow regime should be to balance the biological needs of all life stages (e.g., juveniles rearing vs. adult spawning) of the different runs (e.g., spring-run, fall-run, late fall-run, and steelhead).*

Clear Creek flows are managed year round in consideration of the needs of salmonids. A new flow prescription will not be implemented until the IFIM results are vetted through the Clear Creek Technical Team and agreed on between the fish agencies and Reclamation.

### **B. Upper Sacramento River**

*1) Reclamation should, working through the appropriate CALFED program, investigate alternatives to the rice decomposition program (i.e., baling rice straw, mulching, etc.), and recommend ways of stabilizing, or increasing flows after September 30, to reduce redd dewatering.*

The CALFED Water Use Efficiency Program by policy does not directly address programs that would influence cropping decisions. Exploring these two areas would not be consistent with this policy. Reclamation is committed to work through other areas of CALFED and the CVPIA (such as the AFRP) to help address anadromous fishery needs in the upper Sacramento River.

*2) Reclamation should provide the necessary modeling and real time temperature data to the Sacramento River Temperature Control Task Group starting in February with the first water year allocation announcement and operations forecast. In this way, decisions on water temperature management throughout the summer in the upper Sacramento River relative to fish habitat conditions and coldwater pool storage in Shasta Reservoir can also consider the habitat needs of fall and late fall-run.*

We intend to implement RPA Action I.2.3 which specifies the actions to take in February relative to Sacramento River temperature management. The Sacramento River Temperature Task Group will be able to consider the needs of fall and late fall-run in its deliberations.

*3) Reclamation should increase Spring Creek diversions in April, May, and June to 1500 cfs to provide colder water for Clear Creek and the main stem Sacramento River (benefits winter-run and fall-run).*

We assume this item means to increase the diversion from the Trinity watershed as Spring Creek diversions cannot be sustainably increased without increasing flows into Whiskeytown Reservoir. Spring Creek diversions will be made consistent with the RPA Actions for Sacramento River temperature control (RPA Action Suite I.2) and the Trinity ROD. Temperature management recommendations will be made by the Sacramento River Temperature Task Group.

*4) Reclamation should ramp down Sacramento River flows from August to December, as quickly as possible, following the RPA and CVPIA Anadromous Fish Restoration Program guidelines for stabilizing flows during the fall-run/late fall-run spawning period to reduce*

*risk of dewatering redds. Minimum flows for fall-run spawning have typically been 4,000 cfs from October through December, based on IFIM studies of habitat suitability curves. Exceptions are allowed in critical and dry years when the RPA specifies ramping down to 3,250 cfs to preserve limited cold water resources in Shasta Reservoir. Temperature targets should be moved downstream in September and October to protect fall- and late fall-run spawning and incubation. Therefore, a 56°F criterion should be maintained through October down to Bend Bridge in all years to protect at least 30 percent of the main stem spawning population. Fall-run will spawn as far downstream as to RBDD, but usually not until November when ambient air temperatures cool the river.*

Sacramento River flows will be managed to comply with the RPA Actions. Sacramento River temperature management will need to balance the current year temperature goals with carryover storage to ensure a level of temperature control for the following year, as specified in the RPA. There is not sufficient cold water in Shasta Reservoir in most years to maintain 56°F down to Bend Bridge through October. The Sacramento River Temperature Task Group will strive to manage the coldwater resource year round for the benefit of priority species.

### **C. American River**

*1) Implement the Flow Management Standard for the American River by following the flow schedule in Appendix D. The flow management standards are minimum flows and should not preclude Reclamation from making higher releases at Nimbus Dam. The Flow Management Standard includes fall-run protections. Implementing this schedule should also protect fall-run. In the event that specific actions are needed to maintain flows for fall-run, NMFS recommends that Reclamation use (b)(2) water to achieve these flows.*

Reclamation is following the flow management standard in Appendix D. When additional water is needed to meet the standard b2 water will be used.

*2) Reclamation should operate to achieve a daily average water temperature of 60°F or less as early as possible in October for fall-run holding and spawning. Reclamation shall strive to maintain a daily average water temperature of 60°F or less until November 1, and target 56°F or less as early in November as possible, for fall-run spawning and egg incubation. These Water Temperature Objectives for fall-run should be met at Hazel Avenue in the Lower American River. The priority for use of the lowest water temperature control shutters at Folsom Dam shall be to achieve the Water Temperature Objectives for steelhead, and thereafter may also be used to meet the fall-run spawning water temperature objective.*

Reclamation strives to achieve and maintain the above referenced temperature targets as early as possible in the fall. The priority for temperature management, according to the RPA, is for maintaining over-summer temperatures for steelhead as laid out in the yearly temperature management plan. The priority for use of the temperature control shutters is first to maintain steelhead temperature objectives before reserving cold water for fall-run spawning.

*3) Fully evaluate below physical/structural actions to improve temperature management and make recommendations for implementation by June 2010. Implement selected projects by 2012.*

*The following temperature management actions have the potential to improve conditions for aquatic species in the Lower American River. However, the precise benefits and costs of these actions need to be analyzed. Alternatives for each of the actions listed below should be fully developed and analyzed, and the most effective alternatives to each action should be implemented.*

*Improve the Folsom Dam temperature control device. The objective of this action is to improve access to and management of Folsom Reservoir's cold water pool. Alternatives for this action include operational and physical improvements including enhancement of the existing shutters, replacement of the shutter system, and construction of a device to access cold water below the penstocks.*

The Penstock Shutter modifications conceptually consist of automating and modifying the existing shutter system and installing an "elephant" trunk on unit 3. The elephant trunk would access the cold water pool below the existing penstock intakes without the need of a power by-pass. The other modifications would potentially increase the timelines of shutter changes and possibly result in improved efficiencies for the system. Currently, we are in the pre-planning phase of this project. The Army Corps of Engineers has authorization to automate and modify the existing shutter system.

