MANAGEMENT OF WEST COAST SALMON FISHERIES

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON FISHERIES, WILDLIFE AND OCEANS

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

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OVERSIGHT HEARING ON MANAGEMENT OF WEST COAST SALMON FISHERIES

Thursday, May 15, 2008
U.S. House of Representatives
Subcommittee on Fisheries, Wildlife and Oceans
Committee on Natural Resources
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:07 a.m. in Room 1324, Longworth House Office Building, Hon. Madeleine Z. Bordallo [Chairwoman of the Subcommittee] presiding.

Present: Representatives Bordallo, Brown, Ortiz, Capps, McMorris Rodgers, Sali, Costa, Napolitano, DeFazio, McDermott, Inslee, Hooley, Eshoo, Miller, Farr, Baird, Thompson, and Wu.

Ms. BORDALLO. Good morning, everyone. The legislative hearing by the Subcommittee on Fisheries, Wildlife and Oceans will now come to order.

This morning, I have some very special guests in the audience. I would like to introduce them. It was a coincidence that we would have this hearing of the Fisheries Subcommittee that has to do with salmon because these people are from Yakutat, Alaska, along the southern shore. Mr. Frank Reiman and Rose Marie Bamba Reiman, would you stand, please, so we can see you?

Mr. BROWN. They are standing over there.

[Applause.]

Ms. BORDALLO. Mrs. Reiman is from Guam, but she has lived 33 years in Alaska. She went from the tropics to the snow land.

I would like to ask everyone standing there, you can take the chairs up around here, please, if you would like to. This is going to be a pretty long hearing. Please just feel free to be seated.

The Subcommittee is meeting today to hear testimony on the management of West Coast salmon fisheries. Before we commence with opening statements, I would like to ask unanimous consent that the following Members be allowed to join the Subcommittee Members on the dais and participate with the Subcommittee for the hearing: Mr. Miller, the gentleman from California, Mr. McDermott from the State of Washington, Mr. Sam Farr, from the State of California, and Mr. Costa from California.

Hearing no objection, so ordered.

Pursuant to Committee Rule 4[g], the Chairman and the Ranking Minority Member will make opening statements, and if any other Subcommittee Members have statements, I will offer them

the opportunity to speak, and other Members are invited to submit any statement that they may have for the record.

STATEMENT OF THE HONORABLE MADELEINE Z. BORDALLO, A DELEGATE IN CONGRESS FROM THE TERRITORY OF GUAM

Ms. BORDALLO. The Subcommittee on Fisheries, Wildlife and Oceans meets this morning to hear testimony regarding the National Marine Fisheries Service's failed leadership in the management and conservation of West Coast salmon fisheries. Sadly, this is not a failure that can be made up in summer school like calculus class. Instead, it is one that could take years, if not decades, to overcome and one that will have profound impact for communities up and down the coast.

Salmon stocks listed on the Endangered Species list and the shutdown of fishing seasons have become all too commonplace. Last fall, it was Klamath-Chinook. This year, it is the Sacramento fall-run Chinook.

Salmon is the backbone of the ocean fishery. Commercial and recreational fishermen, equipment suppliers, and restauranteurs all depend on these fish for their livelihoods.

Last month, when the Pacific Council voted to close the 2008 Chinook salmon fishing season, the closure was unprecedented in its magnitude. Fishing businesses all along the West Coast are shut down. The States of California, Oregon, and Washington requested $274 million in disaster assistance, and Secretary Gutierrez declared a commercial fishery failure. Many fear that the season will need to be closed for at least two more years.

Agency scientists have pointed to unfavorable ocean conditions in 2005 as a determining factor. While this may be, ocean conditions are largely beyond our control, and salmon stocks have been declining for years due to many human impacts. It is NOAA Fisheries' responsibility to address these human-caused impacts and ensure that salmon stocks are healthy and resilient enough to sustain the natural disturbances that they will inevitably encounter.

Yet, in the case of salmon stocks that are in the greatest need of protection, those listed under the ESA, NOAA Fisheries seem unable to produce a scientifically based, legally defensible, biological opinion in the Sacramento, the Klamath, or the Columbia, the three major salmon-producing rivers of the West.

Time and again, across these rivers, the courts have consistently found that NOAA Fisheries has developed biological opinions that fail to use the best available science, are based on conclusions that do not match their scientific findings, and fail to account for the changes in the environment that the agency knows are coming.

Why has this agency failed to issue biological opinions that will protect endangered salmon stocks and will bolster other declining stocks in the process? I am sure this is a question that many coastal communities have asked themselves repeatedly over the past several years, and I am not sure there is a good answer.

To the credit of the fishing community, many supported this year's closure at their own expense for the sake of the resource. NOAA Fisheries owes them an answer. It also needs to demonstrate the leadership needed to improve salmon management and conservation up and down the coast and rebuild healthy salm-

on stocks that will sustain the occasional changes in ocean conditions, as well as the long-term changes in the climate that are both inevitable.

So I look forward, this morning, to hearing from our witnesses on the first panel on how biological opinions can be strengthened and how we can move toward ecosystem management of all salmon stocks.

The stories we will hear from the witnesses on the second panel should not be repeated.

[The prepared statement of Ms. Bordallo follows:]

Statement of The Honorable Madeleine Z. Bordallo, Chairwoman, Subcommittee on Fisheries, Wildlife and Oceans

The Subcommittee on Fisheries, Wildlife and Oceans meets this morning to hear testimony regarding the National Marine Fisheries Service's failed leadership in the management and conservation of West Coast salmon fisheries. Sadly, this is not a failure that can be made up in summer school like calculus class. Instead, it is one that could take years—if not decades—to overcome and one that will have profound impacts for communities up and down the coast.

Salmon stocks listed on the Endangered Species list and the shut down of fishing seasons have become all too common place. Last year, it was Klamath Chinook. This year, it's the Sacramento fall-run Chinook salmon—the backbone of the ocean fishery. Commercial and recreational fishermen, equipment suppliers, and restaurateurs all depend on these fish for their livelihoods.

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Agency scientists have pointed to unfavorable ocean conditions in 2005 as a determining factor. While this may be, ocean conditions are largely beyond our control, and salmon stocks have been declining for years due to many human impacts. It is NOAA Fisheries' responsibility to address these human caused impacts and ensure that salmon stocks are healthy and resilient enough to sustain the natural disturbances they will inevitably encounter.

Yet, in the case of salmon stocks that are in the greatest need of protection—those listed under the ESA—NOAA Fisheries seems unable to produce a scientifically based, legally defensible Biological Opinions in the Sacramento, the Klamath, or the Columbia, the three major salmon-producing rivers of the West.

Time and again across these rivers, the courts have consistently found that NOAA Fisheries has developed BiOps that fail to use the best available science, are based on conclusions that do not match their scientific findings, and fail to account for the changes in the environment that the Agency knows are coming.

Why has the Agency failed to issue BiOps that will protect endangered salmon stocks and will bolster other declining stocks in the process? I am sure this is a question that many coastal communities have asked themselves repeatedly over the past several years, and I am not sure there is a good answer.

To the credit of the fishing community, many supported this year's closure at their own expense for the sake of the resource. NOAA Fisheries owes them an answer. It also needs to demonstrate the leadership needed to improve salmon management and conservation up and down the coast and rebuild healthy salmon stocks that will sustain the occasional changes in ocean conditions as well as the long term changes in the climate that are both inevitable.

I look forward to hearing from our witnesses on the first panel on how Biological Opinions can be strengthened, and how we can move toward ecosystem management of all salmon stocks. The stories we will hear from the witnesses on the second panel should not be repeated.

Ms. BORDALLO. I would like now to recognize the Ranking Member of our Subcommittee, The Honorable gentleman from South Carolina, Mr. Brown.

STATEMENT OF THE HONORABLE HENRY E. BROWN, JR., A REPRESENTATIVE IN CONGRESS FROM THE STATE OF SOUTH CAROLINA

Mr. BROWN. Good morning and thank you, Madam Chair. While the official notice for this hearing states that this is an oversight hearing on the management of West Coast salmon, the letter of invitation called this hearing "A Perfect Storm: How Faulty Science, River Management, and Ocean Conditions Are Impacting West Coast Salmon Fisheries."

That is certainly a provocative title for a hearing and one that seems to draw conclusions and point the finger at the cause of the West Coast salmon's decline before the hearing even starts.

As you know, this Subcommittee certainly has the authority and the ability to discuss the salmon harvest aspect of this problem and to examine the activities conducted by the National Marine Fisheries Service in their management of fisheries.

This Subcommittee certainly can look at other aspects of the problem. However, the Subcommittee on Water and Power has a vast amount of expertise on other aspects of this issue. I understand that a request was made by the Ranking Member of that Subcommittee to make this hearing a joint hearing because of their experience and history of hearings on these issues, but that request was denied.

I think that that is unfortunate because, as a Member from South Carolina, I do not have the same experience or background on the issues surrounding the fight over water uses on the West Coast and in California particularly.

Madam Chairwoman, I think the deliberations here today would have been enhanced if we had included our colleagues on the Subcommittee on Water and Power, but, in any case, I am glad Mrs. McMorris Rodgers, the Ranking Member of that Subcommittee, is also a Member of this Subcommittee, so we will each get her input.

I know Mr. Sali will also bring his knowledge of West Coast salmon to this hearing, so I expect to learn a good bit here today. I hope that, as our witnesses testify today and other Members who will be joining us later add their statements, we will try to talk about ways that Congress can provide guidance and assistance on this situation.

I think that pointing the finger at other users groups is counterproductive and tends to just alienate some Members of Congress who would otherwise be likely to want to help.

Thank you, Madam Chair, and I look forward to hearing from our witnesses. Thank you, gentlemen, for being with us today.

Ms. BORDALLO. I thank the Ranking Member, the gentleman from South Carolina, Mr. Brown, for his opening statement, and now I ask unanimous consent that Ms. Hooley, Ms. Eshoo, and Mrs. Napolitano be allowed to join the Subcommittee on the dais to participate in the hearing. Hearing no objection, so ordered.

Are there any other Members that would like to make opening statements, Subcommittee Members? Mrs. McMorris Rodgers.

STATEMENT OF THE HONORABLE CATHY McMORRIS RODGERS, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WASHINGTON

Mrs. MCMORRIS RODGERS. Thank you, Madam Chairman, and I appreciate everyone being here today to discuss the status of West Coast salmon fisheries. For those of us from the Pacific Northwest, this hearing is a continuation of decades of debate.

Everyone agrees that we need to protect salmon populations, and how are the salmon doing? This year, fish managers have predicted that the spring Chinook salmon run will exceed 269,000, the third-highest run since before fish were listed under the Endangered Species Act. Already this year, more salmon have passed through the Bonneville Dam than in any other year since 2004, a record year.

The answers to protecting salmon populations can be complex, costly, and have unintended impacts. Despite the old title of this hearing, I am sure that we will find the answers will still be elusive and that there is not a magic wand to resolve this immediately.

In my region of the Pacific Northwest, this issue has been on the front page for some time. It has been contentious and lawsuit dominated, as a Federal judge has become the de facto river master. In addition, almost a third, 30 percent, of our electricity rates are related to endangered salmon recovery, and these costs are passed directly on to all consumers of income and size. Billions of dollars have been dedicated to salmon survival, most of it coming from the pockets or ratepayers.

In the past, we have held a hearing in this Committee on legislation that I have introduced that I think is important to providing transparency on how we are spending for salmon recovery efforts and the dollars. Our nation has, understandably, made salmon survival a priority. We should remember that there are other impacts. Farm families, electric ratepayers, and fishermen, whose livelihoods and way of life depend on salmon, all need certainty. There are many competing needs and interests in this debate.

It is important that we have a fair, open, and honest debate. Everything is on the table, including habitat, hatchery, harvest, and even renewable and emissions-free hydropower. We should look at other Federal laws, such as the Marine Mammal Protection Act, to resolve conflicts between species like salmon and sea lions, and as it relates to the California Bay Delta, we should also examine whether the striped bass sports fisheries are having serious impacts on salmon populations.

The Water and Power Subcommittee, of which I am the Ranking Member, has dealt extensively with these issues. We have held hearings in Clarkston and Pasco, Washington, and in Vallejo, California. We have had numerous hearings inside the beltway on California Bay Delta issues, as well as legislation regarding Endangered Species Act costs.

This hearing today focuses on Water and Power's infrastructure, which does come under the jurisdiction of the Water and Power Subcommittee, and, for this reason, I had asked for this to be a joint hearing, and I am responding that the request was denied. I

have a letter that is stating that request that I would like to be a part of the hearing record.

Ms. BORDALLO. Hearing no objection, so ordered.

[NOTE: The letter submitted for the record has been retained in the Committee's official files.]

Mrs. MCMORRIS RODGERS. We do have two excellent witnesses, Mr. Jim Litchfield, representing the Northwest River Partners; and Jason Peltier, representing family farmers in the Central Valley of California; and I appreciate them being here and for the invitation being extended to them to join us on this hearing.

Madam Chairwoman, I hope that this hearing will be a productive one. The only way we are going to resolve this is through cooperation and collaboration. Instead of engaging in finger pointing and singing the same bitter tune against agriculture and energy, I really hope the witnesses and the Subcommittee will use this opportunity to work together. We owe it to the American people, and we owe it to the environment.

Ms. BORDALLO. I thank the gentlelady for her opening remarks.

I would like to recognize Mr. Sali, also a Member of the Subcommittee, for any opening remarks he may have.

STATEMENT OF THE HONORABLE BILL SALI, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IDAHO

Mr. SALI. Madam Chair, we found out last night, at about 10:00, that we were going to be able to have an opening statement this morning, and so I did not have time to prepare one. I would ask unanimous consent that I be able to submit one for the record.

Ms. BORDALLO. Hearing no objection, so ordered.

[NOTE: The statement submitted for the record by Mr. Sali was not available at press time.]

Ms. BORDALLO. We will now introduce the members of the first panel: Mr. Rodney McInnis, the southwest regional administrator of NOAA Fisheries; Mr. Mike Rode, the former California Fish and Game fisheries biologist and environmental scientist; Dr. Jack Williams, the senior scientist, Trout Unlimited; and Mr. Jim Litchfield, Litchfield Consulting.

I want to thank all of the witnesses for being here today, and I would like to welcome the witnesses to this hearing and to note that there are timing lights on the table, and it will indicate when your time has concluded, and we would appreciate your cooperation in complying with the limits that have been set, as we have many witnesses to hear from today, and be assured that your full written statement will be submitted for the hearing. The time limit is five minutes, so you will see the light right there.

Before we start with our first witness, I ask unanimous consent that Mr. Baird be allowed to join the Subcommittee on the dais and participate in the hearing today. Hearing no objection, so ordered.

Now I would like to begin with our first witness, Mr. McInnis.

STATEMENT OF RODNEY McINNIS, SOUTHWEST REGIONAL ADMINISTRATOR, NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Mr. McINNIS. Good morning, Madam Chairwoman and Members of the Subcommittee. My name is Rod McInnis, and I am the regional administrator for NOAA Fisheries [NMFS] Southwest Region. Thank you for the opportunity to testify today and allowing me to highlight a few of the points from my written statement.

The West Coast salmon fishery is regulated according to provisions of a fishery management plan which calls for fishing seasons and quotas to be set annually based on the availability of salmon for harvest. The abundance forecasts for 2008 were generally very low along the entire West Coast.

The most pessimistic forecast was for the Central Valley fall Chinook in California. Because of the low abundance of the fall Chinook and the great dependence of the ocean fisheries off California and Oregon on this run, NMFS implemented a complete closure of the commercial salmon fishery and a nearly complete closure of the recreational fishery on May 1. The Secretary of Commerce declared this a disaster at the same time.

NMFS scientists conducted a preliminary inquiry into the potential causes of the sudden low populations on the Central Valley fall Chinook. They found that the ocean conditions from 2003 through 2005 were most likely the immediate cause of the rapid decline in abundance. The salmon that would have supported this year's fisheries merged into an ocean without abundant prey and likely had a low survival rate as a result. NMFS scientists are now leading a more in-depth study of the factors of the rapid declines specific to the Central Valley Chinook.

Turning our attention to ESA, NMFS has taken strong steps to improve its biological opinions in the recent past. NMFS has more strictly defined its internal review and clearance procedures for biological opinions and has adopted a practice of using independent scientific reviews as part of the development of some of the complex and controversial biological opinions.

It is important to note that the fall-run Chinook in the Central Valley and all of the Chinook in the Klamath River are not listed under ESA. Therefore, they are not the focus of these biological opinions. Biological opinions for the Klamath, Sacramento, and Columbia Rivers are among the most complex and far reaching that NMFS has addressed. In each case, NMFS has used the best scientific information available at the time of the consultation to determine the impact on the listed salmon populations and their designated critical habitats.

The quality and extent of available information has varied from project to project and has improved over time. In each case, a Federal court has found that the biological opinion did not fully meet the requirements of the law or regulations. NMFS is committed to expanding the body of science related to salmon and has more broadly used independent scientists at various stages in consultations. These independent reviews have been helpful, and many of the recommendations have been adopted immediately.

Using the authority under ESA, NMFS has required many protective actions for listed salmon. In the Central Valley, the timing of water temperature and releases flows from Shasta Dam and the opening of the Red Bluff Diversion Dam improved screening on major diversions, and removal of multiple migration barriers on tributaries has substantially improved the conditions for winter Chinook and spring Chinook since their listings. These populations of salmon have improved from the 1990s until 2006. Habitat improvements and favorable ocean conditions contributed to the reversal of the declines that motivated the ESA listings.

For salmon populations not listed under ESA, NMFS has authority, under the Magnuson-Stevens Act, to define the essential habitat for those fish. NMFS reviews Federal projects for likely impacts on the essential fish habitat of salmon and recommends measures that would provide the needed protection. Magnuson-Stevens Act recommendations for protection of essential fish habitat are not binding for Federal agencies, but the agencies are required to respond within 30 days as to whether they accept NMFS' recommendations.

NMFS views the authorities of the ESA and the Magnuson-Sevens Act as complementary. Salmon depend upon a broad ecosystem, including the ocean, rivers, and watersheds that feed the rivers. While NMFS uses authorities under ESA to ensure that salmon are protected on a project-by-project basis, more comprehensive approaches are needed to reach the most effective and enduring solutions to the often complex, competing needs of people and fish.

Finding long-term solutions to these vexing problems will require a shared vision among parties with differing views, for example, the Klamath Restoration Agreement, and continued investment in habitat restoration and long-term conservation planning, such as is going on with the Bay Delta Habitat Conservation Planning and other conservation programs.

Thank you again for this opportunity to present NMFS' views on these matters, and I would be pleased to answer any questions from you or other Members of the Committee. Thank you.