*Improve cold water transport through Lake Natoma. The objective of this action is to transfer cold water from Folsom Dam to Nimbus Dam with a minimum increase in temperature. Alternatives for this action include physical or operational changes to Lake Natoma or Nimbus Dam including dredging, construction of temperature curtains or pipelines, and changes in Lake Natoma water surface elevation.*

Several alternatives for improving cold water transport through Lake Natoma were addressed in the special report: "Temperature Modeling of Folsom Lake, Lake Natoma, and the Lower American River, Bureau of Reclamation, Technical Service Center, April 2007." Of the identified actions investigated for Lake Natoma, installing a temperature control curtain just upstream of the Nimbus powerplant and debris wall provided the greatest temperature reduction, a modest 0.4°F during very warm summer days. A mid-reservoir plunge zone curtain was not recommended because of increased reservoir mixing, which resulted in higher Nimbus Dam release temperatures. Based on modeling with the debris wall in front of the Nimbus powerplant intakes removed, dredging about 500,000 cubic yards from Lake Natoma reduced Nimbus Dam release temperatures by about 0.2°F. Dredging is much more expensive and less effective at reducing temperatures than a Nimbus Dam forebay curtain.

*El Dorado Irrigation District (EID) Temperature Control Device. The objective of this action is to conserve cold water in Folsom Lake. Alternative intake structures have been analyzed by EID. The most effective device should be constructed.*

EID's consultant, HDR Inc., has completed the temperature survey and EID has reached a consensus with Reclamation for the number and elevations of the intakes. EID recently started working with their design consultant to develop the Basis of Design Report, and they hope to have that report completed by April 2010. EID is also conducting geotechnical investigative drilling now to evaluate sub surface conditions which will help with design development. Design documents are planned to be completed by mid 2011,

but EID has numerous decisions and environmental reviews to go through prior to that date.

4) *The following ramping rates should be followed:*

*January 1 through May 30, at flow levels <5,000 cfs, flow reductions should not exceed more than 500 cfs/day and not more than 100 cfs/hour; and each year from January 1 through May 30, Reclamation should coordinate with NMFS, CDFG, and USFWS to implement and fund monitoring in order to estimate the incidental take of salmonids associated with reductions in Nimbus Dam releases. Minimize flow increases to 4000 cfs or more year round.*

Reclamation is implementing this recommendation as specified in RPA Action II.4.

#### **D. Stanislaus River**

1) *Reclamation should implement an in-stream flow schedule, as measured at Goodwin Dam, that provides optimum flows for fall-run as defined by Aceituno (1993), or as defined by future analyses of salmon in-stream flow needs. Additionally, this schedule should include sufficient spring flows in April and May to convey salmon smolts through the lower river and to the Delta.*

RPA Action III.1.3 lays out an in-stream flow schedule. This is the schedule Reclamation will work towards implementing and that we assume will meet this recommendation. However, it is likely that this flow schedule will conflict with the in-stream temperature objectives and it is unclear how these competing objectives should be managed. The use of maximum daily temperature instead of mean daily temperature makes the targets more difficult to meet. Reclamation is currently assessing in-stream flow needs for salmonids using hydraulic modeling to evaluate habitat volume and suitability over a range of flows. When completed, this study will contribute to refinement of the flow regime.

2) *Reclamation should conduct fall attraction flows of a minimum of 1,250 cfs for two weeks in October. This recommendation will assist adult fall-run immigration to the Stanislaus River. The purpose is to provide flow cues downstream for incoming adults, as well as providing some remedial effect on the low dissolved oxygen conditions that develop in the Stockton Deep Water Ship Channel.*

This action is included in the flow schedule in Action III.1.3. Reclamation implemented the attraction flow (for steelhead as stated in the RPA) in 2009 and intends to continue to implement the RPA. No readily identifiable upstream migratory response by Chinook salmon occurred as a result of the 2009 pulse.

3) *Reclamation should implement late spring and early summer flow ramping rates to allow establishment of riparian trees at a minimum frequency of every five years.*

Reclamation intends to implement the flow schedule in Action III.1.3 pending further clarification of flows exceeding 1,250 cfs at Ripon during the non-flood control period. The Stanislaus has dense riparian vegetation down to the low flow water line so the stated objective of this recommendation may be inappropriate. High flows within the achievable range (up to 8,000 cfs) are not sufficient to modify the dense riparian vegetation. Mechanical channel modifications would be required to significantly modify riparian areas.

4) *Reclamation should implement spawning gravel replenishment projects on the Stanislaus River, in addition to the current 3,000 cy/year base level augmentation rate applied under CVPIA (b)(13) authorities.*

Reclamation will continue to implement the (b)(13) program in the Stanislaus subject to annual CVPIA funding appropriations. The current target is 3,000 tons/year. Recently permitted projects were stalled due to local opposition to river restoration projects in the permitted area.

5) *Reclamation should implement projects to improve salmonid rearing habitat and floodplain connectivity, including creation of side-channel habitat, isolation of predator-rich in-river mining pits, and periodic increased flows to inundate floodplain habitat.*

Two such projects at Honolulu Bar and Lancaster Road funded by CVPIA are in the planning stages with potential for implementation in 2010.