[The prepared statement of Mr. McInnis follows:]

Statement of Rodney R. McInnis, Southwest Regional Administrator, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

Good morning Madam Chairwoman and members of the Subcommittee. My name is Rodney McInnis, and I am the Regional Administrator for the Southwest Region of the National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration. Thank you for the opportunity to testify on the West Coast salmon fishery disaster and the actions being taken by NMFS to identify and address the causes of that disaster, as well as our actions to improve salmon survival in their freshwater environment. Your invitation to testify identified three major areas of particular interest: (1) the reasons for the collapse of the West Coast salmon fishery; (2) the state of science behind the court-determined inadequate biological opinions on the Sacramento, Klamath, and Columbia/Snake Rivers; and (3) linkages between river and fisheries management under the auspices of both the Endangered Species Act (ESA) and the Magnuson-Stevens Act. I will address each of these areas in turn.

REASONS FOR THE COLLAPSE OF THE WEST COAST SALMON FISHERY

The West Coast ocean salmon fishery is regulated according to the provisions of a fishery management plan (plan) developed by the Pacific Fishery Management

Council and approved by the Secretary of Commerce. The plan calls for fishing seasons and quotas for the ocean salmon fisheries to be set annually based on the availability of salmon for harvest. To determine the number of salmon available for harvest each year, abundance forecasts made in February are compared to the number of spawning salmon deemed necessary under the plan to provide for the next generation. Abundance forecasts for 2008 were generally very low along the entire West Coast.

The most problematic forecast for the ocean fisheries was for California Central Valley fall-run Chinook salmon return in 2008. Absent any fishing in the ocean or in the rivers, the number of spawners expected to return to the Central Valley is one-third to one-half the number required to meet the spawning goal. The abundance of spawners is forecast to be fewer than 60,000 fish compared with the goal range of 122,000 to 180,000 fish. As recently as 2002, nearly 800,000 fall Chinook returned to the Central Valley. Commercial and recreational salmon fisheries in the ocean off Oregon and California depend very heavily on the fall run of Central Valley Chinook, as this run accounts for as much as 80 to 90 percent of the catch off these two states. Because of the low abundance of fall Chinook and the great dependence of the ocean fisheries on this run, the Council recommended a complete closure of the ocean commercial salmon fisheries from near the Columbia River south to the Mexican border to protect spawners for future reproduction. The only recreational fishery recommended to be open for this area is a small fishery off Oregon targeted on hatchery-produced coho salmon. On May 1, NMFS approved and implemented these recommendations. At the same time, the Secretary of Commerce determined that there is a resource disaster and a commercial fishery failure under the Magnuson-Stevens and the Interjurisdictional Fisheries Acts due to the extremely low abundance of fall Chinook which, even if fishing were allowed, would result in severe economic impacts.

NMFS scientists conducted a preliminary inquiry into the potential causes for the sudden low population levels of Central Valley fall Chinook. They found that ocean conditions from 2003 through 2005 were the most likely immediate cause of the rapid decline in abundance. This finding was based on an examination of the factors indicating the presence of food for salmon at the time the fish emerged from the rivers into the ocean. At this critical time for salmon survival, the availability of prey is normally high along the West Coast due to upwelling, when nutrient-rich deep waters rise to the surface. The salmon that would have supported this year's fisheries emerged into an ocean without abundant prey and likely had a low survival rate as a result. Survival of salmon from other watersheds was poor during this period as well, with the negative effects being strongest in the south and lessening to the north.

This preliminary evaluation does not exclude other contributing causes. Many natural and human-caused factors in the freshwater environment influence the survival of salmon. The ESA listings of winter-run and spring-run Chinook and steelhead in the Central Valley identified many freshwater habitat threats that contributed to the declines of those populations. NOAA scientists are undertaking a more focused investigation of the Central Valley fall Chinook ecology, and this new study will be completed within the next few months.

Some parties have hypothesized that increased pumping of water from the Sacramento/San Joaquin Delta and ensuing entrainment mortality at the pumps is partially to blame for the decline of salmon. However, loss of all juvenile Chinook salmon at the Delta pumps was below average in 2004-2005, and below the incidental take limits for listed populations. Although NMFS cannot verify the degree Delta pumping rates played a part in the decline of salmon in the Central Valley, NMFS scientists noted that salmon in other river systems along the coast suffered similar declines. Therefore, the cause of the decline is likely a survival factor common to salmon runs from different rivers and consistent with the poor ocean conditions hypothesis being the major causative factor.

THE STATE OF SCIENCE BEHIND THE COURT-DETERMINED INADEQUATE BIOLOGICAL OPINIONS ON THE SACRAMENTO, KLAMATH, AND COLUMBIA/SNAKE RIVERS

NMFS has taken strong steps to improve its biological opinions in the recent past and to clarify review procedures. First, NMFS has more strictly defined the internal review and clearance procedures for biological opinions. Second, NMFS has adopted a practice of using independent scientific reviews as a part of the development of some complex and controversial biological opinions, such as those in the Klamath, Central Valley, and Columbia/Snake Rivers.

Section 7 of the ESA provides NMFS tools and a responsibility for protecting threatened and endangered species. All federal agencies that authorize, fund, or per-

mit activities that "may affect" ESA-listed species are required to consult with the agency responsible for that species. In the case of salmon, NMFS is the responsible agency. The end product of the consultation is a biological opinion that provides an analysis as to whether the federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of designated critical habitat. Should the impact of a project reach the level of jeopardizing the continued existence of a listed species or result in adverse modification to the critical habitat for that species, the project may be able to proceed with modifications by adopting a reasonable and prudent alternative to the project as initially proposed. Proposed projects and the ESA consultations related to them range from simple and local to very complex and far-reaching.

The biological opinions for the Sacramento, Klamath, and Columbia/Snake Rivers are among the most complex and far-reaching that NMFS has addressed. In each case, NMFS staff has used the best scientific information available at the time of the consultation to determine the impact of those ongoing activities on the listed salmon populations and their designated critical habitats. The quality and extent of available information has varied among projects and has improved over time. However, in each case, a Federal Court found that the biological opinion or the incidental take statement did not fully meet the requirements of the law and implementing regulations. NMFS has committed to expanding the body of science related to salmon. To aid in this improvement, NMFS has more broadly used independent scientists at various stages in the consultation and in development of the biological opinion. These independent reviews have been helpful, and many of the recommendations from the reviews have been adopted immediately. For example, NMFS Science Centers and teams convened for the purposes of providing recommendations for the conservation of listed salmon have developed information NMFS now uses to assess the impacts of all proposed federal actions. This analytical framework, built around the concepts of long-term, self-sustaining salmon populations—also known as viable salmonid populations—provides a solid scientific foundation for NMFS' analysis. In addition, this framework allows NMFS to consider the role of climate change in the species' conservation, as the long-term self-sustaining salmon population is also resilient to environmental variation. Some independent review recommendations require more time to develop and will be incorporated in future consultations.

In the case of the Sacramento River (Central Valley Project) water management, the most recent consultation was completed in 2004. The biological opinion on this controversial project proposal became controversial itself. In April 2008, a Federal Court found that the opinion did not use the best science available, did not apply a clear analytical framework, and reached conclusions that were not supported by the analysis contained in the opinion. NMFS is involved in a new consultation with the federal action agency on this project (Bureau of Reclamation) and their co-operator, the California State Department of Water Resources. NMFS expects to complete this new consultation in March 2009. The consultation will incorporate a clear analytical framework, more detailed data on flow and temperature management, updated modeling, impacts of climate change on future water flow levels, and additional current science related to the impact of climate change on salmon populations. These are among the many recommendations NMFS received from independent scientific reviews of the 2004 biological opinion before the Court decision.

The new consultation for the Central Valley Project operations will have independent reviews during its preparation. The first review has been commissioned by the Bureau of Reclamation for the preparation of its biological assessment of the impact of its ongoing operations on listed salmon, green sturgeon, and designated critical habitat. Once the Bureau of Reclamation completes its assessment including the independent review, NMFS will begin its consultation and its own assessment of the impact of water management on salmon, sturgeon, and their critical habitat. NMFS has scheduled into its consultation process an independent scientific review of its draft biological opinion before rendering a final biological opinion on the project.

For the Klamath River, a new consultation is nearing completion and a preliminary draft biological opinion is currently undergoing an independent scientific review. Previous critical reviews of NMFS biological opinions on the Klamath Project of the Bureau of Reclamation have provided recommendations for improving the science and the use of science that are incorporated into this current consultation. Two recent reports have enhanced our understanding of the instream flow needs of coho salmon in the Klamath River Basin: (1) the Phase II Instream Flow Report and (2) the subsequent review of the Report by the National Research Council. These reports highlight the need for a basin-wide science plan to support policy and decision-making for the basin's hydrological and ecological resources.

On May 5, 2008, three major biological opinions were issued for the Columbia River and its tributaries. They cover the operations of the 14 major federal hydropower projects on the Columbia and Snake River systems, which provide nearly half of the electric power for the Northwest, the Bureau of Reclamation dams that provide much of the water for irrigated agriculture in Idaho, and the state and tribal salmon harvest in the Columbia River and its tributaries.

All three opinions rely on the same comprehensive scientific analysis—the product of more than 25 years of ongoing research on the specific factors limiting Columbia River salmon. Much of this research has been published in peer-reviewed journals or has been the subject of independent scientific review. The analysis examines in great detail all of the effects of the proposed actions, both the adverse impacts and the proposed improvements. The opinions look at all major factors, including the effects of the hydropower system, harvest, hatchery operation, and habitat condition, and include significant improvements in each of these areas.

In developing these opinions, NMFS and the federal agencies operating the dams were urged by a federal judge to take a collaborative approach. The judge had rejected the agency's earlier biological opinions for both hydropower operations and the irrigation projects. In response, the federal agencies have worked closely with states and tribes to develop these opinions, holding over 200 meetings and work group sessions over the past two years. The new opinions are supported by three of the four northwestern states, and by four of the seven Indian tribes involved in the previous litigation.

The shifting direction provided by the federal court system involving regulatory and statutory interpretations of the ESA and its implementing regulations has been a significant issue regarding the use of science. For example, two significant questions are how to accurately characterize environmental baseline conditions and define critical habitat. In these instances, even the most well intended biologist has difficulty navigating the maze of Circuit Court cases, regulatory direction, and agency policy, especially on projects as complicated as the Columbia/Snake River, Klamath, and Central Valley. How to address the role of millions of ESA-listed hatchery fish in the jeopardy analysis is another area with complicated and conflicting judicial rulings that make an ESA analysis challenging.

LINKAGE BETWEEN RIVER AND FISHERIES MANAGEMENT UNDER THE AUSPICES OF BOTH THE ENDANGERED SPECIES ACT AND THE MAGNUSON-STEVENS ACT

Salmon live in both the marine and freshwater environment, and therefore depend on the resources and space within both environments to persist in the face of changing climatic conditions. The health of salmon populations depends on the overall functioning of their ecosystem, not simply the resources or conditions provided in one place or by one variable. NMFS recognizes this need and considers the health and function of these environments when managing both ESA-listed and commercially harvested salmon species. At the same time, human use of freshwater and marine resources adds an additional level of complexity to the task of managing these environments and species. NMFS views the authorities related to salmon protection and fisheries management under the ESA and the Magnuson-Stevens Act as complementary. The non-listed target salmon fishery is allowed an incidental catch of listed salmon that commingle in the ocean with the non-listed target populations. NMFS is required to examine the probable impact of ocean salmon fisheries on the ESA-listed salmon to ensure that the fishing will not jeopardize their continued existence.

Throughout the salmon range on the West Coast, including the rivers, NMFS has authority under ESA to require that federally conducted, funded, or permitted activities are carried out in a manner that does not jeopardize the continued existence of or adversely modify the critical habitat of ESA-listed fish. Should NMFS find that a project is likely to cause such harm to a species or critical habitat, NMFS provides reasonable and prudent alternatives for achieving the objectives of the project while protecting salmon. For projects not likely to jeopardize the continued existence of listed salmon or result in the destruction or adverse modification of critical habitat, NMFS also has authority to require additional protective measures for listed salmon as terms and conditions of the incidental take permit issued for the project.

Using this authority under ESA, NMFS has required many protective actions for listed salmon. NMFS has improved the future outlook for salmon by restoring or improving passage for salmon beyond dams, mandating minimum river flows below dams, requiring screening of diversions, improving water quality, reducing the negative impact of land-based activities on the streams, and rebuilding suitable spawning and rearing habitat for ESA-listed salmon. In the Central Valley, the timing and temperature of water releases from Shasta Dam, the opening of the Red Bluff Diver-

sion Dam, improved screening on major diversions, and removal of multiple migration barriers on tributaries have substantially improved the conditions for winter- and spring-run Chinook since their listings. The populations of these salmon improved from the 1990s until 2006. Habitat improvement and favorable ocean conditions contributed to the reversal of the declines that motivated the ESA listings. Unfortunately, the 2007 estimate of winter Chinook was far below the estimates of recent years, which hopefully will return to increasing trends with improved ocean conditions.

For salmon populations not listed under ESA, NMFS has authority under the Magnuson-Stevens Act to define the essential habitat for those fish. NMFS reviews federal projects for their likely impacts on the essential habitat of salmon and recommends measures that would provide needed protection of the populations of salmon not listed under ESA. This review is concurrent with the ESA review if both listed and non-listed salmon are present in the area of the project. The Magnuson-Stevens Act recommendations to protect essential fish habitat are not binding on the federal agencies, but other federal agencies are required to respond within 30 days as to whether they accept NMFS' conservation recommendations.

Differences in the level of protection among salmon populations in the same watershed can pose a challenge. In most situations, both the ESA-listed and non-listed salmon populations benefit from the measures required by NMFS for protection under ESA. Screening diversions, reopening historic habitat lost because of impassible dams, and measures that reduce the harm to the streams from activities upslope from the river benefit all salmon and other aquatic species in the watershed. In circumstances such as those in the Central Valley, the more urgent priority for the protection of ESA-listed species takes precedence over the protection of the fall Chinook run when the question at hand involves the timing of delivery of limited cold water to spawning and rearing habitat or the timing of diversions of water from the river for other uses. NMFS has examined those circumstances carefully and sought to provide for the needs of all salmon. But the project modifications NMFS believes are necessary are only recommendations with respect to protection of non-listed fish, while they are binding requirements for the ESA-listed fish and actions necessary to conserve critical habitat.

NMFS also can improve salmon populations under the authority of the Federal Power Act to prescribe mandatory fish passage at dams licensed by the Federal Energy Regulatory Commission (FERC). NMFS recently used this authority to require the hydroelectric power dams on the Klamath River to be retrofitted to provide passage for anadromous fish into the upper basin. When completed, this action will restore salmon to over 300 miles of spawning and rearing habitat from which they have been excluded for a century. In the Klamath and other basins, the FERC dam relicensing process has provided opportunities to negotiate broad agreements that will provide benefits to salmon. These benefits derived under the Federal Power Act apply to all fish and not just the ESA-listed populations.

CONCLUSION

The West Coast salmon fishery disaster was likely driven primarily by poor ocean conditions for salmon survival, although scientists acknowledge that conditions in the freshwater habitat for salmon have had an impact on the population's resilience to natural cycles in the ocean conditions. NMFS will conduct a study during the next few months that will focus on the contributing causes to the Sacramento fall Chinook collapse.

NMFS has made substantial improvements in the internal and external review processes for biological opinions. Independent scientific review will be a part of the consultation process for complex and controversial projects. The science available for consideration in the new biological opinions for the Columbia, Klamath and Sacramento Rivers is expanded from that available a few years ago. This improved scientific base relating river flow to salmon habitat availability is being employed in the nearly complete Klamath River biological opinion. The biological opinion on the Sacramento River water management will include new temperature modeling with finer time increments and will consider impacts of global climate change on future salmon populations.

NMFS is using its authority under the ESA and the Magnuson-Stevens Act to protect salmon and the habitats on which they depend. While most often the ESA-listed and non-listed salmon enjoy the benefits of habitat improvements in a river, occasionally the listed salmon receive priority attention in water management decisions to the potential detriment of the non-listed salmon. The authority to protect essential fish habitat under the Magnuson-Stevens Act is limited to recommendations, while protections under ESA are binding.

Finally, salmon depend on the health of a broad ecosystem including the ocean, rivers, and the watersheds that feed the rivers. While NMFS uses the authorities provided in the ESA and the Magnuson-Stevens Act to ensure that salmon are protected on a project-by-project basis, more comprehensive approaches are needed to reach the most effective and enduring solutions to the often competing needs of people and fish. Striking a balance between competing demands for water in overallocated western river basins is nearly impossible, even under the best of conditions. Although NMFS is doing its best to improve the scientific rigor underpinning its analyses, and has taken meaningful steps to add clarity to its internal review procedures, there are many variables outside of our control. Finding long-term solutions to these vexing problems will require a shared vision among parties with differing views (e.g., Klamath Restoration Agreement), continued investments in habitat restoration, long-term conservation planning (e.g., Bay-Delta Habitat Conservation Plan), and other conservation programs.

Thank you again for this opportunity to present NMFS' views on these matters. I would be pleased to answer any questions.

Ms. BORDALLO. Thank you very much, Mr. McInnis.

Now, Mr. Rode, it is a pleasure to welcome you before the Subcommittee. I want to mention here your service to the California Department of Fish and Game for over 25 years as a fishery biologist and an environmental scientist in the Klamath Region could be commended. So you now are recognized to testify for five minutes.

STATEMENT OF MICHAEL RODE, STAFF ENVIRONMENTAL SCIENTIST [RETIRED], CALIFORNIA DEPARTMENT OF FISH AND GAME

Mr. RODE. Thank you, Madam Chair and Subcommittee Members, for providing me the opportunity to testify today. My name is Michael Rode. Before retiring from the California Department of Fishing and Game, I was the lead scientist for review of Bureau of Reclamation, Klamath Project Operations on threatened Klamath River coho salmon.

My intent is to concentrate on the NMFS 2002, 10-year, coho BO to show that it has adversely affected not only coho but also Chinook salmon. There are five points I would like to make.

One: Ocean conditions are an important factor in salmon survival. The poor in-river environmental conditions have played a greater role on the Klamath.

Two: The 2002 BO does not avoid jeopardy to threatened coho salmon.

Three: EFH mandates have not been met for either coho or Chinook salmon.

Four: The BO is not based on the best scientific data available.

Five: The BO constitutes single-species management that does not consider Chinook salmon.

Flows were predicted by the BO to be increased in three phases but not reach levels that would void jeopardy until 2010. BOR assumed responsibility for only 57 percent of the flow targets yet acknowledged that they would not meet that goal until 2006.

NMFS recognized that this approach may not avoid jeopardy but nonetheless approved the RPA based on wishful thinking that today does not substantially materialize.

The major conclusion that NMFS reached was that coho salmon adults spawn and juveniles rear only in tributaries. Therefore, the RPA flows address only the adult and smolt migratory phases of

coho, even though data show other life history phases occur in the mainstem Klamath. The RPA flows do not address the needs of Chinook salmon, which use the mainstem Klamath River extensively for all life history phases. This has resulted in poor single-species management.

Because BOR failed to consult on EFH, NMFS relied on the BO in preparing its EFH conservation recommendations. NMFS determined that the proposed action will adversely affect spawning, rearing migratory EFH functions of Pacific salmon currently or previously managed under the Magnuson-Stevens Act. Primarily, NMFS thinks that the proposed project will result in a continued decline in EFH conditions in the Klamath River over time and thereby preclude rebuilding of the coho salmon population and reduce habitat required to support a sustainable Chinook fishery.

However, NMFS concluded that implementation of the reasonable and prudent alternative would constitute the necessary conditions for conserving Klamath River Chinook and coho EFH. As we shall see, the RPA has not delivered the conservation of the EFH, as promised in the BO.

A major flaw of the BO is that NMFS did not use the best available science in developing the RPA. The Hardy Final Phase II report was released in time for potentially use in developing the BO, but its flow recommendations were not incorporated. The report was reclassified as a draft and shelved by DOI after more than four and a half years.

The Hardy Phase II final report was completed on July 31, 2006, and is the definitive work on fish habitat flow relationships in the Klamath River.

The 2007 NRC report endorsed the study by stating that the most important outcome of the EFS was that it indicated that increases in existing flows downstream from Iron Gate Dam probably would benefit the fish populations through improved physical habitat associated with more water and through reduced water temperatures.

In September 2002, less than four months after the 2002 BO was released, at least 33,000 and as many as 70,000 adult salmonids died in the lower reaches of the Klamath River. The Fish and Game 2002 report stated that flow is the only controllable factor and tool available in the Klamath Basin to manage risks against future epizootics and major adult fish-kills. Increased flows when adult salmon are entering the Klamath River, particularly during low-flow years, such as 2002, can improve water temperatures, increase water volume, increase water velocities, improve fish passage, provide migration cues, decrease fish densities, and decrease pathogen transmission between fish.

Given the magnitude of the fish kill and its close correlation to low flows, it would be expected that BOR would reinitiate consultation with NMFS on the Coho BO, but they did not.

Another serious problem we have on the river are juvenile fish kills totaling hundreds of thousands of fish each summer, and NMFS is aware of that and the threat that this has on the Chinook and coho, but ESA consultation was not initiated.

The Bureau released an interim 2008 Klamath Project Operations Plan on April 3, 2008, indicating it would operate the project

consistent with the flow requirements of Phase III of the BO. However, BOR is also proposing something far less protective of coho salmon and, by implication, Chinook salmon.

In an October 22, 2007, letter that accompanied the 2008 BA, the BOR is proposing to operate the Klamath Project for the next 10 years under Dry Year that is 90 percent exceeding drought conditions, regardless of water year type. Furthermore, BOR is proposing to reduce the October-through-February flows at Iron Gate Dam to less than 1,000 CFS.

Both of these standards were part of the 2002 BO Phase III RPA. Therefore, the BOR proposal falls far short of the requirements of the Armstrong decision and the recommendations of the Hardy Final Phase II Report. Unless NMFS rejects the BOR 10-year KPOP Klamath River flow proposal and implements the Hardy Final Phase II Report flow recommendations, we can expect continued deterioration of the Klamath River anadromous salmonid fishery resource.

I would recommend that NMFS should require, in the next Coho BO, that the Hardy Final Phase II flow recommendations be implemented on an interim basis until further studies can refine the model, as recommended by the 2007 NRC Report. These flows are a necessary starting point and the foundation for basin-wide, anadromous fish restoration that cannot otherwise be successful. Funding and implementation of the data improvements recommended by the 2007 NRC report are also needed.

Thank you for taking my testimony. I will be glad to answer questions.

[The prepared statement of Mr. Rode follows:]

Statement of Michael Rode, Retired CDFG Senior Fishery Biologist/ Staff Environmental Scientist

Chairwoman Bordallo and Subcommittee members, thank you for providing me the opportunity to testify before you today. My name is Michael Rode. I worked for the California Department of Fish and Game (CDFG) for twenty eight years as a fishery biologist and environmental scientist before retiring in December, 2005. During the last fifteen years of my employment with the CDFG, my job title was Klamath River Coordinator. In that capacity, I was the lead scientist for the CDFG review of U.S. Bureau of Reclamation (BOR) Klamath Project Environmental Impact Statements (EISs), annual Klamath Project Operations Plans (KPOPs) and Biological Assessments (BAs) as well as review of National Marine Fisheries Service (NMFS) Biological Opinions (BOs) on the effects of Klamath Project Operations on Southern Oregon/Northern California Coasts (SONCC) threatened coho salmon.

My intent today is to concentrate my testimony on the NMFS 2002 10-year Coho BO (emphasizing the period 2002-2005) that currently governs flows in the Klamath River below Iron Gate Dam (IGD) (River Mile 190) and to show that the 2002 BO has adversely affected not only Klamath River coho, but also Chinook salmon. Although my analysis of the 2002 BO occurred during DFG employment, my comments and conclusions today are entirely my own.

There are five main points I would like to make today:

1. Although ocean conditions are an important factor in salmon survival, weak Klamath coho and Chinook salmon stocks have constrained west coast mixed stock ocean salmon fisheries for more than twenty years, even when other salmon stocks were robust and ocean conditions were favorable. This strongly indicates that unfavorable inriver environmental conditions have played a major role in suppressing Klamath coho and Chinook salmon numbers.
2. The 2002 Coho BO does not avoid jeopardy to the continued existence of threatened SONCC coho salmon, nor prevent the destruction or adverse modification of critically designated SONCC coho salmon habitat, as required under the Endangered Species Act (ESA).

3. The mandates of the Magnuson-Stevens Fishery Conservation and Management Act, as amended, have not been met by BOR or NMFS for coho or Chinook Essential Fish Habitat (EFH) in the Klamath River.
4. The 2002 Coho BO is not based on the best scientific data available.
5. Klamath River flow management below IGD is governed solely by the 2002 Coho BO, thus it constitutes single species management and does not consider the flow and habitat needs of other fish species in the Klamath River, including Chinook salmon

Background

IGD, constructed in 1962 as the last downstream facility of PacifiCorp's Klamath Hydroelectric Project (FERC Project No. 2082), acts as the upper limit of anadromous fish distribution in the mainstem Klamath River. The Federal Energy Regulatory Commission (FERC) established minimum flows at IGD as part of the 1956 Klamath Hydroelectric Project licensing process, but those flows were only partially based on limited fishery information and were generally insufficient for protection of downstream fishery resources. Furthermore, even though PacifiCorp operates the six mainstem Klamath River dams within the Hydroelectric Project, downstream water availability during periods of water shortage has been decided by the BOR's Klamath Project per agreement with PacifiCorp that gives BOR control of releases at Link River Dam (the outlet to Upper Klamath Lake). Thus, the FERC minimum flows, which, to begin with, were insufficient for protection of most life stages of coho and Chinook salmon, were frequently and regularly not met at IGD during the1962-1996 period, often during times of high vulnerability for coho and Chinook salmon early life history stages. During severe droughts such as occurred in 1992 and 1994, flows were frequently and suddenly drastically reduced below FERC minimums with little or no warning. Since 1996, PacifiCorp has operated its facilities in accordance with BOR's annual KPOP flow schedule. The general BOR management pattern during this period was to fully meet agricultural irrigation needs in the upper Klamath Basin under all conditions, frequently at the expense of maintaining and protecting downstream anadromous fish and their habitat.

On June 6, 1997, SONCC coho salmon were federally listed as a threatened species. In 1999, coho critical habitat was identified for the Klamath River and the first coho BO was completed by NMFS on July 12, 1999, providing ESA coverage for Klamath Project operations from April1, 1999 through March 31, 2000.

The Hardy Phase I Final Flow Study Report, which was contracted by the Department of the Interior (DOI), was released on August 5, 1999. The report's main objective was to quickly "provide interim minimum monthly flow recommendations for the main stem Klamath River below Iron Gate Dam downstream to the Scott River" with the expectation that the flow recommendations would be used for ESA Section 7 consultations for year 2000 and subsequent operations of the BOR's Klamath Project. However, this report was summarily dismissed and criticized by upper Klamath Basin water users, the BOR and NMFS for not including site-specific data suitable for analysis and evaluation using habitat based modeling, even though such data were unavailable at that time. A more important reason that the Phase I flow recommendations were not implemented may have been that they were considered to be too high by BOR and NMFS staff and would, thus, impact irrigation deliveries. Out of these criticisms was born the Hardy Phase II Flow Study, again contracted by DOI, and which was begun in 1999 and would result in the most comprehensive study ever conducted on the Klamath River to address anadromous salmonid habitat and flow requirements.

A second Coho BO was released on April 6, 2001 amidst a severe drought in the upper Klamath Basin. A determination was made by the U.S. Fish and Wildlife Service (USFWS) and NMFS that inflows to Upper Klamath Lake (UKL) would not be sufficient to provide for Klamath Project agricultural deliveries as well as meet UKL elevation requirements for two species of endangered suckers and IGD flow releases for threatened coho salmon. Thus were born the 2001 water wars and the Klamath Basin became the poster child for what supposedly was wrong with the ESA.

The 2002 Coho Biological Opinion

The 2002 Coho BO marked a radical departure from the two prior BOs. On May 31, 2002, for the first time, NMFS approved ESA coverage for Klamath Project operations for a 10-year period. The CDFG, and many others, stated in written comments that the period of coverage should be much shorter so that new scientific findings and other information could be incorporated into BO revisions on a regular basis. We were concerned that the BOR and NMFS would be reluctant to reinitiate

ESA Section 7 consultation in mid-water year that would result in meaningful changes to the BO and, thus far, that has proven to be the case.

Flow releases at IGD were predicted by the 2002 Coho BO to be increased in three phases but not reach levels that would avoid jeopardy until 2010, eight years after issuance of the BO. Furthermore, the BOR was taking responsibility for only 57% of the flow targets required in each phase of the plan, based on their conclusion that the Klamath Project only irrigated 57% of the total irrigable acreage in the upper Klamath Basin, even though the BOR controlled 100% of the water released from the upper basin. Even so, BOR acknowledged that they could not even meet their 57% portion of the RPA flows until 2006 without building a 100,000-acre-feet water bank and taking other measures and actions (that were unspecified) to make up any difference that might occur. The other 43% of the RPA flows would be made up outside the boundaries of the Klamath Project by stepping up enforcement of water rights and water right laws, voluntary conservation measures and programs to increase flows in the tributaries, actions that were highly unlikely to occur by the year 2010. Even more untenable was the fact that NMFS recognized that this approach "may not avoid jeopardy over the 10-year period of proposed project operations and therefore would not constitute a viable RPA (p 55, 2002 Coho BO). Never-the-less, NMFS approved the RPA based on what appeared to be wishful thinking, that to date has not substantially materialized.

One of the major, but erroneous, conclusions that NMFS reached was that coho salmon adults spawn and juveniles rear only in tributaries and, thus, the mainstem Klamath River's only function, as far as coho are concerned (and the BO is concerned), is to provide upstream adult migration and downstream smolt migration. The 2002 Coho BO RPA flows attempt to address only the adult and smolt migratory life history phases of coho, even though monitoring and research data show some coho salmon do spawn (albeit limited due to the threatened status of coho) and significant numbers of coho fry rear in the mainstem. But more importantly, from a sustainable fisheries perspective, the RPA flows do not, and are not even intended to, protect or sustain Chinook salmon which use the mainstem Klamath River extensively for spawning, egg incubation, fry rearing and juvenile outmigration at times of the year that differ from coho salmon. The result of this regulatory (ESA) oversight is that we have poor single species management on the Klamath River for a complex of fish stocks that requires a more comprehensive and holistic approach for these fisheries to thrive into the future.

The scientific community and down-river fishery managers were stunned by this radical change in approach to protection of threatened coho salmon and its implications on other fish species, especially since ongoing research was strongly suggesting that Klamath River anadromous fish required more water than was being provided, not less.

Essential Fish Habitat

Essential Fish Habitat (EFH) was identified and described for Chinook and coho salmon in the Klamath River and its tributaries upstream to IGD by the Pacific Fisheries Management Council (PFMC) under Amendment 14 to the Pacific Coast Salmon Fishery Management Plan. Under provisions of the Magnuson-Stevens Fishery Conservation and Management Act, regulations require that Federal action agencies, in this case BOR, consult with NMFS and provide them with a written statement on the effects of their action on EFH. But, because BOR failed to do this, NMFS relied on the 2002 Coho BO in preparing its EFH conservation recommendations. Upon receipt of the recommendations, the action agency is then required to provide a detailed written response within thirty days describing how they intend to avoid, mitigate or offset the impacts of their activity on EFH. This course of events did not occur.

Instead, NMFS determined that the proposed action:

> *"will adversely affect spawning, rearing and migratory EFH functions of Pacific Salmon currently or previously managed under the Magnuson-Stevens Act. Primarily NMFS thinks that the proposed project would result in a continued decline in EFH conditions in the Klamath River over time, and thereby preclude rebuilding of the coho salmon population and reduce habitat required to support a sustainable Chinook fishery."*

However, NMFS concluded that implementation of the BO's RPA and the terms and conditions of the incidental take statement would constitute necessary conditions for conserving Klamath River Chinook and coho EFH. As we shall see, the RPA has not delivered the conservation of EFH as promised in the Coho BO.

A major issue is that NMFS has not felt obligated to give any real consideration to protection, much less enhancement, of unlisted species, even though their public

trust and tribal trust responsibilities would suggest that they should. For instance, the NMFS Southwest Region web site states the following:

> *"Flow releases at Iron Gate Dam are managed according to a biological opinion (B0) issued by NOAA Fisheries Service. The flow release operations under the BO are calculated to provide the necessary protections for the Endangered Species Act (ESA) listed coho salmon in the Klamath River and are not designed specifically to protect Chinook salmon, which are not listed under the ESA." (emphasis mine)*

Best Available Science

Another major flaw of the 2002 Coho BO, and perhaps the most important one, is that NMFS did not use the best available science for formulating the RPA. The Hardy Phase II Flow study was started shortly after completion of the Phase I Report on August 5, 1999. The Final Phase II Report was reviewed by the public, interested agencies and all cooperators and then released on November 21, 2001, in time for potential use in developing the 2002 Coho BO. Although a number of ancillary findings of the Phase II Report were incorporated in the BO, its flow recommendations were not. The Phase II Report was reclassified as a draft report by DOI and shelved. The reason given was that the Upper Klamath Lake (UKL) inflow numbers (which were originally provided by BOR) used by the Phase II hydraulic modeling were not what BOR considered to be the most accurate or current version. However, BOR could not release the newer inflow numbers for Dr. Hardy's use, for an indeterminate period of time, because that data were being used as part of the upper Klamath Basin Oregon water rights adjudication. My understanding at the time was that if these UKL inflow data were used for any other purpose than the water rights adjudication, BOR claimed that they would be vulnerable to a law suite. In addition, the Draft Hardy Phase II Final Report was suddenly plagued by the inability to secure promised contractual funding from DOI and other bureaucratic machinations that delayed its final release for over four years and eight months. During this whole episode, BOR claimed the flow recommendations were unusable because they were still in draft form.

About the same time that the Draft Hardy Phase II Report was completed, the BOR started their own investigation to attempt to describe the natural outflows from Upper Klamath Lake and Keno prior to development of the upper Klamath Basin. Early drafts of their report, which were soundly criticized, erroneously suggested that natural flow accretions at these two points were significantly lower than formerly thought. A final report entitled Natural Flow of the Upper Klamath River was released in November, 2005. It was BOR's expectation that Dr. Hardy would use the impaired flows (flows after development) generated by this report as inputs for hydraulic modeling below IGD. Eventually, the unimpaired flows from the Natural Flows Report were used by Dr. Hardy instead and this may still be a point of contention.

The National Academy of Sciences National Research Council (NRC) Report: Hydrology, Ecology, and Fishes of the Klamath River Basin (NRC, 2007) concluded that:

> *"the Natural Flow Study did not adhere closely enough to standard scientific and engineering practice in the areas of calibration, testing, quality assurance, and quality control. These activities are prerequisites for confidence in the model products by users, including decision makers and other modelers." (p 149)*

The Hardy Phase II Final Report was finally completed on July 31, 2006 and to my knowledge its flow recommendations have still not been utilized to manage Klamath River flows at Iron Gate Dam. The sense one had during this turbulent period was that there were strong political forces at work at DOI that did not want to see the Phase II Report completed because its flow recommendations were perceived as a threat to irrigated agriculture.

The Phase II Flow Study was more than a state-of-the-art habit/flow relationship modeling effort. It drew upon and considered most all of the significant research and monitoring that had been conducted on the Klamath River below Iron Gate Dam and much of what had been done in the upper Klamath Basin to date and in many cases incorporated that information into the Final Phase II Report. There were many Federal, State, Tribal and private cooperators who provided fish, habitat, water chemistry, hydrologic and other needed data and who included in future work plans research projects and monitoring that would produce needed new data that would make the Phase II Study a success.

Another important aspect of the study was that Dr. Hardy created a Klamath Technical Review Team to assist in study design, data review and report review. The Technical Review Team included participation by the U.S. Fish and Wildlife

Service, BOR, NOAA Fisheries, U.S. Geological Survey, Bureau of Indian Affairs; Yurok, Karuk, and Hoopa Tribes; Oregon Department of Fish and Wildlife, CDFG, and representatives of the Klamath Water Users Association.

The Hardy Phase II Final Report was developed for the Department of the Interior:

> *"to recommend instream flows on a monthly basis for specific reaches of the main stem Klamath River below Iron Gate Dam by different water year types. These recommendations specify flow regimes that will provide for the long-term protection, enhancement, and recovery of the aquatic resources within the main stem Klamath River in light of the Department of the Interior's trust responsibility to protect tribal rights and resources as well as other statutory responsibilities, such as the Endangered Species Act. The recommendations are made in consideration of all the anadromous species and life stages on a seasonal basis and do not focus on specific target species or life stages (i.e., coho)" (Hardy, et al, 2006).*

The Hardy Phase II Final Report is the definitive and most comprehensive work on Klamath River anadromous salmonid habitat and flow requirements. In a December 4, 2002 PFMC letter (from Radtke to Norton and Evans) it was stated that DOI had spent $890,000 and other cooperators had contributed more than $1 Million to the flow study effort to date. No other similar flow studies have been conducted on the Klamath River and it is unlikely another similar effort could be justified.

Figure 1. in the Supplemental Information compares the Hardy Phase II recommended flows versus the 2002 Coho BO Phase III flows and the actual flows that occurred during water year 2007, a below average water year type.