#### **E. Delta Ecosystem**

1) *Delta Cross Channel (DCC) Gates: To increase the survival of out-migrating fall- and late fall-run, NMFS recommends that the DCC gates be closed as early as possible, under an adaptive management program based on monitoring outmigrant movements starting November 1. No later than on December 15 of each year, the DCC gates should be closed to protect outmigrant Chinook salmon, unless NMFS approves a later date. The DCC gates should remain closed for the protection of Pacific salmonids until June 15 of each year, unless NMFS approves an earlier date. Water quality considerations in the Delta will be one cause for a request to vary from these dates, but NMFS will have final authority on closure.*

Reclamation will operate the DCC gates according to RPA Action IV.1.2 which specifies operational procedures for the November 1 – June 15 time period for the protection salmonids.

#### 2) *Tracy Fish Collection Facility (TFCF)*

*At the TFCF, Reclamation should submit to NMFS for approval, no later than 12 months from the date of issuance of this document, one or more solutions to the loss of Chinook salmon associated with the cleaning of the primary louvers. In the event that a solution is not in place within 24 months after the issuance of this document, NMFS recommends that export pumping at the Tracy Pumping Plant cease during Tracy Pumping Plant louver screen cleaning operations.*

*Also at the TFCF, Reclamation should submit to NMFS for approval, no later than 12 months from the date of issuance of this document, one or more solutions to the loss of Chinook salmon with regard to the secondary louver screen cleaning and secondary channel dewatering. In the event that a solution is not in place within 24 months after the date of issuance of this document, NMFS recommends that export pumping at the Tracy Pumping Plant cease during outages of the secondary system, such as occurs during the secondary louver screen cleaning operations, debris removal, and predator management programs.*

*Beginning on the first day of the month following the issuance of this document, and monthly thereafter, but no later than five working days after the first day of the month, Reclamation should submit a TFCF Status Report to the NMFS Engineering Team Leader. The report should be in a format acceptable to both parties, but should describe the status of each component of the fish salvage system, and should provide a schedule for the correction*

*of each deficiency, with defined checkpoints for completion. Failure to comply should result in the cessation of pumping at the Tracy Pumping Plant until said report is issued.*

*NMFS staff (scientific and enforcement) should be permitted reasonable access to the TFCF, and its records of: (i) operation; (ii) fish salvage; (iii) fish transportation and release activities; and (iv) research activities conducted at the TFCF, during both announced and unannounced inspection visits.*

*e) NMFS recommends that Reclamation undertake ways to reduce predation on juvenile fall- and late fall-run by undertaking predator removal studies at the Tracy facility and also at post-release sites for salvaged juveniles. Loss calculations should be adjusted reflecting results of these predation studies.*

Denver TSC personnel are working on a design for replacement of the secondary channel louver system. The design should be completed in FY 2010 and a contract awarded in FY 2011. Denver TSC personnel are also working on conceptual designs for replacement of the primary channel louvers system but these designs will probably not be completed until FY 2011. It is expected that a contract can be awarded in FY 2012.

An engineering feasibility study will be conducted in FY 2010 using Restoration Funds to assess the feasibility of connecting into the existing 36" bypass pipelines coming off the primary channel louver structure in order to tie into a new secondary channel. Based on the results of this study, a final decision will be made on whether or not to proceed with construction of a new secondary channel at the TFCF. Construction costs could be as high as \$20 million or more.

The 24-month time period is not long enough to implement solutions. Secondary channel solutions may be able to be implemented within 24 months but this is not likely for primary channel cleaning solutions because the cleaning solutions may involve physical changes to the system. This would require design, award, and construction (12 - 24 months implementation). It is not practical to shut down the main export pumps for short periods of time day in and day out during cleaning operations. The Tracy (Jones) Pumping Plant pumps are not designed to handle "cycling (stop/start) operation."

Reclamation agrees to submit monthly TFCF status reports. NMFS will be permitted reasonable access to the TFCF in coordination with TFCF personnel.

Predators are periodically removed from the bypass system and predator removal studies are being explored at the TFCF as well as at post-release sites.

### 3) Tracy Pumping Plant (TPP)

*A plan to limit TPP exports to 4,600 cfs should be prepared and implemented. This restriction should remain in place until a plan to expand the TFCF capacity is prepared, approved by NMFS, and implemented.*

As stated in the OCAP BA Project Description, the capacity of the Tracy Pumping Plant is approximately 4,600 cfs during the peak of the irrigation season and approximately 4,200 cfs during the winter non-irrigation season. The authorized capacity is 4,600 cfs. To help meet water supply demands of the CVP contractors, operation of the Intertie, when it is constructed, would allow the Tracy Pumping Plant to pump to its authorized

capacity of 4,600 cfs, subject to all applicable export pumping restrictions for water quality and fishery protection.

*4) J.E. Skinner Delta Fish Facility (SDFF)*

*Beginning on the first day of the month following the issuance of this document, and monthly thereafter, but no later than five working days after the first day of the month, DWR should submit a J.E. Skinner Delta Fish Facility Status Report to the NMFS Engineering Team Leader. The report should be in a format acceptable to both parties, but should describe the status of each component of the fish salvage system, and provide a schedule for correcting each deficiency, with defined checkpoints for completion. Failure to comply should result in the cessation of pumping at the Banks Pumping Plant until said report is issued.*

With regard to the recommendation that DWR submit monthly reports to NMFS, this recommendation provides neither a standard by which to determine if a component of the fish salvage system is deficient, nor a standard by which to determine if such a deficiency has been corrected.