The NRC Report had this to say about the Hardy Phase II Flow Study:

> *"The most important outcome of the IFS was that it indicated that increases in existing flows downstream from Iron Gate Dam probably would benefit fish populations through improved physical habitat associated with more water and through reduced water temperatures." (NRC, 2007, p 133) and "The committee concludes that the [Hardy Phase II] study enhances understanding of the Klamath River basin ecosystem and the flows required to sustain it. In their present form, if they are adopted, the recommended flows resulting from the study should be adopted on an interim basis pending the model improvements outlined below to overcome its limitations, and a more integrated assessment of the scientific needs of the basin as a whole. The recommended flow regimes offer improvements over existing monthly flows in that they include intra- and interannual variations and appear likely to enhance Chinook salmon growth and young-of-the-year production." (NRC, 2007, p 152).*

A CDFG (letter of May 24, 2002, Koch to Sabo) commented on the May 16, 2002 draft of the Coho BO and advised BOR to implement the Hardy Phase II flow recommendations in the RPA, beginning in 2002 and that these flows would help meet EFH mandates. However, this recommendation was not implemented.

Fish-Kills

In September, 2002, less than four months after the 2002 Coho BO was released, at least 33,000 and perhaps as many as 70,000 adult salmonids died in the lower reaches of the Klamath River. By far, most of these fish were adult Chinook salmon, although hundreds of coho and steelhead also succumbed. This event was unprecedented for the Klamath River and likely one of the largest salmon mortalities ever experienced on the west coast.

The primary cause of the fish-kill was a disease epizootic from the ubiquitous pathogens ich and columnaris, but several factors combined that stressed the fish and allowed the epizootic to flourish. Warm water temperatures (which are normal for this time of year) combined with an above-average run of Chinook salmon and near-record low flows resulted in high fish densities and created ideal conditions for pathogens to infect salmon.

The CDFG 2002 Fish Kill Report summarizes its conclusions as to what caused the fish kill and what can be done to avoid future kills by stating:

> "Flow is the only controllable factor and tool available in the Klamath Basin (Klamath and Trinity Rivers) to manage risks against future epizootics and major adult fish-kills. Increased flows when adult salmon are entering the Klamath River (particularly during low-flow years such as 2002) can improve water temperatures, increase water volume, increase water velocities, improve fish passage, provide migration cues, decrease fish densities and decrease pathogen transmission between fish.

That low flow was the primary causative factor leading to the September, 2002 fish-kill was supported by two other independent reports, one by the U.S. Fish and Wildlife Service, Arcata and the other by the Yurok Tribe.

Given the magnitude of the fish-kill and its close correlation to low flows, it would be expected that BOR would reinitiate consultation with NMFS on the Coho BO, but they did not.

As serious as the September, 2002 fish kill was, a more critical issue to the survival of Klamath River salmon is the repeated mortality of juvenile salmon during their spring and summer rearing and down stream migration phase. A number of juvenile fish kills, some numbering in the hundreds of thousands, have regularly occurred in recent years. Recent investigations have shown that two myxozoan parasites Ceratomyxa Shasta and Parvicapsula minibicornis have been a significant factor in mortality of juvenile Chinook salmon and can also cause disease in coho salmon. These parasites thrive in vegetated, silt-laden slow water environments and the primary remedy for their control is to increase the magnitude and variability of flow releases at IGD during these months. A 2005 report entitled:

> *FY 2004 Investigational Report: Health Monitoring of Juvenile Klamath River Chinook Salmon by the USFWS, California-Nevada Fish Health Center concluded that "Depending on the Juvenile Klamath River salmon population size and smolt to adult ratio, the effective number of adult salmon lost to C. Shasta as juveniles could rival the 33,000+ adult salmon lost in the 2002 Klamath River fish die-off."*

Since BOR and NMFS both knew about this threat to Chinook and coho salmon, why was ESA Sec. 7 consultation not reinitiated?

Figure 2 of the Supplemental Information compares grilse (2-yr. old) Chinook salmon returns versus outmigration flows that these fish experienced as juveniles (0+) two years previously. The graph shows a strong positive correlation between flow and the number of grilse returning two years hence; the greater the flow, the higher the returns. This correlation held well for years 2001-2004, but then fell apart in 2005, suggesting deteriorated ocean conditions may have had a greater influence that year.

A December 4, 2004 letter from the PFMC to DOI and Commerce (see Supplemental Information letter, Radke to Norton and Evans) summarized the concerns of the 2002 Coho BO and the fact that it was not protecting Klamath River fisheries. Another letter dated December 15, 2005 from the PFMC to BOR (Hansen to Keyes) indicated the same concerns still had not been resolved.

Federal Court Decisions

In the latest of a number of court decisions favoring increased protection for Klamath River coho salmon, the Ninth Circuit Court of Appeals, in March, 2007, reaffirmed a March, 2006 Federal District Court Order (Armstrong Decision) that found BOR and NMFS arbitrary and capricious and provided injunctive relief for the Plaintiffs by ordering BOR from making irrigation diversions at the Klamath Project unless flows in the Klamath River below Iron Gate Dam meet 100% of the flows called for in Phase III of the Klamath Irrigation Project Biological Opinion's Reasonable and Prudent Alternative (RPA) until a new biological opinion is completed pursuant to the Endangered Species Act ("ESA")§ 7(a)(2) and reviewed by the court. In the process the courts invalidated Phases I and II of the BO. In essence the courts struck down the entire premise of the 2002 Coho BO that RPA Jeopardy avoidance flows can be phased in slowly over many years without jeopardizing coho salmon. From this one, can conclude that for the first five years, the 2002 Coho BO did not meet the non-jeopardy standards of the ESA and did not protect and conserve critical coho habitat or coho and Chinook EFH (since EFH conservation was largely based on the 2002 Coho BO RPA).

2008 Klamath Project Operations and the 2008 Biological Assessment

The BOR released an Interim 2008 Klamath Project Operations Plan on April 3, 2008, indicating it would operate the Project consistent with the flow requirements of Phase III of the NMFS 2002 Coho BO and the water year type determined by the April 1, 2008 UKL inflow forecast by the Natural Resource Conservation Service. The Interim KPOP would stay in effect until NMFS finishes the new Coho BO that may provide new direction.

However, in contrast to the 2008 Interim KPOP, BOR is proposing something far less protective of coho salmon (and by implication, Chinook salmon). In an October 22, 2007 letter to NMFS that accompanied the Final BA on the proposed operations of the Klamath Project, from 2008 to 2018, BOR stated the following:

> *"The proposed action in the enclosed BA includes maintaining a minimum flow of 1300 cubic feet per second (cfs) in the Klamath River below Iron Gate*

Dam for the months of October through February, as contained in the Phase III Dry Year flows as described in Table 9 of the 2002 National Marine Fisheries Service (NMFS) Biological Opinion (BO). However, in an effort to provide maximum flexibility to meet coho salmon needs, we are evaluating the impacts of reducing the minimum flow discharge during these months at Iron Gate Dam from the proposed 1,300 cfs to 1,000 cfs during the months of October through February, and reducing late summer flows. This reduction in the minimum flow would provide the opportunity to shift available water to the March through June period, which corresponds with the out-migration of coho salmon smolt. We will be providing further information regarding this modification to the proposed action and its effects at a later date and will work with your office and the U.S. Fish and Wildlife Service, as well as other interested parties, to further refine and analyze this potential flow regime during the formal consultation process. (emphasis mine).

The BOR is proposing to operate the Klamath Project for the next ten years under Dry Year (90% Exceedance) drought conditions, regardless of water year type. Furthermore, BOR is proposing to reduce the October through February flows at IGD to 1000 CFS, below any measure of adequacy, and to reduce late summer flows an unspecified amount below 1000 CFS. This is an attempt to meet needed rearing and outmigration flows by shifting needed water from one life history phase of coho salmon to another, while maintaining full irrigation deliveries for all water year types. The absolute minimum flow needed for adult coho and Chinook salmon mainstem migration and spawning is 1300 CFS at IGD. The minimum flow release at IGD needed during late summer to accommodate adult salmon entry into the lower Klamath River and to ameliorate high water temperature conditions, such as resulted in the 2002 fish kill, is 1000 CFS. Both of these standards were part of the 2002 BO Phase III RPA. Therefore, the BOR proposal falls far short of the requirements of the Armstrong Decision and the recommendations of the Hardy Final Phase II Report. Unless NMFS rejects the BOR ten year KPOP Klamath River flow proposal and implements the Hardy Final Phase II Report flow recommendations, we can expect continued deterioration of the Klamath River anadromous salmonid fishery resource.

Recommendation

The NMFS should require in their next Coho BO that the Hardy Final Phase II flow recommendations be implemented on an interim basis until further studies can refine the model, as recommended by the 2007 NRC Report. These flows are a necessary starting point and foundation for basin-wide anadromous fish restoration that cannot otherwise be successful. Fund and implement the data improvements recommended by the 2007 NRC Report.

Thank you for taking my testimony. I will be glad to answer questions.

SUPPLEMENTAL INFORMATION

PACIFIC FISHERY MANAGEMENT COUNCIL
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December 4, 2002

Secretary Gale Norton
United States Department of the Interior
1849 C. Street N.W.
Washington, DC 20240

Secretary Donald Evans
United States Department of Commerce
14th and Constitution Avenue N.W.
Washington, D.C. 20230

Dear Secretary Norton and Secretary Evans:

The Pacific Fishery Management Council (Council) has grave concerns regarding the adverse effects of reduced flows on the anadromous salmonid fish populations of the Klamath River.

The May 31, 2002, National Marine Fisheries Service (NMFS) Final Biological Opinion (BO) on the effects of the U.S. Bureau of Reclamation (Bureau) Klamath Project on Southern Oregon/Northern California Coasts (SONCC) coho salmon contains a "reasonable and prudent alternative" (RPA) that prescribes flows are so low the Klamath River will be placed in a state of perpetual drought. Such low flows will jeopardize the continued existence of coho salmon in the Klamath Basin and will result in destruction or harm to its critical habitat. SONCC coho salmon are listed as threatened under the federal Endangered Species Act (ESA), and the California Fish and Game Commission recently determined that coho salmon from San Francisco Bay to the Oregon border are warranted for listing under the California Endangered Species Act.

Furthermore, these extremely low flows will cause adverse impacts to the essential fish habitat (EFH) of coho and chinook salmon, which are managed by the Council. Therefore, the Council urges the Bureau and NMFS to immediately reinitiate Section 7 ESA consultation regarding Klamath Project effects on SONCC coho salmon and its critical habitat, and to reinitiate consultation on Klamath Project effects on coho and chinook salmon EFH.

Background

The Council was created by the Magnuson-Stevens Fishery Conservation and Management Act in 1976 with the primary role of developing, monitoring, and revising management plans for fisheries conducted within federal waters off Washington, Oregon and California. Subsequent congressional amendments added emphasis to the Council's role in fish habitat protection.

Amendments in 1996 directed NMFS and the regional fishery management councils to develop conservation recommendations for agency activities that may affect the EFH of the fish they manage. In 1999 the Council identified and described EFH for chinook and coho salmon under Amendment 14 to the Pacific Coast Salmon Fishery Management Plan.

The operational plans of the Klamath Project have a direct influence on the EFH of coho and chinook salmon. Such habitat includes the water quantity and quality conditions necessary for successful migration and holding, spawning, egg-to-fry survival, fry rearing, smolt migration, and estuarine rearing of juvenile coho and chinook salmon.

The BO covers Klamath Project operations for ten years (April 1, 2002 - March 31, 2012). Thus, the Project's negative impacts to anadromous fish will be both short-term and long-term in nature. The BO forms the basis for both the USBR 2002 Project Annual Operations Plan and a Long-Term (ten-year) Project Operations Plan that propose to divert, store and deliver irrigation water. Flow releases at Iron Gate Dam are not part of the action, but would result from the action. It is notable that while full irrigation deliveries are planned for all water year types during the ten-year period, improvements to flows for fish will depend solely on small, incremental, and uncertain developments of new water. The Council believes this approach to water management works against the numerous and expensive federal, state, and tribal efforts aimed at restoring anadromous fish habitat in the Klamath Basin, including regulatory efforts to minimize fishery impacts on weak salmon stocks.

Constraining Nature of Klamath Stocks

Since the early 1980s, the depleted status of Klamath River Basin natural coho and fall chinook stocks has constrained management of ocean fisheries from Northern Oregon to south of San Francisco. In order to protect these stocks, on many occasions the Council has had to reduce the harvest of all salmon in otherwise healthy mixed-stock fisheries where Klamath salmon occur. Despite complete closures to the harvest of Klamath Basin coho salmon in the Southern Oregon and California ocean commercial fisheries since 1993 and the ocean recreational fishery since 1994, the continued decline of this species resulted in the listing of SONCC coho salmon as threatened under the ESA in May, 1997.

Recent Fish Kill

An unprecedented and disastrous fish kill in the lower Klamath River in September, 2002, resulted in a conservatively estimated loss of more than 30,000 returning adult salmon, according to the U.S. Fish and Wildlife Service. Most of the mortalities were fall chinook salmon, although hundreds of coho salmon and steelhead trout were also killed. In 2002, ocean and inriver fisheries have been managed to allow a fall chinook spawning escapement to the Klamath basin of 57,000

adults, of which 35,000 were expected to spawn in natural areas and the rest at Iron Gate and Trinity River hatcheries. The fish kill will likely make it impossible to meet the escapement goal this year, and the loss of the reproductive potential of these fish will result in diminished returns three, four and five years into the future. In addition, given the variable run timing for Klamath Basin substocks, escapement to some subbasins may be severely impacted. The 2002 inriver fisheries have already been severely affected as evidenced by the Yurok Tribe's early closure of their fall chinook salmon fishery.

1. USGS Gage 11530500 Klamath R NR Klamath CA.
2. BO, Table 5, p 33.
3. USGS Gage 11516530 Klamath R BL Iron Gate Dam CA.

Although disease was the ultimate cause of death for most of the fish killed, low flows in the lower Klamath River acted as a barrier to upstream migration, resulting in large concentrations of stressed fish that quickly became infected. Average flows in the lower Klamath River during September, 2002 were the fifth lowest on record since 19511/. A significant portion of the September flows were released at Iron Gate Dam, which is controlled by the Bureau according to its annual Project operations plans. In 2001, 39.4% of the flow at the mouth of the Klamath River was due to Iron Gate Dam releases.

The 2002 Project Annual Operations Plan flow prescriptions at Iron Gate Dam are based on the NMFS BO's RPA, which purportedly avoids jeopardy to SONCC coho salmon by providing flow releases at Iron Gate Dam that approximate the minimum monthly flows attained during the 1990-1999 period of Project operations for each respective water year type (above average, average, dry and critically dry)2/. In 2001 (a critically dry water year type) the average flow at Iron Gate Dam was 1,026 cubic feet per second (cfs)3/. In September 2002, (a dry water year type), an average flow of 762 cfs was released at Iron Gate Dam before a pulsed flow was initiated on September 28 (USGS unpublished records). The 2002 flows were 34.6 per cent less than in 2001. Even though the total fall chinook run was much greater in 2001 than projected for 2002, and 2001 was a drier water year type, an adult fish kill did not occur. Thus, there is a strong correlation between the low flows prescribed by the BO and implemented by the 2002 Project Operations Plan and the September 2002 fish kill. In the latter stages of the fish kill, additional water (the pulsed flow) was provided by PacifiCorp to the Klamath River for a two-week period from September 28 to October 10. The water came from hydro generating facilities at Copco and Iron Gate reservoirs, and increased the flows at Iron Gate Dam by approximately 71% to 1300 cfs. This pulsed flow appeared to facilitate the dispersal and upstream migration of surviving salmon and steelhead trout. However, flows have since been reduced by the Bureau to approximately 879 cfs, and are expected to stay at that level through Spring 2003 unless precipitation and runoff in the basin improve significantly (Klamath Project 2002 Operations Plan, USGS Records).

The fish kill will likely delay recovery of Klamath basin coho and chinook salmon to levels that can sustain full fishing, and will result in continued economic and social hardship to Klamath Basin and coastal communities that depend on commercial and recreational fishing. The depleted status of these fisheries will also cause severe economic, social, and cultural impacts on the Yurok, Hoopa Valley, and Karuk Tribes of the lower basin.

Need for Flow Management Advisory Committee

The Council is very concerned that existing and proposed low flows between now and April 2003 will harm chinook and coho salmon spawning, egg incubation, fry emergence, and fry rearing in the Klamath River mainstem. Our concern is heightened by the fact these impacts will occur on populations that are already severely affected by the fish kill. To adequately address these concerns and to explore immediate solutions to the Klamath River flow shortage problem, the Council recommends the Bureau of Reclamation form a flow management advisory committee, consisting of tribal, state, and federal representatives having co-manager responsibilities for Klamath River fishery resources, as soon as possible. Convening such a group by mid-September in below average and dry years is a part of the BO RPA (BO, p 69), but the Bureau of Reclamation does not plan to implement this committee until 2010.

Need for Timely Completion of a Supplemental Environmental Impact Statement

Flows in the lower Klamath River are also influenced by accretions from the Trinity River, the Klamath River's largest tributary. Implementation of a recent Department of the Interior Trinity River Record of Decision, which would have increased flows significantly, has been delayed by litigation. A court order has required the

preparation of a Supplemental Environmental Impact Report (SEIS), the completion of which has been delayed by the Bureau of Reclamation. The Council urges the Bureau to complete the SEIS so that the higher Trinity River flows can be implemented in a timely fashion to benefit lower Klamath River flows.

Need for Reinitiation of Endangered Species Act Consultation

The Council believes by revealing how Klamath Project operations may have adversely affected threatened SONCC coho salmon and its critical habitat, the fish kill represents important new information not considered in the BO. Further, the fish kill may have resulted in incidental take that exceeds the amount or extent of take anticipated by the BO's Incidental Take Statement. Both of these concerns warrant reinitiation of consultation under 50 CFR '402.16 (BO, p. 74).

The Council strongly recommends the Bureau of Reclamation and NMFS reinitiate consultation as soon as possible regarding the effects of Klamath Project operations on SONCC coho salmon and its critical habitat. The Council is also deeply concerned the BO covers project operations for a ten-year period, between April 1, 2002 and March 31, 2012. The Bureau is presently developing an Environmental Impact Statement (EIS) that would support preparation of a Long-Term Project Operations Plan that would incorporate the 2002 BO as its basis for forming Project operations.

We believe that long-term commitments, once made, are difficult to change. Thus, it would be prudent for the Bureau and NMFS to reinitiate Section 7, ESA consultation prior to finalizing the EIS and Project Operations Plan. The Council would like to be kept fully informed and provided the opportunity to comment if the Bureau decides to continue with development of these plans.

Need for Essential Fish Habitat Consultation

EFH conservation measures for coho and chinook salmon were included in the BO by NMFS, based on information in the BO and from other sources. However, the Council strongly feels the recommendations prepared by NMFS do not adequately protect either coho or chinook salmon habitat. This is demonstrated by the recent fish kill and by the minimal proposed flows, which do not reflect the best available science and information. In addition, the EFH regulations require the Bureau of Reclamation, as the action agency operating the Klamath Project, to consult on EFH, to provide NMFS with a written assessment of the effects of their action on EFH, and to provide a detailed written response to NMFS within 30 days upon receipt of NMFS EFH conservation measures, detailing how the Bureau intends to avoid, mitigate or offset the impacts of their activity (50 CFR ' 600.920). To our knowledge, the Bureau has not done any of this.

The Council strongly urges the Bureau to initiate consultation on EFH, and to consider all life history phases of coho and chinook salmon that may be affected by Project impacts on mainstem Klamath River habitat.

Need for Finalization of Hardy Phase II Report

The Council notes the Department of the Interior (DOI) commissioned Dr. Thomas Hardy of Utah State University to conduct a flow study in the Klamath River, starting in June, 1998. The purpose of this study was to develop monthly instream flow recommendations for the Klamath River from Iron Gate Dam to the estuary for five water year types.

The recommended flows in the Hardy Phase II study were considered necessary to support salmon and steelhead populations in the Klamath River. They were also necessary to meet the DOI's trust responsibility to protect tribal rights and resources, and to meet other statutory responsibilities such as the Endangered Species Act and the Magnuson-Stevens Act. A draft Final Phase II Report was released for public comment on November 21, 2001, but has not been finalized. NMFS used some of the information contained in this report to develop the BO, but decided not to use the Phase II flow recommendations.

To date, the Hardy Phase II effort has cost DOI $890,000. In addition, cooperating agencies and colleagues have contributed more than $1 million in services and studies to the effort. The Council believes the flow recommendations in this study represent the best available science regarding Klamath River anadromous salmonid flow needs. We urge you incorporate this information in your ESA and EFH consultations. We also encourage the Bureau of Reclamation to finalize this report so that it can be reviewed and fully accepted by the scientific community and then used by Klamath River resource managers.

The attached tables show the flows that the Bureau plans to operate under for the next ten years (from Table 5, BO p. 33) compared to the Hardy Phase II recommended flows at Iron Gate Dam (Table 51). The Hardy 70% exceedence flows are for the same water year type as the Bureau's dry water year flows (70% exceedence

means that during 70% of the years in the period of record, annual inflows to upper Klamath Lake have exceeded the value indicated for a dry water year type). The Hardy flow recommendations for a dry water year type are more than twice as great as the flows which the Bureau provided at Iron Gate Dam in 2002 and plans to provide in the future. Unimpaired monthly flows (not affected by the Klamath Project) are provided in Table 52. When compared to these flows, the Bureau's proposed flows for all water year types and all months would put the Klamath River in a perpetual state of drought.

Summary of Council Recommendations

To summarize, the Council recommends the following:

1. Reinitiate ESA, Section 7 consultation as soon as possible (DOI and DOC).
2. Reinitiate coho and chinook salmon EFH consultation (DOI and DOC).
3. Establish a flow management advisory committee as soon as possible (DOI).
4. Complete the SEIS and implement the Trinity River ROD in a timely fashion (DOI).
5. Provide the Council opportunity to comment on the EIS for the Long-Term Operations Plan (DOI).
6. Finalize the Hardy Phase II Report and incorporate its flow recommendations in future consultations and Klamath Project operations plans (DOI).

The crisis flow management exhibited on the Klamath River during drier water years is not conducive to the maintenance, much less restoration, of anadromous salmonid populations. In addition, it contributes to economic uncertainty for communities that depend on sustainable fishery resources. The Council urges you to implement our recommendations in order to reverse this dire situation.

Sincerely,

Hans Radtke, Ph.D.
Chairman

Enclosures

cc: U.S. Senator Dianne Feinstein
U.S. Senator Barbara Boxer
U.S. Senator Ron Wyden
U.S. Senator Gordon Smith
U.S. Rep. Mike Thompson
U.S. Rep. Greg Walden
California Governor Gray Davis
Oregon Governor John Kitzhaber
California Secretary for Resources Mary Nichols
CDFG Director Robert Hight
ODFW Director Lindsey Ball
U.S. Fish and Wildlife Service Director Steve Williams
Assistant Administrator for NMFS William Hogarth

From NMFS May 31, 2002 Biological Opinion
From Hardy Draft Final Phase II Flow Study Report
From Hardy Draft Final Phase II Flow Study Report

Figure 1.

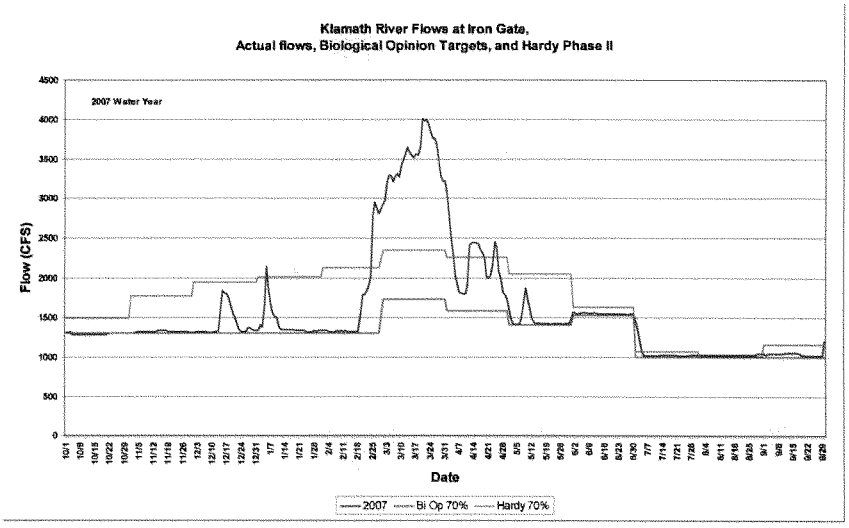
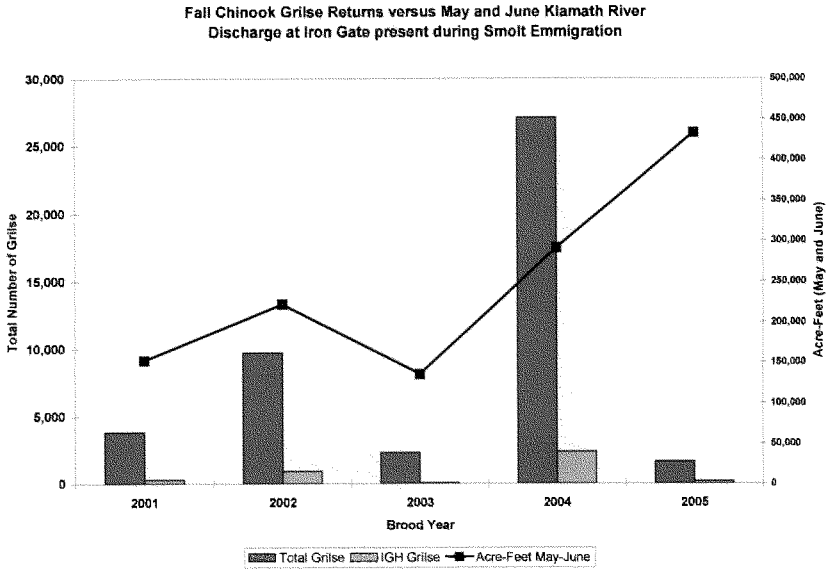


Figure 2.



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December 15, 2005

Mr. John W. Keyes III, Commissioner
Bureau of Reclamation
1849 C Street NW
Washington, DC 20240-0001

Dear Mr. Keyes:

The Pacific Fishery Management Council (Council) appreciates the Bureau of Reclamation's (BOR) response dated July 7, 2005 (Ref. W-6332, PRJ-13.00), regarding management of water flows on the Klamath River. However, your response did not adequately address the issues posed by the Council. Fishing communities feel a strong sense of urgency regarding the resolution of water quality and quantity issues within the Klamath River system. Resolution of these issues is critical to the immediate needs of in-river and ocean fisheries, and to the health of the Klamath ecosystem. Management of both the quality and quantity of water in the Klamath River and its tributaries is critical for all phases of freshwater salmon life history. Therefore, the Council recommends that the BOR:

- Reinitiate consultation with National Marine Fisheries Service (NMFS) as soon as possible regarding the effects of water project operations on chinook and coho salmon essential fish habitat (EFH), and that the analysis and flow recommendations include a credible biological basis, such as contained in the draft Hardy Phase II report referenced in our previous letter.
- Implement draft Hardy Phase II recommendations as an interim measure while consultations are ongoing.
- Revise water bank accounting to reflect actual savings of water in those areas critical for salmon survival.
- Support studies of juvenile survival and health and provide adequate funding for the Klamath monitoring programs.
- Develop credible long-term solutions to water management problems within the Klamath Basin.

The Council is concerned that the biological opinion (BO) discussed in your letter, which is used to guide flow releases from Iron Gate Dam, is not based on a biological analysis that addresses the needs of coho salmon. In addition, the impacts to the essential fish habitat (EFH) of coho and chinook salmon were not sufficiently analyzed.

We appreciate the Bureau of Reclamation's (BOR) action to provide water bank assets for additional water for river flow, but believe that the additional quantity of water provided may not be adequate to meet salmon recovery and productivity goals in the basin. Also, because of water bank accounting methods, it is difficult to determine whether water bank allocations result in meaningful changes to water flow. Actions cited in your letter, such as groundwater pumping, may be beneficial in the short term, but it is unclear if these can be sustained over the long term to provide meaningful benefit to the salmon populations in the basin.

A continuing disease problem (C. Shasta) in the main-stem Klamath River significantly affects juvenile salmon survival and productivity. The emergence of this disease issue supports the need for a renewed consultation with NMFS. Studies should be established and adequately funded to determine the rate of in-river juvenile mortality associated with these pathogens and to identify appropriate mitigating actions.

The Council remains committed to working with you to resolve these issues as we execute our responsibilities under the Magnuson-Stevens Fishery Conservation and Management Act.

We invite the BOR to meet directly with us to affect a timely resolution of these issues as the health of salmon stocks remain in question and the lives of the fishing communities dependent on these stocks are severely impacted.

Sincerely,

Donald K. Hansen
Chairman

cc: Honorable Barbara Boxer, United States Senate
Honorable Dianne Feinstein, United States Senate
Honorable Gordon Smith, United States Senate
Honorable Ron Wyden, United States Senate
Honorable Peter DeFazio, House of Representatives
Honorable Mike Thompson, House of Representatives
Honorable Greg Walden House of Representatives
Honorable Richard Pombo, House of Representatives

Honorable Ted Kulongoski, Governor of Oregon
Honorable Arnold Schwarzenegger, Governor of California
Mr. Mike Chrisman, Secretary for Resources, California Resources Agency
Dr. William T. Hogarth, Assistant Administrator for Fisheries, National Marine Fisheries Service
Mr. Ryan Broddrick, Director, Department of Fish and Game
Mr. Rod McInnis, Regional Administrator, National Marine Fisheries Service

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Ms. BORDALLO. Thank you, Mr. Rode, for your insights on the need for better biological opinions.

Now, Dr. Williams, I would like to commend you for your many years of work in various Federal agencies, from the Fish and Wildlife Service as an endangered species team leader to a senior aquatic ecologist at the Bureau of Land Management to a forest supervisor in the Forest Service. Your hundreds of publications are impressive, and I am looking forward to gaining a better understanding of the complexity of salmon management from you, so please begin.

STATEMENT OF JACK WILLIAMS, Ph.D., SENIOR SCIENTIST, TROUT UNLIMITED

Mr. WILLIAMS. Thank you, Madam Chairwoman and Members of the Committee. I appreciate the opportunity to appear before you today to provide my view, as senior scientist for Trout Unlimited.

I think we all share a strong concern for the health of salmon populations, which form an integral part of the ecological, social, and economic fabrics of California and the Pacific Northwest.

Trout Unlimited is the nation's largest cold water fisheries conservation group dedicated to the protection and restoration of our nation's trout and salmon resources and the watersheds that sustain them.

My name is Jack Williams, and I serve as senior scientist for that organization. In my testimony today, I would like to make four primary points.

First, the long-term survival of salmon and steelhead depends upon the conservation of the genetic and ecological diversity of remaining stocks and the habitats that support them.

Second, climate change will pose significant new challenges to conservation of salmon and steelhead in both freshwater and marine environments. But our only near-term opportunities to improve habitat conditions occur in fresh waters.

Third, we cannot solve the problems of salmon through reliance on artificial measures that not only fail to address the root causes of declines but create a new suite of problems in and of themselves. We need science-based solutions.

And, finally, we need bold actions and commitment to save our salmon. We must think bigger and involve more partners in solutions than we have before.

Now I would like to return to the topic of diversity. Diversity is the key to long-term survival in any species. The only way we can maintain the fitness and evolutionary potential of salmon is to protect the individual stocks and habitats that support those life histories.

A very comprehensive review of stock status was published just last year, in 2007, and that review found that 406 populations of

salmon are already extinct within this region. That is 29 percent of all salmon populations. That is a lot of diversity that we have lost already.

Now, it is tempting to believe that improved technologies, in the form of new hatcheries or transportation devices or other such artificial means, will enable salmon to survive and prosper into the future. Unfortunately, this is not the case. There are no silver bullets.

Regarding climate change, salmon are especially vulnerable to climate change and global warming because they are dependent on an abundance of clear, cold water. Unfortunately, for salmon, the rate of environmental change is growing rapidly. The impacts of climate change already are evident in freshwater and ocean environments. Over the next two to three decades, we have little opportunity to change ocean conditions. In fact, they are likely to get worse.

If both freshwater and ocean habitats continually decline, we have created an extinction vortex from which salmon cannot escape. With ocean conditions beyond our control, at least in the near term, we still have the ability to change and better manage freshwater habitats.

OK. So what are we to do about all of this? To help salmon survive the effects of rapid climate change, there needs to be an active and integrated effort to protect the best remaining populations and their habitats to reconnect headwater streams with mainstem rivers by removing in-stream barriers and providing normal flow regimes and to restore vital mainstem river and repairing habitats. For these efforts to be sustainable, they must be founded in the best available science.

Specifically, on the Snake River, it has been a longstanding consensus within the scientific community to breach the lower four Snake River dams as the single most important step needed to restore Snake River salmon populations.

In 1999, I attended a meeting of the American Fisheries Society, the Idaho Chapter, in which more than 90 percent of those present found that dam breaching was the single most important action needed to save Snake River salmon and steelhead.

A year later, in 2000, 100 percent of the scientists in attendance of the Oregon Chapter of the American Fisheries Society meeting felt the same way.

In summary, however, something more is needed. It starts with employing sound science for management decisions, but it goes farther. Bold action is needed. Building broad alliances and unique coalitions of unlikely partners for salmon and steelhead restoration must become the norm.

We must focus on supporting remaining healthy Pacific salmon ecosystems, such as through the North American Salmon Stronghold Partnership. We must think bigger about salmon and steelhead restoration and protection than we have before, like on the Klamath River, where a collection of disparate voices and interests are proposing a brighter future based on restoration. And we must pursue landscape-changing events like removal of the lower four Snake River dams.

Today's salmon crisis is a shared crisis. Now we need shared solutions.

On behalf of Trout Unlimited, I would like to thank you for the invitation to submit testimony and participate in today's hearings. I would be glad to answer any questions.

[The prepared statement of Mr. Williams follows:]

Statement of Dr. Jack E. Williams, Senior Scientist, Trout Unlimited

Madam Chairman, members of the Committee, I appreciate the opportunity to appear before you today to provide my view as Senior Scientist for Trout Unlimited on "A Perfect Storm: How Faulty Science, River Mismanagement, and Ocean Conditions are Impacting West Coast Salmon Fisheries." I think we all share a strong concern for the health of salmon populations, which form an integral part of the ecological, social, and economic fabric of California and the Pacific Northwest.

Trout Unlimited (TU) is the nation's largest coldwater fisheries conservation group dedicated to the protection and restoration of our nation's trout and salmon resources and the watersheds that sustain them. TU has more than 150,000 members in 400 chapters across the United States. Our members generally are trout and salmon anglers who give back to the waters they love by contributing substantial amounts of their personal time and resources to fisheries habitat protection and restoration. The average TU chapter donates 1,000 hours of volunteer time on an annual basis.

My name is Jack Williams and I serve as Senior Scientist for Trout Unlimited. Prior to working for TU, I was privileged to serve in a number of research and management positions in the federal government, including Endangered Species Specialist for the U.S. Fish and Wildlife Service, National Fisheries Program Manager for the Bureau of Land Management (BLM), Science Advisor to the Director of the BLM, Deputy Forest Supervisor on the Boise National Forest, and Forest Supervisor on the Rogue River and Siskiyou national forests. I have also served as a Professor at Southern Oregon University and retain the title of Adjunct Professor at that institution.

In my testimony today, I would like to briefly describe the current status of Pacific salmon and what will be required to maintain salmon and steelhead populations in light of existing stressors, which will be compounded by impacts from a rapidly changing climate. In particular, I would like to make four primary points, which I will highlight now before proceeding with my full testimony.

First, the long-term survival of salmon and steelhead depends upon the conservation of the genetic and ecological diversity of remaining stocks and the habitats that support them.

Second, climate change will pose significant new challenges to conservation of salmon and steelhead in both freshwater and marine environments. But, our only near-term opportunities to improve habitat conditions occur in freshwater habitats, where larger and lower-elevation rivers have been the most degraded and therefore need the most attention.

Third, we cannot solve the problems of salmon through reliance on artificial measures that not only fail to address the root causes of declines but create a new suite of problems in and of themselves. We need science-based and landscape-scale changes, particularly in the mainstem river reaches.

And finally, we need bold action and commitment to save our salmon. We must think bigger and involve more partners in solutions than we have before, including novel approaches towards protecting the best remaining ecosystems and restoring others to better health.

The Survival of Salmon

Salmon are remarkable animals. During their long migrations between spawning habitats in headwater streams and feeding grounds in the ocean, they encounter many natural and human-induced sources of mortality. The good news is that salmon are wonderfully resilient, having survived environmental change for thousands of years. If given a decent chance, they can persist even in the face of growing human populations and rapid climate change.

Salmon are able to adapt to change because of their high reproductive rates, remarkable life history, and the great diversity of local populations, or stocks, that provide the building blocks for local adaptation. In salmon, adaptation to local watersheds builds into a stock a set of unique characteristics that increase fitness in the local environment.

Diversity is the key to long-term survival in any species. The only way we can maintain the fitness and evolutionary potential of salmon is to protect the individual stocks and the habitats that support their life histories.

In 1991, the scientific community was put on notice that a substantial amount of this diversity was eroding on a coast-wide basis. That year, the American Fisheries Society published the first coast-wide review of stocks at risk of Pacific salmon, steelhead, and sea-run cutthroat (Nehlsen et al. 1991). Of 214 stocks examined in California, Idaho, Oregon, and Washington, 102 were considered to be at a high risk of extinction and another 58 at moderate risk of extinction. Perhaps more alarming was a list of 106 additional stocks from this same four-state region that were considered to be extinct.