DWR is currently working a schedule based on a State imposed mandatory furlough program to reduce monthly work force efforts by almost 15 percent; hence adhering to a monthly reporting schedule is not possible. Therefore DWR proposes to submit to NMFS the status reports that are required by the California Department of Fish and Game in their Incident Take Permit for Longfin Smelt (Permit Condition of Approval No. 6.2).

*NMFS staff (scientific and enforcement) should be permitted reasonable access to the J.E. Skinner Delta Fish Protective Facility and its records of: (i) operation; (ii) fish salvage; (iii) fish transportation and release activities; and (iv) research activities conducted at the facility, during both announced and unannounced inspection visits.*

To provide for the safety of all personnel involved, NMFS will be permitted reasonable access to the SDFF when coordinated with SDFF personnel and Delta Field Division personnel.

*NMFS recommends that DWR undertake ways to reduce predation on juvenile fall- and late fall-run by undertaking predation management studies at post-release sites for salvaged juveniles. Within 12 months of the issuance of this document, a final proposal should be sent to NMFS for review. Within 24 months of NMFS' acceptance of the proposal, the "plan" should be implemented. Failure to meet this timeline should result in the cessation of pumping at SWP facilities unless NMFS agrees to an extended timeline.*

Recently completed DWR release site studies (Collection, Handling, Transport, Release studies) concluded that predation is highly variable throughout the year based on a number of factors including, but not limited to, the amount of biomass being released, environmental conditions, predatory species composition and size, and seasonal abundance of predatory fishes in the vicinity of the release sites.

DWR has already implemented avian predator control at Horseshoe Bend release site and is currently developing design plans and acquiring necessary permits for implementing additional improvements to the existing sites as per recommendations from the release site studies. Prior to implementing this recommendation, DWR proposes establishment

of a workgroup to discuss the objectives, issues, challenges, and to develop list of feasible actions and realistic timelines associated with reducing predation.

*NMFS recommends that alternatives to reduce “pre-screen” losses (predation) in Clifton Court Forebay be developed within 12 months of the issuance of this document. Within two years of developing such a plan, the “plan” will be implemented to reduce the predation impact. Failure to meet this timeline should result in the cessation of pumping at SWP facilities unless NMFS agrees to an extended timeline.*

In 1994-95, the California Department of Fish and Game conducted predator removal efforts in Clifton Court Forebay. According to a 1995 DFG memo, predator striped bass abundance estimates, conducted over a period of few years, ranged from about 32,000 to 200,000 fish. A memorandum report from the DFG team documents that movement of striped bass in and out of the Forebay was too great, and the team agreed to recommend to the Interagency Ecological Program Management Team postponing a predator removal program until a striped bass tracking study could be conducted.

A DWR telemetry study, conducted in 2007-2008, also observed free movement of striped bass into and out of the Forebay. Due to the nature of this predator movement, a one-time mass removal and relocation of predators from the Forebay appears to only offer a short term reduction of predation. Considering the complexity of predation issues and uncertainty of control measures, DWR request establishment of a workgroup to discuss the objectives, develop list of feasible actions, and establish realistic timelines.

5) *CVP and SWP Fish Hauling Protocols*

*Fish hauling runs for salmonids should be scheduled at least every 12 hours, or more frequently if required by the “Bates Table” calculations (made at each count and recorded on the monthly report).*

This recommendation is being implemented and will continue.

6) *Rock Slough Intake and Other Fish Screening Projects, Including CVPIA-Anadromous Fish Screening Program (AFSP)*

- a) *Reclamation should ensure that the CVP and SWP aggressively move to fully engage the CVPIA-AFSP, with appropriate funding, and implement the major projects already designed.*

The CVPIA Fish Screen Program receives a yearly budget to implement prioritized projects. This will continue.

- b) *Until the Rock Slough diversion is screened in 2011, pumping at this site should be avoided whenever Chinook salmon are detected in the vicinity of the intake. The Contra Costa Water District should use its two operating screened diversions (Los Vaqueros-Old River and Mallard Slough), the Alternative Intake Diversion on Victoria Canal once completed, and the available storage in the Los Vaqueros Reservoir, to offset this restriction.*

Currently, the Rock Slough Fish Screen is under construction, making use of ARRA funding. Phase II of the project, completing the installation of coffer dam berms is complete. Phase III,

the construction of the foundation, fish screen and appurtenances should be complete by September 2011.

*c) The current fish-monitoring plan should continue until such time as the use of the unscreened Rock Slough diversion is resolved, whether by screening or other means.*

Contra Costa Water District (CCWD) maintains a no-diversion period during the period of peak salmonid abundance in the Delta. Typically, CCWD diverts about 17% of its total supply through the Rock Slough intake. The Rock Slough fish monitoring plan is continuing. Once the fish screen is constructed the fish-monitoring plan will be revised to emphasize fish screen performance.

#### 7) Habitat Restoration

*Reclamation should aggressively pursue opportunities to acquire land and/or obtain easements to create habitat restoration sites in the Delta region.*

*Habitat restoration projects should target the creation of riparian habitat, freshwater and tidal marshes, and shallow water habitats beneficial to salmonid life histories. Habitat restoration activities should target actions that increase the amount of useable habitat for salmonids and reverse the simplification of the Delta habitat created by channelization of Delta waterways and riprapping of levee banks.*

*Reclamation should seek out opportunities to partner with other Federal, State, or non-governmental parties to further this*

Reclamation, via the CVPIA program, is in the process of completing a 10-year plan with prioritized habitat restoration projects. Projects will be implemented using the Restoration Fund. In addition, Reclamation is a full participant in the Bay Delta Conservation Plan where agencies are working cooperatively to implement high priority restoration projects in the Delta.