A subsequent review of 192 populations of salmon, steelhead, and sea-run cutthroat trout within the Columbia River basin yielded the following results: 35% of populations were extinct, 19% at high risk of extinction, 7% at moderate risk, 13% of special concern, and only 26% were secure (Williams et al. 1992). As more and more of these populations become endangered or extinct, the capacity of future generations of salmon and steelhead to adapt to changing environmental conditions weakens.

A more comprehensive review published in 2007 has updated our knowledge of salmon status. Historically, the six species of Pacific salmon comprised approximately 1,400 Pacific populations that occurred in the Columbia River basin and coastal drainages in Washington, Oregon, and California, and according to the 2007 review, an estimated 29% or 406 of these have become extinct since Euro-American contact (Gustafson et al. 2007). Relative to geography, there is a greater proportion of extinctions in those populations that spawn the farthest south, that is in California, and those populations that spawn farthest inland, such as the Snake River populations. Relative to species, coho salmon, stream-maturing types of Chinook salmon, and sockeye salmon have been especially hard hit.

In salmon, there are three major lines of diversity that are critical to persistence: genetic, ecological, and life history. Scientists from the National Marine Fisheries Service, who authored the 2007 report (Gustafson et al. 2007), estimate losses of 33% of the ecological diversity, 15% of the life history diversity, and 29% of the genetic diversity within Pacific salmon. Many of the remaining populations, which are lumped into Evolutionarily Significant Units for purposes of administration by the Endangered Species Act, are listed as threatened or endangered. These facts demonstrate the substantial threat for salmon in this region.

It is tempting to believe that improved technologies in the form of new hatcheries, or transportation devices, or other such artificial means, will enable salmon to survive and prosper into the future. Unfortunately this is not the case. Hatchery programs for salmon have not proven sustainable and often cause more harm than good because of artificial selection of detrimental genes, introduction of diseases, and numerous other problems (Hilborn 1992; Lichatowich 1999). In fact, in the long term, hatcheries depend on wild fish for brood stock. As Dr. Gary Meffe (1992) aptly described it, "A management strategy that has as a centerpiece artificial propagation and restocking of a species that has declined as a result of environmental degradation and over exploitation, without correcting the causes for decline, is not facing biological reality."

There are no silver bullets, no slick new transportation programs that will solve our problems. New technologies can help us, but for salmon to survive in the future they must encounter at least minimum acceptable habitat conditions:

- in spawning streams for successful spawning, egg incubation and rearing of young
- in mainstem river habitats for successful migration between headwaters and the ocean; and
- in estuaries and oceans to allow for growth and return to natal streams.

Long-term survival of salmon and steelhead depends upon maintenance of genetic and ecological diversity of existing stocks and the habitats that support them.

Rapid Climate Change in Freshwater and Ocean Environments

Salmon are especially vulnerable to climate change and global warming because they are dependent on an abundance of clear, cold water. As coldwater habitats warm, rising temperatures will negatively impact a variety of salmon life history phases—from eggs to juveniles and adults. For those populations already listed as endangered or threatened, climate change is likely to push them further to the brink of extinction. Impacts of climate change are an additive stressor to systems already degraded by too many roads, too many dams, and too much water diversion.

For Pacific salmon and steelhead, climate change will result in warmer waters, reduced snowpacks, earlier spring runoff, reduced summer flows, more floods, more

drought, and more wildfires in their watersheds (Poff et al. 2002; Battin et al. 2007). Changes in wind patterns will in turn impact oceanic currents and offshore conditions. In recent years, for example, a "dead zone" nearly devoid of dissolved oxygen has appeared off the Oregon coast. This is not a dead zone resulting from some form of pollution but rather from changes in ocean currents that are consistent with predictions of climate change (Oregon State University 2007 Press Release). In 2006 until winds changed and conditions improved, the dead zone comprised an area equivalent to the state of Rhode Island.

For salmon populations to persist, they must sustain suitable spawning numbers and survival of progeny in the face of changing ocean and freshwater conditions. Historically, populations have survived and even thrived during times of environmental change. In the past, ocean productivity has oscillated in response to coastal currents resulting in substantial interannual variation in survival of out-migrating salmon. During some years conditions would be poor for migrating salmon but in other years conditions would improve. Poor ocean survival can be offset to a lesser or greater degree by increased survival in the freshwater system. The ability of the freshwater system to offset poor ocean survival depends on the quality of the freshwater environment and the severity of the oceanic environment.

Unfortunately for salmon, the rate of environmental change is growing rapidly. The impacts of climate change already are evident in freshwater and ocean environments. Over the next two to three decades, we have little opportunity to change ocean conditions. In fact, they are likely to get worse. If both freshwater and ocean habitats continually decline, we have created an extinction vortex from which salmon cannot escape. If ocean conditions are beyond our control, at least in the near term, we still have the ability to change freshwater conditions. Simply stated, we must address the fundamental stressors in freshwater environments including mainstem river and lower-elevation valley bottom habitats.

In an article published in the Proceedings of the National Academy of Sciences (Battin et al. 2007), scientists demonstrated that the impacts of climate change in the freshwater environment could be offset by restoration of lower-elevation river corridors. That is, the larger, valley river systems that have been most impacted by human activities also are the areas where we have the most to gain from restoration efforts. If restoration efforts are accelerated, they predicted that the impacts of climate change, at least in the freshwater portion of the life cycle, could be completely mitigated through ecologically sound restorative programs.

Sound Science Must Drive Decisions

Proper administration of the Endangered Species Act is dependent upon proper application of the best available scientific information. The drafters of the ESA recognized this need, for example, by requiring that listing decisions be made "solely on the basis of the best scientific and commercial data available..." {Sec 4(b)(1)(a)}. Endangered and threatened salmon are among the more scientifically and socially complex of species managed pursuant to the ESA because of their long migrations across multiple jurisdictions and threats, multiple and overlapping generations, and stock structure.

Despite the widely recognized importance of science to watershed and salmon management, and the wealth of well-respected scientists employed by agencies charged with implementing the ESA, federal courts have determined that NOAA has failed in its responsibility to protect salmon from jeopardy in the Sacramento, Snake, and Klamath river systems. Most recently on May 5, 2008, NOAA's National Marine Fisheries Service issued their court-remanded, final biological opinion to federal agencies responsible for management of the Federal Columbia River Power System. Despite in-river mortality estimates for juveniles migrating downstream through the Snake/Columbia hydropower system as high as 91.8% for listed Snake River sockeye salmon and 92.5% for listed Snake River steelhead, the National Marine Fisheries Service appears satisfied with circumventing the dams by moving fish downstream via barges and offsetting mortality by "improvements" to headwater habitats, many of which already are in excellent condition and are located in wilderness or inventoried roadless areas of National Forests (National Marine Fisheries Service 2008).

In 1990, Forest Service scientist Russ Thurow who has studied salmon and steelhead in central Idaho for more than 20 years, provided the following testimony before the U.S. Senate Committee on the flawed logic behind our failure to address the "dam problem" and our insistence on focusing instead on headwater habitat improvements. Thurow said:

"If freshwater habitats were the primary cause for declines, then stocks in high quality habitats should be faring substantially better than stocks in degraded habitats. The preponderance of evidence demonstrates this is not the case. Snake River

Chinook salmon redd counts in both wilderness and degraded habitats have similarly declined since the mid-1970s."

Unfortunately, agency managers responsible for implementing the Endangered Species Act seem to have learned little since that time and have repeatedly ignored the biological reality of the problems imposed by the lower Snake River dams on migrating salmon and steelhead despite considerable scientific evidence to the contrary. At the 1999 meeting of the Idaho Chapter of the American Fisheries Society, more than 90% of the fish biologists and aquatic ecologists in attendance supported dam breaching as the single most effective management strategy for long-term survival of Snake River salmon and steelhead. A similar measure was unanimously adopted by the Oregon Chapter of the American Fisheries Society at their 2000 annual meeting (Dombeck et al. 2003).

Restoring Resistance and Resilience to Disturbances

Existing stressors of salmon are often classified by the shorthand nomenclature of the "4-H's": Habitat, Harvest, Hatcheries, and Hydropower. Each factor—habitat degradation, over harvest, hatchery production, and dams and diversions—has resulted in sufficient population and habitat declines to cause many remaining populations to be listed as threatened or endangered species. The combination of rapidly changing climate with existing stress of the 4-H's is likely to cause significant further erosion of diversity in salmon and steelhead unless proactive habitat protection and restoration measures are implemented at a watershed scale.

To help salmon survive the effects of rapid climate change, there needs to be an active and integrated effort to protect the best remaining populations and their habitats, to reconnect headwater streams with mainstem rivers by removing instream barriers and providing normal flow regimes, and to restore vital mainstem river and riparian habitats. For these efforts to be sustainable they must be founded in the best available science and implemented at local, state and regional levels.

The following figure illustrates a paired watershed where the protect-reconnect-restore strategy has been implemented to produce conditions shown on the right half of the graphic that strengthen resilience to disturbance and reduce existing stressors.

The Protect-Reconnect-Restore approach provides a general model based on accepted principles of conservation biology and restoration ecology. This approach should be tailored to the specific needs of each endangered or threatened population. Successful restoration must treat the root causes of the decline, not just the symptoms, and be implemented at the scale of entire watersheds (Williams et al. 1997). Monitoring and adaptive management is the final necessary strategy that will ensure that we continue to learn and adapt to the uncertainties of a growing human population and changing climate.

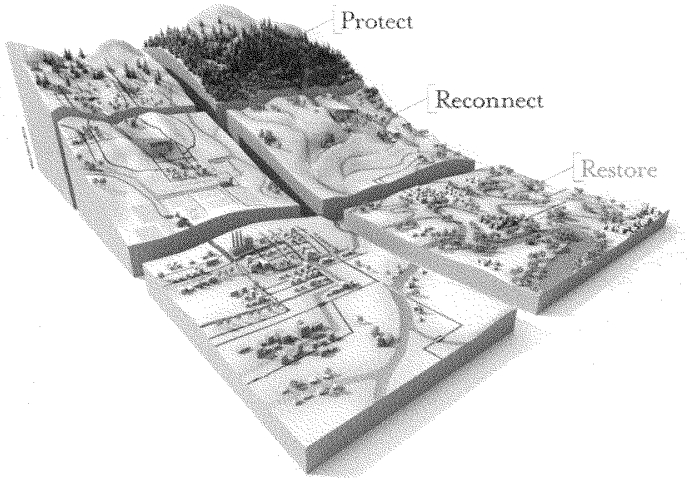

Figure 1. The Protect-Reconnect-Restore approach to building resistance and resilience to climate change in watersheds supporting trout and salmon. Graphic courtesy Trout Unlimited and Bryan Christie Design.

In the Sacramento, Snake, and Klamath river systems, the best remaining habitats occur at higher elevation public lands, where protection is the most logical strategy although some lands certainly would benefit from restoration efforts as well. The most degraded fishery habitats occur along the valley bottom and mainstem river corridors where land has been converted from wildlands to agriculture, hydropower, industry and urban development. While these mainstem corridors are the most altered, they also provide the most important opportunities for reconnection and restoration. In fact, it is because they are the most altered that the fundamental causes of their declines must be adequately addressed.

We cannot solve the problems of salmon through reliance on artificial measures that not only fail to address the root causes of declines but create a new suite of problems in and of themselves. That is what has happened on the Columbia and Snake systems with our reliance on barging to move juvenile salmon around dams. The long-standing consensus within the scientific community has been to breach the lower four Snake River dams as the single most important step needed to restore Snake and Salmon River salmon and steelhead populations. A similar situation exists in the Klamath River where passage for anadromous fishes must be provided around dams on the river and access to historical habitat is necessary to restore Klamath River salmon and steelhead. Many dams provide vital human services and must be retained. But dams are not designed to be permanent structures. As they age and deteriorate, the economic and ecological costs and benefits must be carefully weighed to determine their most appropriate future. In the instances of the lower Snake River and Klamath, dam breaching or removal is likely the only solution that provides needed ecological benefits.

In summary, however, something more is needed to address the current West Coast salmon fishery failure than a focus on just one variable, or one of the 4-Hs. This something more must go beyond the status quo. It starts with employing sound science for management decisions, but it goes further.

Bold action is needed. Building broad alliances and unique coalitions of unlikely partners for salmon and steelhead restoration must become the norm. We must focus on supporting remaining healthy Pacific salmon ecosystems, such as through the North American Salmon Stronghold Partnership. We must think bigger about salmon and steelhead restoration and protection than we ever have before, like on the Klamath River where a collection of disparate voices and interests are proposing a brighter future based on restoration. And, we must pursue landscape changing events like removal of the lower four Snake River dams. But we must also push for real and lasting solutions with individuals and local communities. Such solutions will prove to be the most durable and effective in the long run for ensuring place-based models to protect, reconnect, and restore our western rivers and watersheds, and in the process, recover our remarkable salmon and steelhead. Today's salmon crisis is a shared crisis. Now we need shared solutions.

On behalf of Trout Unlimited, I would like to thank you for the invitation to submit testimony and participate in today's hearing, and for your time in consideration of these issues.

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Ms. BORDALLO. Thank you very much, Mr. Williams, for your very helpful comments.

Now, Mr. Litchfield, we welcome you before the Subcommittee.

STATEMENT OF JAMES LITCHFIELD, PRESIDENT, LITCHFIELD CONSULTING

Mr. LITCHFIELD. Thank you, Madam Chair and Members of the Subcommittee. It is a pleasure to be here today. My name is James Litchfield. I am a consultant working in Portland, Oregon. I am here today representing Northwest River Partners, a group of utilities industries, agricultural interests that are working on trying to implement sound science in the efforts to recover fish in the most cost-effective and efficient way possible.

I, for the last two and a half years or so, have been participating in NOAA's efforts to develop a new biological opinion for the Columbia and Snake River systems. That effort was an unprecedented effort. It involved a collaboration between all of the sovereign parties in the Pacific Northwest that were involved in the litigation surrounding the NOAA Biological Opinion on the Columbia and Snake Rivers.

The parties involve all four Northwest states, seven tribes, and about five Federal agencies. There were over 200 meetings over about two-plus years.

You can imagine the disparate interests that were involved in this process, yet the collaboration, I think, was quite effective at bringing the best available science from a lot of different perspectives to the table. There was a lot of effort to try to distill that information and put it into a useful Biological Opinion.

Last week, NOAA released for public review and review by two Federal courts in Oregon three Biological Opinions: one dealing with the Federal Columbia River Power System, another dealing with the Upper Snake irrigation projects operated by the Bureau of Reclamation, and the third Biological Opinion addresses the harvest of ESA-listed fish in the Columbia and Snake Rivers.

Those opinions will go on through formal court review, but, as of now, they are the new Biological Opinions guiding operation of the Federal Columbia River Power System.

Most significantly, they adopted a new approach. The approach was one of implementing performance standards instead of what I would call "prescriptive standards."

In the past, NOAA has defined specific flow targets or spill levels as the best operation for fish. However, conditions change, and research changes over time, and so, as we have learned more and

more about what effects fish, we have found that some of those prescriptive standards are not the best way to optimize survival.

So the new Biological Opinion adopts a performance standard where 96 percent of fish passing the Federal dams have to survive, 96 percent or greater in the spring and 93 percent or greater in the summer. These are very high performance standards. They may not be achievable, but a lot of effort is being put into them.

What I will tell you is that as we have gotten higher and higher survival as fish pass dams, we are reaching the point of diminishing returns, spending far and far more money to get ever smaller returns. So it is not going to be possible to get 100 percent survival, and, at some point, we need to turn our attention elsewhere.

The Biological Opinions have done that in several ways. One, they have focused an incredible amount of effort on improving habitat in the Pacific Northwest. The council recently evaluated the investment that we have made in fish and wildlife since the Northwest Power and Conservation Council was formed by an act of Congress in 1980, and they estimate that, as of 2006, $9 billion has been invested in fish and wildlife recovery by the Bonneville Power Administration in the Pacific Northwest. That investment is starting to show some returns, but a lot more is needed in the habitat-improvement areas above the hydro projects.

Recently, Bonneville Power negotiated with four tribes and two states a memorandum of agreement where an additional $900 million, approximately, will be spent over the next 10 years by those parties to try to improve habitat and hatchery practices in the Pacific Northwest.

In addition to that, a significant amount of resources are devoted to fish and wildlife recovery in the Northwest through the council's Fish and Wildlife program. As an approximate estimate—these numbers will be released later this month—I would expect that, over the next 10 years, the region will invest at least another $2 billion in fish and wildlife recovery. Yet all of this money has been supported generally through the Pacific Northwest ratepayers because they believe that, through a cost-effective, efficient, fish and wildlife recovery effort, we can recover these fish, and we are still confident that we can achieve that.

You will hear, and you already have heard, that dam removal is the way to save salmon. I would like to point out several facts that are really important in the dam-removal debate.

First of all, the four Snake River dams that are the target of the discussion affect only four of the 13 listed species in the Columbia River. The removal of those dams would cost in excess of a billion dollars. The effort has been studied in detail by the U.S. Army Corps of Engineers during the late 1990s, and it is likely to remove over 1,000 megawatts of renewable energy that would have to be replaced by gas-fired power plants in the Pacific Northwest. Thank you.

[The prepared statement of Mr. Litchfield follows:]

Statement of James Litchfield, Northwest RiverPartners

Madam Chairwoman and members of the Subcommittee, it's a pleasure to provide you with my testimony today. My name is James Litchfield, and my background has focused on fish and wildlife recovery planning and the interactions between fish listed for protection under the Endangered Species Act (ESA) and the Federal Colum-

bia River Hydropower System (FCRPS). I frequently, provide strategic and technical advice concerning the state of the latest scientific findings on salmon recovery and potential strategies to achieve recovery and delisting goals. I was one of a team of seven scientists on the Snake River Salmon Recovery Team tasked by NOAA to develop a recovery plan for the endangered salmon stocks in the Snake River. Most recently I have been involved in the 2 year collaborative process to develop the Biological Opinion addressing operations of the federal dams on the Columbia and Snake Rivers. For that reason, I would like to focus on the question raised by the subcommittee on the state of science, particularly as it applies to the Columbia and Snake River systems.

I am here today representing Northwest RiverPartners. Northwest RiverPartners is an alliance of farmers, electric utilities and large and small businesses in the Pacific Northwest that advocates for the use of best science and wise investments in salmon recovery efforts in the Northwest. The alliance promotes all of the benefits of the rivers: fish and wildlife, renewable hydropower, agriculture, flood control, commerce and recreation.