***DRAFT***

March XX, 2010

The Honorable Gary Locke  
Secretary, U.S. Department of Commerce  
1401 Constitution Avenue NW  
Washington, DC 20230

Dear Secretary Locke:

The Pacific Fishery Management Council (Pacific Council) is writing to emphasize the importance of being successful in meeting one of the greatest challenges that face the Department of Commerce and this Council: the protection and restoration of Pacific salmon in the Columbia River Basin. As you know from your tenure as Washington's Governor, salmon play a crucial role in the health of our ecosystems and economies of our rural communities along the Pacific Coast and within the Columbia River Basin. The recovery of wild fish and the continuation of the Mitchell Act hatchery production that contributes over 50 percent of the hatchery releases in the Columbia Basin are of enormous importance to the coastal states, the inland empire of Idaho, and the fishing communities that depend on recreational, commercial, and tribal fisheries served by the Council.

We know that the decline in salmon abundance and the static funding level of Mitchell Act hatcheries for well over a decade has had severe impacts on coastal and rural economies throughout the Pacific states. With thousands of jobs and billions of dollars already lost and more at stake, reversing these declines and returning salmon to abundance must be a shared goal for Federal, state, and tribal entities. With the science-based management of our fisheries and hatcheries, coupled with improvements in habitat conditions, the Columbia-Snake River Basin continues to offer a unique opportunity to have healthy fisheries, strong local economies, and healthy wild populations of salmon.

As NOAA Fisheries engages in the latest, and potentially final, remand of the 2008 Biological Opinion for the Federal Columbia River Power System (Bi-Op), the Pacific Council urges the Department of Commerce to ensure that the parameters of the revised Bi-Op contain an aggressive approach to rebuild salmon stocks utilizing the best available science and incorporating the most recent information on climate change, consistent with District Court advice.

A strong, Court-approved Bi-OP will be one of the cornerstones for [recovery planning and implementation](#) in the Columbia River Basin. However, there must be a long-term commitment to restore the Columbia Basin's wild salmonid populations and that commitment can only be successful with a broad based regional approach. To that end, we ask that the Department of Commerce [consider the benefits of a collaborative effort, convene a "solutions table" similar to that used in the Klamath River Basin Settlement Process](#), where stakeholders from throughout

the Basin can work with state and Federal agencies and Northwest Tribes to [continue to](#) craft a long-term blueprint for [the implementation of](#) meaningful salmon recovery. Recreational, commercial, and tribal fishing communities [and their interests](#) must be an integral part of [the process for further development and implementation of a comprehensive recovery plan for the Columbia River Basin](#).

Finally, we urge the Department of Commerce to commit to the goal of salmon abundance, and to the return of harvestable, self-sustaining runs of wild salmon and steelhead - to rebuild struggling fishing communities, keep fishermen on the water, end the ~~recent now-annual~~ cycle of salmon collapses and subsequent disaster relief, and ensure that wild salmon remain an integral part of the west coast's ecosystem and culture. This larger objective should guide our collective efforts to protect, restore, and manage our salmon resources.

Sincerely,

Pacific Council Chair



## Pacific Fishery Management Council

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David W. Ortmann, Chairman | Donald O. McIsaac, Executive Director

~~April-March~~ XX, 2010

The Honorable Gary Locke, Secretary  
U.S. Department of Commerce  
1401 Constitution Avenue, NW  
Washington, DC 20230

Dear Secretary Locke:

The Pacific Fishery Management Council wishes to comment on one of the greatest challenges facing both of our agencies: the protection and restoration of Pacific salmon. As you know from your tenure as Washington's Governor and now as Commerce ~~S~~secretary, salmon play a crucial role in both the ecology and the economy of the West Coast. Their recovery is of enormous importance to the three coastal states, the inland empire of Idaho, and the fishing communities that depend on recreational, commercial and tribal fisheries served by the Council.

The Pacific Fishery Management Council has commented frequently on the Columbia-Snake River dams and river operations, such as enhanced spills (dates), including calling for the removal of the four lower Snake River dams (date), and recovery remains elusive.

Salmon declines have had severe impacts on coastal and rural economies throughout the Pacific states. With thousands of jobs and billions of dollars already lost and more at stake, reversing these declines and returning salmon to abundance must be a shared goal. The management of the Columbia-Snake River Basin represents an opportunity to alter the trajectory of both salmon and the communities that depend upon them.

### General Recommendations

As NOAA Fisheries engages in the latest, and ~~most likely potentially~~ final, remand of the 2008 Biological Opinion (BiOp) for the Federal Columbia River Power System, the Pacific Council urges the Department of Commerce to ensure that the remand results in a robust, legal salmon plan that is based on the best available science, taking into consideration the concerns raised by the Western Division of the American Fisheries Society in its independent scientific review of the BiOp's adaptive management implementation plan (summarized in Appendix A, attached).

In addition, the Pacific Council urges the Department of Commerce to incorporate the most recent information on climate change, consistent with District Court advice and the recent analysis conducted by the Northwest Power and Conservation Council (NPCC) in its 6th Power Plan. The NPCC's analysis shows that by achieving the NPCC's conservation and renewable energy goals, the region can remove the four lower Snake River dams and phase out 40 percent of the region's coal plants in order to meet CO<sub>2</sub> targets while still retaining some of the lowest energy rates in the nation.

### **Benefits of Spill**

Also consistent with the Court's advice, we ask that NOAA Fisheries consider the beneficial role of spill in any final BiOp. Over the past several migration seasons, court-ordered flows and spills have contributed to comparatively healthy numbers of adult returns and allowed for relatively stable ocean and in-river harvest of Columbia River fall Chinook, even as other West Coast populations have declined. At the Federal court hearing on the BiOp in November 2009, Judge James Redden made several references to the benefits of spill to species such as steelhead and sockeye, in addition to Chinook. A federal salmon plan that retains science-based spill levels will help protect these modest gains in salmon survival, along with the important harvest opportunities associated with them.

### **Rapid Response Actions**

While harvest opportunities are important to the Columbia Basin's recreational, commercial, and tribal fishing communities, they remain heavily constrained, and rightly so. However, NOAA Fisheries lists two major Rapid Response Actions as back-up measures to protect salmon in case of emergency. One of these—cited by the agency's Federal attorney at the November 2009 court hearing—would close ocean, mainstem Columbia River, and/or tributary fisheries in the event of unexpected declines. Under current Council and state management, recreational, commercial, and tribal fishing has already been significantly curtailed in order to conserve imperiled salmon stocks. This brings into question the need for, and the equity of, this Rapid Response Action.

### **Solutions Table**

A lawful, science-driven **Recovery** plan must be part of a longer-term commitment to restore the Columbia Basin's wild salmonid runs. To that end, we also ask that the Department of Commerce convene a "solutions table" where stakeholders from throughout the Basin can work with state and federal agencies and Northwest Tribes to craft a long-term blueprint for meaningful salmon recovery. Recreational, commercial, and tribal fishing communities must be an integral part of this process from the beginning.

Finally, we urge the Department of Commerce to commit to the goal of salmon abundance, and to the return of harvestable, self-sustaining runs of wild salmon and steelhead – to rebuild struggling fishing communities, keep fishermen on the water, end the now-annual cycle of salmon collapses and subsequent disaster relief, and ensure that wild salmon remain an integral part of the West Coast's ecosystem and culture. This larger objective should guide our collective efforts to protect, restore, and manage our salmon resources.

Thank you for your time.

[Signature Block]

## Appendix A

### Excerpts from *Review of the 2009 Adaptive Management Implementation Plan [AMIP] for the 2008 Biological Opinion Regarding the Federal Columbia River Power System*, by the Western Division of the American Fisheries Society (WDAFS) (February 2010)<sup>1</sup>:

- “Although the AMIP provides some useful information and includes some beneficial actions, the WDAFS has a number of concerns, and finds the AMIP to be inadequate for ensuring the protection of threatened and endangered salmon and steelhead in the Columbia River Basin. Rather than use a precautionary principle to protect threatened and endangered salmon and steelhead, the AMIP seems to use a precautionary principle to support the 2008 Biological Opinion and defend the status quo.” (page 2)
- “The WDAFS is of the opinion that the AMIP does not always use the ‘best scientific information.’” (page 2)
- “Thus, it appears that there is undue emphasis on more monitoring and modeling than on implementing beneficial actions. A logical assumption therefore is that the primary output will be merely that declines are more accurately documented.” (page 3)
- “In general, [rapid response] actions do not seem aggressive or encompassing enough to address significant declines, especially given the uncertainty about the robustness of the triggers.” (page 3)
- “Regarding dam breaching: Compared to other actions in the contingency plans, which are addressed generally and suggest movement toward implementing the action, the breaching of the Lower Snake River dams takes a tortuous path just to initiate a study.” (page 4)
- “The objectivity of this assumption [that the status of Snake River fish is improving] is questionable because the AMIP states that best available science does not support moving forward with dam breaching (although it provides no documentation to support this statement), and emphasizes uncertainty about whether short-term negative effects of breaching may compromise long-term benefits. The AMIP seems to place a huge amount of weight on the uncertainties here, more so than elsewhere. The uncertainties about dam breaching stand in the way of even conducting a ‘science-driven’ study.” (page 4)
- Regarding Habitat Improvement Biological Benefits: “Focus of the AMIP has been on ensuring implementation. However, the bigger concern is that the assumed survival improvements appear unrealistically high.” (page 5)
- Regarding Latent Mortality Effects and Opportunities to Reduce It: “It appears that the PATH conclusions, its collaborative weight-of-evidence hypothesis testing framework, and its decision analysis have been dropped by NOAA Fisheries without scientific justification.” (page 5)
- Regarding Rapid Response Actions: “The AMIP repeatedly states that rapid response actions will be quickly implemented if pre-defined biological triggers are met....Our review of Appendix 5:

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<sup>1</sup> [http://www.wdafs.org/committees/policy\\_review/WDAFS%20Review%20of%20AMIP.pdf](http://www.wdafs.org/committees/policy_review/WDAFS%20Review%20of%20AMIP.pdf)

Rapid Response Actions left us with different conclusions. First, that prompt implementation of actions to deliver survival benefits is generally not specific or certain to occur. Second, most actions listed would have likely occurred even if the AMIP did not exist.” (page 6)

- Regarding Biological Triggers, specifically the lack thereof for Snake River sockeye: “The WDAFS believes it is inappropriate to not have biological triggers for this species or to rely on a captive broodstock program indefinitely to avoid extinction.” (page 7)
- In Appendix A of the WDAFS review, the authors go through each of the primary concerns raised by some of the participants in NOAA’s independent scientific review last summer, and attempt to determine if those concerns were addressed in the AMIP. One of the independent scientists’ concerns is that the triggers “should be developed for major population groups (MPG), maybe even populations, and not just ESUs. Actions that cause decline or redress will usually be at MPG level not ESU; IF idea is to be proactive, not just reactive.” WDAFS’s assessment is that the AMIP does not properly address this issue; they describe this as “a serious shortcoming.” (page 10)
- Also in Appendix A, regarding climate change and the “need to compile information collected for other purposes and interpret it in light of predicted impacts of climate change,” WDAFS says, “This appears to be addressed in only a very general way in the AMIP, with no quantitative projections.” (page 11)