An Unprecedented Science Approach

I thank the Subcommittee for this inquiry into the impact of the current confluence of science, human management activities and ocean conditions on West Coast salmon. This is an important public policy inquiry; however, it must be grounded in our best scientific knowledge to be effective at addressing real world problems.

On May 5th NOAA Fisheries presented to Judge Redden, Judge King and the public three Biological Opinions (BiOps). These opinions cover the operation of the Federal Columbia River Power System, the operation of Bureau of Reclamation dams in the upper Snake River and the plan for harvesting fish. This includes the harvest of salmon and steelhead listed under the Endangered Species Act in the Columbia and Snake Rivers developed under the U.S. v Oregon process, overseen by Judge King.

All three of these BiOps are supported by a common scientific foundation in a document called the Supplemental Comprehensive Analysis (SCA). The SCA is 1,230 pages developed through an unprecedented collaborative process. The Collaboration was not spontaneous, but rather ordered by Judge Redden to insure that NOAA would benefit from the scientific expertise of the sovereign parties involved in litigation over NOAA's BiOps. The sovereign parties involved in this collaborative effort included the four Northwest states and seven American Indian Tribes along with five federal agencies. The Collaboration involved these disparate parties working together for over 2 years and produced much of the analysis that provides the scientific foundation for the new NOAA FCRPS BiOp.

The Collaboration took a new approach to evaluating salmon status and what is needed to avoid jeopardy and ultimately achieve recovery. This approach focused on empirical data to describe the historic condition of the major population groups that make up each listed evolutionary significant unit (ESU). Based on this empirical data it was possible to estimate the current status of the salmon and steelhead populations factoring in the numerous changes the region has made improving salmon survival over the last 20 years. The Collaboration also evaluated the key limiting factors that are currently impacting fish survival and the likely response of fish populations of additional actions in the BiOp to improve productivity and genetic diversity.

This scientific process, analysis and analytical framework took a completely new scientific approach that focused on the unique needs of each listed salmon species. It literally put the needs of the fish first from a scientific perspective and in this way it is far more comprehensive and targeted to addressing activities or obstacles that limit salmon survival. It is important to understand that this species-specific analysis is much more useful in describing factors that drive salmon lifecycles, including all human affects, from headwaters to the ocean and their return to the spawning grounds.

This sovereign-based collaborative effort opened a normally closed process among federal agencies and resulted in a BiOp based on the best available science. Even though this extensive scientific collaboration was able to evaluate all sources of human caused mortality, not all human impacts on salmon survival have been consistently addressed in the BiOps. Much of the region's investment and survival improvements continue to focus on the hydropower system. The focus on hydropower improvements continues even though the latest research from NOAA is showing that juvenile salmon survival through the Lower Snake and Columbia Rivers is now higher than it was in the 1960s when there were only four dams in the Lower Co-

lumbia River (NOAA Presentation to the Policy Work Group, Smith, Williams and Muir, July 26, 2006).

Hydrosystem Performance Standards

The new FCRPS BiOp commits federal agencies to continue to improve survival at the dams. The hydro performance standards are greater than 96 percent survival for juvenile salmon migrating downstream through the dams in the spring, and 93 percent for summer migrants at each dam. These are extremely high survival commitments but they can be achieved.

It is obvious that survival of fish through any particular reach can never achieve 100 percent and as we try to achieve higher and higher survivals it becomes exponentially more difficult and costly. It is also important to recognize that salmon mortality is high in a natural river system where predators, diseases and other conditions are harsh. That is why Mother Nature has equipped these fish with a life cycle that provides returning female adult chinook with 5,000 eggs! Yet for the population to remain stable only two of these eggs need to survive to spawn to replace their parents.

Recent NOAA research (Smith, Muir and Williams, November 2007) shows that survival of fish in free flowing sections of the Snake River above the uppermost dam (Lower Granite) is directly proportional to how far the fish have to migrate to reach the dam. Fish released a relatively short distance (100 km) from Lower Granite dam survived at a relatively high 76 percent, yet survival for fish released over 500 km from the dam was less than 45 percent. This research shows that even for fish not passing through dams there are fairly high rates of natural mortality. Nevertheless, it is important to note that there also is cumulative mortality experienced by fish migrating downstream. NOAA's estimates for the survival in 2007 from above Lower Granite dam to below Bonneville dam are 56.0 percent for yearling chinook and 39.2 percent for steelhead.

Other NOAA research (R. Lynn McComas, et al, March 2008) studied survival in the free flowing reach from Bonneville dam (the lowest dam in the system) to the estuary. This research showed that the river below the last dam that juvenile salmon migrate past is also an area of significant mortality. In fact, this research found that survival from Bonneville dam to the estuary for yearling chinook was 69, 68 and 81 percent for 2005—2007. This research shows that even though survival at the dams is high, and reaching practical limits, natural mortality in free flowing stretches of the river above and below the hydropower system remains high and, in some parts of the system such as the estuary, is currently a key survival bottleneck limiting overall fish survival.

Hatcheries and Harvest Practices Create Risks

For most of the 13 listed salmon and steelhead in the Columbia River there continues to be concern over the interaction between hatchery practices and the survival of naturally spawning (wild) fish. NOAA's Supplemental Comprehensive Analysis identifies the following risks from hatchery programs.

> "[T]here is the potential for hatchery programs to increase the extinction risk and threaten the long-term viability of natural populations. For example, because the progeny of hatchery fish that spawn in the wild are known to be less likely to survive and return as adults than the progeny of natural-origin spawners (Berejikian and Ford, 2004), the fitness of a spawning aggregate or natural population is likely to decline (termed, outbreeding depression) if hatchery and natural-origin fish interbreed. For steelhead, outbreeding depression has been found to occur in the progeny of matings of hatchery and wild fish, even when the hatchery fish are the progeny of wild fish that were raised in a hatchery. Other potential risks posed by hatchery programs include disease transmission, competition with natural-origin fish, and increased predator and fishing pressure based mortality."

A recent report entitled, "Genetic Effects of Captive Breeding Cause a Rapid, Cumulative Fitness Decline in the Wild" (Hitoshi Araki, et al, Science, October 5, 2007), found that hatcheries used to supplement populations of naturally spawning species can have a significant impact on overall fitness of steelhead. This research showed that lifetime reproductive success of the first two generations of steelhead trout that were reared in captivity and bred in the wild after they were released was significantly impaired. In fact, these researchers showed that genetic effects of domestication reduce subsequent reproductive capabilities by 40% per captive-reared generation. The researchers summarized their findings with the following statement,

> "These results suggest that even a few generations of domestication may have negative effects on natural reproduction in the wild and that the re-

peated use of captive-reared parents to supplement wild populations should be carefully reconsidered."

This and other research is now showing that hatcheries can have a major impact on the fitness and genetics of naturally spawning fish. Yet the current strategy for mitigating the impacts of humans on fish populations by merely building another hatchery is over 100 years old. One unintended consequence of increased use of hatcheries is to create significant numbers of fish that compete with natural stocks for habitat and food sources. Hatchery fish can also support larger numbers of predators that also prey on natural fish and encourage harvest rates that naturally produced fish cannot support. Yet, integrating hatchery practices into the region's recovery efforts lags significantly behind hydropower and habitat improvements. Several efforts are underway to audit and reform hatchery practices but most of the region's more than 130 hatcheries have yet to undergo ESA consultations that would insure that hatchery practices are consistent with the overall recovery effort.

The current hatchery strategy predates the ESA by more than 70 years. A lot has happened in the field of genetic science since the first hatcheries were constructed. The hatchery strategy was historically based on the premise that a "fish" is a "fish" and that loss of one fish to habitat degradation, dams, irrigation, harvest and increasing human population pressures was easily compensated by merely producing more fish in hatcheries. However, the new paradigm under the ESA requires the preservation of unique life histories that NOAA calls Evolutionary Significant Units (ESUs). ESUs are being protected under the ESA because they represent natural genetic diversity that has allowed salmon and steelhead to evolve for millions of years. The promise of hatcheries compensating for man-caused impacts on salmon habitat combined with the higher harvest rates that large hatchery production encourages has put less productive naturally spawning populations at significant risk of extinction. The current hatchery-harvest strategy is now inconsistent with the ESA's mandate to preserve every unique life history. This is a fisheries management strategy that must be reformed so that hatcheries can assist in recovery of ESA listed populations.

Dam Breaching a False Promise

You will probably hear that to save Snake River salmon and steelhead the Lower Snake River Dams should be removed. Dam removal is a "silver bullet" advocated by those that believe the construction of the four dams on the Lower Snake River caused all the problems that led to ESA listings for salmon and steelhead.

Yet, one of the biggest problems with proposals to remove the Snake River dams is the limited scope of this strategy. Even if the dams were removed, it would only potentially help 4 of the 13 listed fish in the Columbia River Basin. Removing the Snake River dams is an expensive and controversial strategy that could require so much time and money that it would leave the other 9 listed stocks without significant support.

Removal of dams also couldn't be achieved quickly. Years of political and legal battles will be fought and, even if there is the political will, Congress would need to appropriate significant funds to pay for removal of the four dams, estimated to be over $1 billion dollars. During the decades of fighting, recovery actions will not be pursued because of the uncertainty that the dams maybe removed at some time in the future. The Snake River dams also currently provide the necessary revenues to fund comprehensive recovery efforts for Snake River anadromous fish.

The four Lower Snake Dams also produce more than 1020 MW of carbon free energy and 2650 MW of sustained power production capacity. These are significant quantities of power production that can serve the needs of a large city the size of Seattle, Washington. You will hear that the energy lost from the dams could be replaced by wind and conservation. This is simply not true. Calls for removing the four Lower Snake dams led the Northwest Power and Conservation Council (the Council), authorized under the Northwest Electric Power Planning and Conservation Act, to evaluate the possible consequences of removing the Snake River Dams to the region and the environment.

The Council's analysis showed that the lost renewable power produced by the dams could not be replaced by power from conservation and new renewable resources, such as wind generation. This is because all available conservation and renewable power generation is already allocated to meeting future regional load growth in the Council's regional power plan, and will be acquired with or without dam removal. For this reason, the Council found that if the Snake River dams are removed, the most likely replacement resource would be gas-fired combustion turbines that emit significant quantities of carbon dioxide. In the context of efforts by the region to reduce our carbon footprint, the Council found that, "discarding existing CO_2-free power sources has to be considered counterproductive."

The Council's analysis specifically showed that if the Snake River dams were removed it would result in increased power production from new gas-fired combustion turbines and by other thermal power plants in the western United States. The new fossil fueled power that replaces the dams would cause the release of 5.4 million tons of CO_2 per year. For perspective, this is equivalent to the CO_2 produced by a 540 MW new modern coal plant.

As a matter of sound science or good public policy it makes no sense to remove renewable, non-polluting power from the Snake River Dams and replace the lost renewable power with fossil fired power plants that accelerate global climate change. Unfortunately, the campaign to remove the dams has diverted significant time and resources from moving forward with the recovery efforts that our region really needs to implement.

Significant Regional Investment in Fish & Wildlife

The Council also monitors Bonneville's expenditures to support fish and wildlife mitigation. Much of the funds documented by the Council are in support of ESA recovery efforts but there are also significant investments in resident fish and wildlife that are not ESA listed. The Council report entitled, "Sixth Annual Report to the Northwest Governors on Expenditures of the Bonneville Power Administration", August 2007, documents the investment by Pacific Northwest ratepayers in fish and wildlife. The Council's report shows that Northwest ratepayers invested about $9 billion by the end of 2006 in fish and wildlife recovery efforts since the passage of the Northwest Power Act in 1980. The attached graph (see Attachment 1) is from this report.

The results of this massive investment are now being seen through increased hydropower system survivals for most of the listed fish. Moreover, the Bonneville Power Administration has just signed Memorandum of Agreements (MOA) with four tribes and two states that will significantly increase investments in fish mitigation and recovery efforts over the next ten years. The total commitment in these MOAs is reported to be more than $900 million. Importantly, the actions that will be funded under these MOAs will be scientifically reviewed by the Independent Science Review Panel and the Council. The investment by Northwest ratepayers far exceeds any investment in an ESA-related recovery effort for any other species in the nation. Yet this investment has generally been supported by citizens of the Northwest in the hopes that we can prevent future extinctions and bring about recovery of the salmon that have been affected by the region's hydropower, hatchery, harvest and habitat impacts.

Ocean Conditions—Confounding Factor

It is important to understand, however, that such investments alone cannot solve a problem where factors largely outside our control—ocean conditions—have a dramatic impact on salmon survival and productivity. Ocean conditions are complex and not completely understood by the science community. However, extensive research is underway in the Northwest to better understand ocean food webs and their impacts on salmon survivals and growth. Some of this research is being led by Ed Casillas from NOAA Fisheries Northwest Fisheries Science Center in Newport, Oregon.

Dr. Casillas presented results of his work into ocean productivity to the Council at their meeting in March 2008. This work helps to identify when ocean conditions are supportive of salmon growth and survival and when they are not. This is new work has not yet found its way into fisheries management, but it needs to, because it can provide the leading indicators of when harvest can be permitted and when it needs to be restricted. Attachment 2 contains a summary of a number of ocean productivity indicators that Dr. Casillas measured for four historic years and two possible forecasts of future conditions.

Attachment 2 illustrates the status of various factors that affect salmon survivals. Green shows a good condition, yellow is neutral and red is a poor condition. The first two factors[1] are related to large-scale weather and ocean conditions that have been shown to correlate with upwelling that provides food sources for salmon. Forecasting is still under development and Dr. Casillas said that additional development work is needed before it will be a reliable management tool, but this work is a very promising effort that can allow us to better understand ocean conditions and the likely affect on salmon productivity.

There is little that we can do to change either the weather or ocean productivity. Both are related to critical upwelling that causes the food webs that salmon depend

[1] The two factors shown in the chart are the Pacific Decadal Oscillation (PDO) and the Multivariate El Nino Southern Oscillation Index (MEI).

upon to bloom. The management challenge is to first recognize when ocean conditions are poor for salmon survival and then to reduce human caused mortality as much as possible during that time. It is interesting to note in the previous chart that 2005 was a particularly poor year for ocean conditions. Juvenile salmon entering the ocean that year experienced an oceanic desert. Knowing this could help us to recognize that there are likely to be reductions in salmon populations for the next several years following poor ocean conditions and that fish harvest is likely to need to be reduced.

When fish populations plummet in the ocean the strategies to reduce human caused mortality are limited. Temporary closure of fisheries is the only management response that can effectively reduce human caused mortality quickly. Because land-based sources of mortality are difficult to affect and are slow to cause changes in numbers of salmon, they are not well suited to sudden drops in salmon productivity in the ocean. If human caused harvest mortality is not reduced when there are low numbers of fish present, it is likely that overharvest will require ESA protection for even more fish. (See stripped bass as an example of a successful closure.)

Mixed Stock Fisheries Problematic—Snake River Fall Chinook Example

Even with the high level of protection provided under the ESA, it is difficult to protect weak populations when mixed with much more numerous hatchery fish. The Northwest has our version of the Sacramento fall chinook with the Snake River fall chinook. This fish is listed under the ESA, yet the new FCRPS BiOp reports that it continues to experience extremely high harvest rates of approximately 45 percent. Snake River fall chinook are currently harvested in Alaska, Canada, off the coast of Washington and Oregon, and in the Columbia and Snake Rivers by commercial, sport and tribal fishers.

The high harvest level that occurs in both the ocean and the river is caused by current harvest techniques and the fact that weak Snake River fall chinook commingle with much larger and stronger populations from the Hanford Reach of the Columbia River. In attempting to harvest Hanford Reach fall chinook with non-selective gill nets, almost half of the returning Snake River listed fish are also harvested. This makes it extremely difficult to achieve recovery for Snake River fall chinook while at the same time maintaining the current rate of harvest for other chinook. The region is investing hundreds of millions of dollars in strategies to recover Snake River fall chinook only to have nearly half of them caught—after they have migrated down the river, past the dams and survived years in the ocean—just as they are ready to return and spawn.

Conclusion

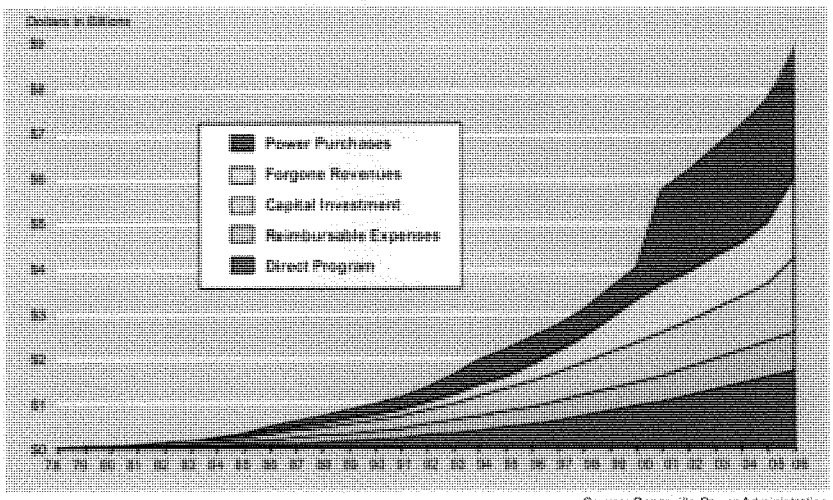
It is obvious that ocean conditions have a major impact on the health and productivity of salmon and steelhead stocks; however, our ability to change ocean conditions is limited. The work of Dr. Casillas is helping us to better understand the weather patterns and linkages in the ocean that cause oscillation in the food web upon which salmon depend. Critical environmental ocean conditions need to be better monitored and understood before we will be able to effectively forecast salmon populations and use this information in harvest management. However, fisheries management strategies need to be revisited based on the current science on the interactions between hatchery and harvest policies and overall salmon survival and recovery. Addressing key factors limiting salmon survival is not without scientific, technical and political difficulty, but it is far more feasible than attempting to control ocean conditions through human policies. Meanwhile, research on ocean conditions must continue.

That is the state of the science, as we know it in the Pacific Northwest. Research has identified habitat, hydro, hatcheries, harvest and ocean conditions as the key factors limiting the recovery of the ESA-listed salmon and steelhead stocks. The region has invested billions in refitting the hydro system and improving habitat for increased salmon protection and NOAA has just produced a new FCRPS BiOp detailing future investments in both hydro and habitat. What we haven't seen, but need to, are commensurate actions on harvest and hatcheries. Since the science and the ability to manage harvest and hatcheries is much more developed than our ability to change ocean conditions, we need to focus on those elements first, while continuing our research on the ocean.

RiverPartners appreciates this opportunity to address the Subcommittee. I am more than happy to answer any questions you may have.