## HABITAT COMMITTEE REPORT ON CURRENT HABITAT ISSUES

### **Presentation on Bay/Delta Essential Fish Habitat**

The Habitat Committee (HC) received a presentation from Bruce Oppenheim of National Marine Fisheries Service (NMFS') Protected Resources Division that covered the following topics related to Sacramento listed winter-run Chinook (and which is relevant to fall-run Chinook): 1) the National Academy of Sciences (NAS) independent review of the NMFS Biological and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project; 2) an update on the essential fish habitat (EFH) consultation; 3) an update on recent, related court decisions; and 4) an update on the Biological Opinion and implementation of the reasonable and prudent alternatives (RPA) under the Endangered Species Act (ESA).

For the Council, the most relevant issue covered during the presentation was the update on the EFH consultation. The Council sent a letter on December 2, 2009 to the Bureau of Reclamation, encouraging them to respond to, and fully implement, NMFS' EFH conservation recommendations. Reclamation has since responded to the EFH conservation recommendations in a letter received by NMFS on January 26, 2010 (Agenda Item C.1.d, Attachment 2). However, in general, the recommendations that Reclamation accepted were those that were already covered under the RPA, while those recommendations that provided specific protections for Sacramento River fall Chinook (e.g., minimum temperature and flow requirements) were rejected. Moreover, it is not clear what measures Reclamation is proposing for avoiding, minimizing, mitigating, or offsetting the impact of the activity on EFH. The NMFS Guidance on EFH Regulations states,

“In the case of a response that is inconsistent with NMFS Conservation Recommendations, the Federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects.”

The HC will coordinate with NMFS staff to determine the most appropriate response, and may recommend a follow-up letter from the Council asking that Reclamation clarify why the NMFS recommendations were not followed. The HC will report back to the Council on this matter in April or June.

The NAS is expected to issue a near-term report by March 15, 2010 that will examine the potential alternatives to the RPA with the same benefits to fish but at a lower cost, and compatibility between the two Biological Opinions issued by NMFS and the U.S. Fish and Wildlife Service. Another long-term report is expected within 24 months. The HC believes this is an ambitious schedule to accomplish this type of review, especially given the political importance that has been placed on similar interim reviews in the past.

## **Processes of Water Allocation in California's Central Valley**

Mr. Bill Kier (Pacific Coast Federation of Fishermen's Associations) provided a historical overview of the processes of water allocation in California's Central Valley, focusing on biological and political insights on Central Valley needs related to water quality, flow, and anadromous fish. The HC found this presentation relevant to the future development of an assessment of the Sacramento River fall Chinook (SRFC) stock.

In particular, the Salmon Technical Team and HC may be interested in the recommendations of the *Listen to the River* report, which was prescribed by the Office of Management and Budget (OMB) in December 2008 as part of an Independent Review of the Anadromous Fisheries Restoration Program (AFRP) of the Central Valley Project Improvement Act (CVPIA). The report finds that the Bureau of Reclamation has not dedicated and managed the Congressionally- and Court-confirmed mandate of the CVPIA (passed in 1992) as it pertains to 800,000 acre feet (800 kaf) of water from headwaters storage through the Delta for the rebuilding of Central Valley salmon stocks. Instead, Reclamation releases approximately 400 kaf from Central Valley Project storage each year aimed at supporting the needs of particular upstream life stages at particular locations. Even these reduced amounts are then pumped from the Delta system before they can reach the Bay. The HC recognizes that it will be addressing this topic as part of the SRFC overfishing report, but suggests that a letter from the Council to NMFS and the Dept. of Commerce would be more timely.

## **Update on Klamath River Issues**

The Habitat Committee received a briefing on the signing of the Klamath Basin Restoration Agreement (KBRA) and the Klamath Hydroelectric Agreement (KHA). After several years of negotiations, the KBRA and the KHA were recently signed by the Governors of California and Oregon, the Secretary of Interior, NOAA, and more than 30 other groups including Tribes, irrigators, environmentalists, fishermen, and other groups. It was noted that the two agreements are closely linked, in that the restoration agreement is based upon removal of the four dams from the mainstem Klamath River. The agreements include landscape-scale restoration of the Klamath Basin, such as removal of the dams, reintroduction of anadromous fish to the Upper Basin, resolution of water allocation/flow issues, habitat restoration, and water quality improvements.

The Secretary of Interior is scheduled to make a determination by March 31 2012, following the development of an environmental impact statement, regarding whether to proceed with dam removal. This determination will be based upon whether, in the Secretary's judgment, the conditions of the KHA have been satisfied, and whether facilities removal 1) will advance restoration of the salmonid fisheries of the Klamath Basin, and 2) is in the public interest, which includes, but is not limited to, consideration of potential impacts on affected local communities and Tribes. If the determination is affirmative, dam removal is scheduled to occur in 2020, following further analysis and NEPA/California Environmental Quality Act processes.

The Habitat Committee suggests that the Council write a letter of acknowledgement and congratulations for this landmark collaborative effort on the part of many competing interests.

## **Western Straits of Juan de Fuca Overfishing Report**

The HC received an update of the work that has been accomplished to date on this overfishing report. The HC will continue to work on this report and will present the draft to the Council in June, for possible action in September.

## **Habitat Assessment Improvement Plan**

The HC received an update on the NMFS National Habitat Assessment Improvement Plan (HAIP). The HAIP establishes the framework for NMFS to coordinate habitat research, monitoring, and assessments, and to increase support for habitat science.

In May 2010 the first NMFS National Habitat Assessment Workshop (NHAW) will be convened in conjunction with the 11th NMFS National Stock Assessment Workshop. The meeting will include joint sessions on using habitat science to improve stock assessments. Another topic of the workshop will be the use of habitat science in management.

The report of the HAIP team will be published by NMFS in the coming months. NMFS is developing a rollout for this report which will include presentations across a range of science and management venues. The team would like to give formal presentations to each of the Fishery Management Councils and their relevant committees.

The HC would like to have a briefing from the Chair of the HAIP team at the September Council meeting, and suggests that the Council also receive a briefing at that time.

## **Letter on Columbia River Biological Opinion**

The HC's draft letter to the Dept. of Commerce on the Columbia River Biological Opinion is attached for the Council's review. Changes made by the HC at this meeting are highlighted. This letter comes at a crucial decision time and is in line with numerous past comments made by the Council. In order to allow time for the Dept. of Commerce to address this letter, it should be sent in March.

## **Update on Pacific Marine Estuarine Fish Habitat Partnership (PME-FHP)**

The HC received an update on the PME-FHP. This partnership received Candidate Status in September 2009 from the National Fish Habitat Board. Partnerships do strategic planning to identify regional priorities for action to conserve fish habitat. The partnership will prioritize projects leveraging funds with other partners and integrate with other partnerships such as those focused on waterfowl habitat.

A Federal funding bill with a five year lifespan has been introduced in Congress. Recognized partners will be eligible for funding support.

The West Coast Governors Agreement on Ocean Health has a stated goal of improving the health of coastal habitat, but unlike other stated goals, no implementation team had been established. This PME-FHP is seen as a way to advance this goal.

Further work to enlarge the partnership, establish mission and goals and begin strategic planning work will occur at a workshop in May. A webinar to be scheduled before the workshop will summarize regional habitat assessment work to date.

### **Ecosystem Management Plan Development**

The HC received an update of the work that has been accomplished to date on ecosystem management plan development. The inaugural meeting for this effort was held on February 10-11<sup>th</sup>. A presentation from the plan development team is tentatively scheduled for the June Council meeting.

PFMC  
03/06/10

**Subject:** Dam building as part of marine eco-restoration/recovery.  
**From:** Devin Baker <anjac15@yahoo.com>  
**Date:** Sun, 03 Jan 2010 17:37:06 -0800 (PST)  
**To:** Jennifer.Gilden@noaa.gov

Attention Ms. Jennifer Gilden:

This letter concerns improving the effectiveness of marine reserves/protected areas.

I agree that the creation of marine reserves and marine protected areas is a good step towards marine wildlife/ecosystem recovery and protection, but I fear that the creation of these reserves will have limited success if part of these programs does not involve dam removal in the United States and elsewhere.

Numerous biological studies have shown that the acceleration of dam removal in the U.S. would dramatically increase recovery of coastal and river fish stocks including salmon, shad, herring and other fish species that need access to the upper reaches of rivers for spawning. Acceleration of dam removal would also increase the populations of marine life such as dolphins, whales and other species that depend on these ocean/river fish stocks.

Also helpful would be the creation of federal, state and local government programs to buy and remove some of the **2 million** dams in the United States that block river access to Salmon, Shad, Herring and other anadromous, catadromous and diadromous fish species which need to swim up and/or downriver to spawn/lay eggs.

This should be a national priority in the United States.

Many of these dams are not even functional any more because of silt build-up etc. and could be easily removed with enough public awareness and local, state and federal government support.....**there is not public outcry to do this because the public is unaware and uneducated concerning this issue.**

Most Americans are not aware of the dramatic decline in historical populations of anadromous, catadromous and diadromous fish species from their once abundant numbers in the U.S. and worldwide because of dams.

Historical records and eyewitness reports from the 17th and 18th century report that these fish once existed in unbelievably high numbers in the U.S. and rapidly declined with the advent of dam building, although most people during this period did not connect dam building with fish declines.

This lack of understanding and disconnect concerning dams and the decline of fish populations in the U.S. continues to be the case today with the American public.

Some of these fish species include salmon, herring, shad, eels, sturgeon, striped bass, Atlantic whitefish, rainbow smelt and numerous other species which are highly prized commercially.

Dams have led to the destruction and extinction of numerous fish populations on the east and west coast of the United States and worldwide.....without dam removal many wetlands and bay restoration programs will have very limited success.

Dams are also known to block the flow of cool river water out to oceans, seas and lakes and disrupt these eco-systems by altering consistent water temperatures at river mouths, this adversely affects coral reefs and other ocean wildlife that has depended on the cooling effect of rivers for millions of years.....**many rivers no longer reach the sea** because of dams and their accompanying irrigation water diversion programs.

Mega-dam building seems to be increasing worldwide especially in China, India, Brazil, Africa and Southeast Asia with hundreds of mega-dam projects already scheduled, financed and ready to be built in the near future.....this will seriously impact ocean life on a large scale in the coming months and years.....the public needs to know about this issue in order to be proactive and affect positive change.....many of these dams are full-span river dams.

Only one major river in the United States remains undammed.....the 600 mile long Yellowstone River in Yellowstone National Park.....this is a national shame.

We in the United States should make a goal of being world leaders in dam removal and river eco-systems restoration, this will also lead to enormous economic benefits by increasing U.S. fish stocks and water quality dramatically.

<http://e360.yale.edu/content/feature.msp?id=2119>

<http://www.internationalrivers.org/>

<http://www.americanrivers.org/>