Attachment 1

Figure 1A: BPA Fish and Wildlife Cumulative Expenditures 1978-2006



Source: Bonneville Power Administration

Attachment 2

	Juvenile migration year				Forecast of adult returns	
					Coho	Chinook
	2000	2005	2006	2007	2008	2009
Large-scale ocean and atmospheric indicators						
PDO	■	■	■	▒	●	●
MEI	■	■	▒	■	●	●
Local and regional physical indicators						
Sea surface temperature	■	■	▒	■	●	●
Coastal upwelling	■	■	■	■	●	●
Physical spring transition	■	■	■	▒	●	●
Deep water temp. & salinity	■	■	▒	■	●	●
Local biological indicators						
Copepod biodiversity	■	■	■	▒	●	●
Northern copepod anomalies	■	■	■	■	●	●
Biological spring transition	■	■	▒	■	●	●
Spring Chinook--June	■	■	▒	■	--	●
Coho--September	■	■	▒	■	●	--

Ms. BORDALLO. Thank you very much, Mr. Litchfield.

Before we begin with the questions, I ask unanimous consent that Mr. DeFazio be allowed to join the Subcommittee on the dais and participate in the hearing. Hearing no objection, so ordered.

We will begin with the questions from the Subcommittee Members first, and then we will go to our other colleagues that are here as guests.

I have two questions for Mr. Rod McInnis. How much time has NOAA spent writing and rewriting Biological Opinions on these

rivers? What guides the river operations while the Biological Opinions are being redrafted, and how is salmon recovery impacted when you do not have an approved Biological Opinion?

Mr. MCINNIS. Thank you, Madam Chairwoman. There is a great deal of time spent on writing and rewriting Biological Opinions and gathering the foundational information and science that we need to complete the Biological Opinions. The work that goes on after a Biological Opinion—I assume the question was after a Biological Opinion has been validated by the court, it is entirely up to the court as to how that proceeds. We would be given instructions generally to continue to implement the Biological Opinion in some modified way until we have a new opinion in place.

The efforts that we have gone through to improve our Biological Opinions through the external, independent, scientific reviews have added time to the period that we have to work on these things. They have improved, I think, the strength of the Biological Opinions that are coming out now.

Ms. BORDALLO. Thank you for your answer. I just wonder how much longer we are going to be waiting.

The second question: Has NOAA defined adverse modification of critical habitat for salmon yet, and how can you know if an action is causing jeopardy to critical habitat?

Mr. MCINNIS. Madam Chairwoman, we have not defined that explicitly, and one of the reasons that it is difficult is because there are very different situations, and they have to be viewed as individually as we can to ensure that we are taking into consideration all of the impacts to the critical habitat.

Ms. BORDALLO. Thank you very much. I think I have time here for one more question.

Dr. Williams, how can NOAA develop BiOps and design management plans that adequately protect salmon at all life stages, and how can adaptive management play a role?

Mr. WILLIAMS. Well, first, I think NOAA Fisheries has excellent staff people. They have some very good scientists that work for their organization. But I do think the Biological Opinions must be based on that science, and I think they have to address the main problems straight on, and I do not believe that they always have in the past. So I think it is very critical that they get their scientific opinions, that they focus on the problems at hand rather than artificial solutions, and that all of this money that we are investing is invested toward sound solutions.

Ms. BORDALLO. Thank you very much. Now, I will recognize the acting Ranking Member, Mrs. McMorris Rodgers, for any questions she may have.

Mrs. MCMORRIS RODGERS. Thank you, Madam Chairman. I appreciate the opportunity, and I wanted to take a moment and recognize one of my constituents here in the audience today, Travis Brock. He is with the United Power Trades Organization, all the way from Colfax, Washington. He does a lot of work on these dams, so he could shed some light on some of the realities with the dams.

My first question, to Mr. McInnis: I understand that $230 million has either been funded or proposed for West Coast salmon disaster assistance over the past three years. Has NOAA devoted any resources to determine the actual commercial value for the West

Coast salmon fishery, particularly the Columbia and Snake River stocks that may be listed under the Endangered Species Act?

Mr. MCINNIS. I am sorry. The question is the overall impact?

Mrs. MCMORRIS RODGERS. The actual commercial value for the West Coast salmon fishery.

Mr. MCINNIS. Thank you. NOAA Fisheries has conducted an analysis specific to this year's losses in the ocean fishery, and we do have that information that can be provided. With respect to the overall long-term value of these salmon runs, we do not have that information at hand, but there has been work done on that, and we would be glad to provide that.

Mrs. MCMORRIS RODGERS. Has a voluntary buy-back of West Coast salmon fishermen, in river and in the ocean, ever been considered?

Mr. MCINNIS. We have not considered that as an option at this juncture. The number of commercial fishermen in the three West Coast states has been greatly reduced over the past 20 years, and we have not encouraged a buy-back.

Mrs. MCMORRIS RODGERS. OK. Thank you.

Mr. Litchfield, some witnesses will talk about how the dams kill the vast majority of salmon, yet your testimony indicates that 96 percent of juvenile salmon survive the migration downstream. Can you tell us why more fish are surviving?

Mr. LITCHFIELD. Well, a great deal of that investment, I would testify to, has been made in improving dam survival. There is a number of mechanisms that have been put in at the dams. The most successful and the latest has been what are called "removable spillway weirs." These are replacement structures that go in spillway bays, and they allow fish to pass over the top of the dam instead of through spill bays that open 50 feet down.

So the way fish have been spilled in the past was really fairly traumatic for fish. Now they can gradually pass over a water slide down the dam. These are being shown to be very effective at improving fish survival.

The 96 and 93 percent that I testified to is survival at each dam. If you look at the cumulative survival, from the upper dam, Lower Granite on the Snake, down through the Columbia, the lowest dam being Bonneville Dam, there are eight dams that they need to pass.

Cumulatively, fish pass away. There is mortality in each of the projects from a variety of sources, probably the most significant being predation, both by birds and other fish. When you look at the cumulative survival, the latest NOAA research is showing that, for spring Chinook, survival through those eight dams is approaching 60 percent, high 50-percent range. That is a very high survival rate.

In fact, it fairly well correlates with the survival you see above the hydro projects for fish migrating in undammed, naturally flowing rivers down to the first dam, and it roughly correlates to the survival you see below Bonneville Dam in the free-flowing stretch out to the ocean.

So there is a natural mortality rate. It seems to be highly correlated with distance as much as it is with number of dams passed.

Mrs. MCMORRIS RODGERS. In the Pacific Northwest, we have had spills mandated at various times. Would you just speak a little bit

to what that means, and also what does that do as far as our carbon footprint? I am quite proud of the fact that Washington State has the second-lowest carbon footprint per capita in the country, largely because of our hydro.

Mr. LITCHFIELD. Yes, we do, and hydro power, a renewable resource for the Pacific Northwest, provides approximately 50 percent of the electric power generation, beginning with the first Biological Opinions, in fact, even before them, spills have been used as a way to help fish migrate past dams.

There are essentially three passage routes at each dam that a fish can take, depending on where it is in the water column. One is through the power generation turbines. In front of those turbines, though, we have installed screens that deflect some of the fish away from the turbines and through what is called a "bypass system," and the third way is through the spillways. As I said, the spillways are generally about 50 feet down. They open a water passage that is 50 feet down.

Fish tend to migrate in the upper part of the water column, the top five to 10 feet, so a fish approaching a dam and being passed via spill would be drawn down to about 50 feet of pressure and then exit the dam under a high-pressure jet of water that would slide down the dam and dissipate below the dam.

Spills, of course, forego electric power generation, so there is a significant impact on electric power output. The Northwest Power and Conservation Council, about a year ago, did an analysis of what spill means to the Pacific Northwest in terms of carbon generation, and what they found is that because of the reduced power generation from spilling water in the summer months during July and August when Snake River fall Chinook are passing the projects, there is about a 5.6 million-ton increase in CO_2 production throughout the western United States. In fact, it has a fairly high impact on CO_2 production in California because the power that is being generated by the Snake River dams in the summer is oftentimes sold in California, via electric power transmission, and reduces the use of thermal power plants in California. So now that we are spilling water, those power plants in California are running more.

Mrs. MCMORRIS RODGERS. Thank you.

Ms. BORDALLO. I thank the gentlelady from Washington, and now I recognize the gentleman, a Member of the Subcommittee, Mr. Sali from Idaho.

Mr. SALI. Madam Chair, I am disappointed in the tone that this hearing has taken, in part, specifically the intentional confusion of issues apparently to get a desired result and, as a consequence, some with views that are being opportunistic instead of being realistic. Those with this view are apparently trying to take advantage of a crisis situation so that they can capitalize on the misfortunes of others.

The Pacific salmon fishery closure is a tragedy. It is a tragedy that will affect fishermen, families, residents, constituents, and small businesses across America. There is no one here that can tell us why this stock has declined. We can get theories and estimates, but, at the end of the day, no one here really knows why there is a decline. There are people who would tell us that it is ocean

warming and global warming that could have caused it. There are some who have said that it is the dams that have caused it, at least in part.

Then there is always fishery management that could have caused this decline. Fisheries mismanagement occurred a number of times on the Atlantic Coast in cod and haddock fisheries. We have seen it in the Gulf with red snapper, striped bass, and on the Chesapeake Bay, and shad and Sturgeon on the Atlantic Coast.

Let us be frank. Today, the closing of the Pacific fisheries is being used to further an agenda. From the very first hearing I attended after being sworn in, one in the Oversight and Government Reform Committee, I have heard allegations of politicizing science. While I have not always been convinced that the issues that were presented in the various hearings were politicizing science, what we have before us today is blatant politicization of the science.

This hearing is, and I quote, an oversight hearing on the West Coast salmon closure entitled "A Perfect Storm: How Faulty Science, River Mismanagement, and Ocean Conditions Are Impacting West Coast Salmon Fisheries." Somewhere in the testimony and the discussion before this Committee of the Pacific fishery salmon closure, the Columbia and Snake River systems have come into this discussion.

The Pacific Fishery Management Council closed the Chinook salmon fishing season along the coasts of Oregon and California due to the collapse of the Sacramento fall Chinook stock. NOAA must answer a simple, but essential, question. This is a stock that has nothing to do with the Columbia and Snake River systems. Is that correct or not correct? I look forward to your answer when I am done with my comments.

There are restrictions on the fishery north of Cape Falcon, Oregon, that relate to the Columbia and Snake River for Chinook and coho salmon, but let us be clear: Those fish runs, for the most part, do not even enter the Columbia and Snake River hydro system, the dams that are being discussed here that should be removed. They do not go that far up the river.

I am growing so weary of every excuse being used by some to try to advance an extreme agenda of breaching dams on the Columbia River. Breaching the dams would be bad for the environment. It would do serious harm to the Northwest capacity to export, including the export of crops at a time when one billion people worldwide are malnourished or starving. It would dramatically increase Northwest power rates. And I might add to the comment from the good lady from Washington, Idaho has the smallest carbon footprint of any state in this nation because of those dams.

The discussion here today has turned to politics and not science. The proposition that the dams be removed has been studied over and over again, at taxpayers' expense, both under Democrat and Republican administrations, and the result was always the same. It has never been recommended that the dams be removed. What part of that do those advancing dam breaching today not understand?

From where I sit, some of the testimony presented here today appears to be one more attempt to reenergize this long-running, dam political debate. Part of the debate presented here today by some

of our witnesses has been given in the name of science. By the Corps of Engineers' latest estimate, an average of 91 to 98 percent of the juvenile fish survive passage of the dams that have been suggested must be removed.

Let us talk about the environmental issues. Not only have the taxpayer-funded studies not supported breaching the dams to increase salmon runs in the Columbia River, but, in fact, there are significant environmental impacts if the dams were breached, significant environmental impacts of which my constituents will bear the brunt.

Consider this: If those dams are breached, alternative transportation would be needed to haul freight. Today, 1,600 million tripton miles are transported on the Snake River to or from the port in Lewiston, Idaho. If the dams are removed, the Congressional Research Service has estimated that moving barge freight to truck would increase carbon emissions by 65,000 metric tons per year. That is the science. It does not factor in the safety and economy concerns my constituents will face with increased truck congestion on roads.

More striking, however, is the significant increase in carbon emissions from replacement of electricity generated by those dams. Mr. Litchfield talked about the amount, 5.6 million metric tons, of carbon that is released just by reducing the flows over the dams today. If the energy source is replaced by coal-fired power plants, we would essentially be trading carbon-free power that makes Idaho have the smallest footprint of any of the states in the Nation with coal-fired power plants that would emit approximately nine million metric tons of CO_2 per year.

Madam Chair, I ask for an extra minute just to finish this up. Thank you, Madam Chair.

Ms. BORDALLO. All right. Thank you. We will get back to you if you would like a second round of questions.

I would like now to—

Mrs. MCMORRIS RODGERS. Madam Chairman, as the Committee proceeds, I am just wondering, are you going to go back and forth from Democrat to Republican and allow equal time of both parties?

Ms. BORDALLO. I will set up my ground rules right now, Mrs. McMorris Rodgers. We do have our colleagues that are guests here, and we welcome them. We have some Subcommittee Members, and, of course, the Subcommittee Members have been given the choice to ask the questions first. I am now going to recognize the gentlelady from California, Mrs. Capps, and then we will go back and forth, and I am also going to call on them in the order that they arrived, and then we will go back to the Subcommittee as well for a second round of questions. I recognize Mrs. Capps.

Mrs. MCMORRIS RODGERS. Madam Chairman, if I may inquire, so are you going to go back and forth from Democrat to Republican to ask questions?

Ms. BORDALLO. Well, we have done our first round of questions with the Subcommittee Members, so now we would like to extend our courtesies to the guests here, and they will have a first round of questions.

Mrs. MCMORRIS RODGERS. If I were to leave the room and come back, then would I be able to ask another question?

Mr. MILLER. Madam Chair, I think the general order is Members of the Committee are given a right to ask—everybody gets a first question.

Ms. BORDALLO. That is right.

Mr. MILLER. If you want to go to the guests, they get a first question, and then you go back and alternate it again.

Ms. BORDALLO. That is exactly what I—

Mr. ORTIZ. And I believe the definition of "guest" is someone who is not on the Committee at all. Normal procedure, at least in my other committees, is you first go to members of the Subcommittee, then you go to members of the full Committee, and then you go to members who do not sit on the Committee.

Mrs. MCMORRIS RODGERS. Well, Madam Chairman, if I might just explain, there have been mixed messages sent to this side of the aisle, as far as this hearing is concerned. I am the Ranking Member of the Water and Power Subcommittee, and I had asked for this to be a joint hearing, and we were told that was rejected, that request.

Members on our side have received mixed signals as to whether or not they would be allowed to participate in today's hearing, and it appears that Members on one side of the aisle were given a clear message, and Members on the other side of the aisle were not given a clear message, and so that is the basis of my concern this morning.

Ms. BORDALLO. If I could answer your question, everybody is welcome to these Subcommittee meetings, including the Subcommittee Members, of course; Members of the overall Committee and outside committees. So I do not know why you received a mixed signal. I do not know, but every one of our colleagues are welcome to any of these Subcommittee hearings.

I now recognize the gentlelady from California.

Mrs. CAPPS. Thank you, Madam Chairwoman. I recently met with several of my constituents who are commercial fishers at Morro Bay. We discussed long-term, comprehensive plans to help recover these three major West Coast river systems. When I said that we needed to do this so their kids could fish the same waters off our coast, they told me they do not want their kids going into this industry. They said it is too hard, too uncertain. I could not believe what I was hearing because so many of them had learned how to fish from their parents. It is an industry that has been passed down, as you know, from generation to generation.

Instead, they want to send their kids to college so they could go into a different line of business. To me, this is very sad. Because of the recent shutdowns, they cannot afford to send their kids to college, and that is why this hearing is so necessary. We need to understand why these stocks are plummeting and what the impact is to our communities.

Let me start with my first question, Mr. McInnis, and I would like to ask it and then save some time for one—I do not want to use more than my time, but I want to have a follow-up question with Dr. Williams.

Mr. McInnis, it seems to me that we are spending an awful lot of Federal funds to restore salmon populations, but the actions by the Federal government over the past decade have failed to stop or

reverse the decline of listed stocks. To put a finer point on it, why are we spending so much on recovery and getting so little in return?

Mr. MCINNIS. Thank you for that question, Madam Congresswoman. We have had some successes in restoring and rebuilding some of the listed populations. Winter Chinook in the Central Valley and spring Chinook in the Central Valley have increased since their listings, in some cases, manyfold in the case of the winter Chinook. These are some progresses. We are learning as we go, of course, in some of these actions.

One of the things that is happening right now is that we are conducting our recovery planning exercises for listed salmon species up and down the coast, and a major portion of that effort is a threats analysis to show what are the biggest threats to these listed species and to help us to identify which things we should be tackling first.

Mrs. CAPPS. Thank you, and I am sure the presence of my colleagues here who have similar communities to mine would indicate that this should have been started a long time ago and that we should be bearing some results by now for the salmon.

Dr. Williams, would you care to comment? Are there new salmon recovery measures we should be employing that exist already that differ from previous failed actions, or are there projects we should plan to continue funding despite the questionable results?

Mr. WILLIAMS. That is a very good question because we are spending a lot of money on salmon recovery. I believe there are areas where we need to change our methods, change our approach, particularly in the mainstem river systems, and we are looking at passage around dams and diversions essentially from streams.

Those areas are ones that I do not believe we have done as much as we could to recover the fish. We have some very good, tried-and-true restoration methods, and a lot of our money that is being spent is very good. I think the important point that you raised on the Sacramento and Mr. McInnis raised is very illustrative in this, in that when the winter Chinook was listed, the very first salmon stock that was listed, the one in Sacramento River, there was actually a lot of progress made that benefitted a lot of the various Chinook salmon in the Sacramento River. That stock was listed in 1989 and 1990, but, recently, the diversions seem to have offset lots of improvements, as well as ocean conditions. So we made progress, but then we have stepped back.

Mrs. CAPPS. So it has been piecemeal, or it is not comprehensive. So, with your history of working first for the Federal government and now for a conservation organization, you must have something to share with us on how we can build better and broader alliances and coalitions to aid in recovery and restoration efforts. It is going to take all of the partners working together, isn't it?

Mr. WILLIAMS. That is exactly right, and I think there are some very good examples. I believe the Klamath group that is now working, a very mixed group of water users, agricultural community, conservation community, fishers of various sorts; those are the kinds of things that we need; the North American Salmon Stronghold Partnership that is being formed to focus on protecting the best remaining populations.

So I think we have a few good examples, and we need to move forward with those.

Mrs. CAPPS. Thank you very much.

Ms. BORDALLO. I thank the gentlelady from California.

Now, we will begin with, first, the overall full Committee Members who are here. The first one to arrive was Mr. George Miller from California.

Mr. MILLER. Thank you, Madam Chair. Thank you very much for having this hearing.

Mr. McInnis, I guess the first question is, how can you assure us that you are going to recapture NOAA's scientific independence and integrity in this process? We have seen that drawn into question now several times by the courts in dealing with the previous biological opinions, and as we have just found out, appropriating, some one said, in the last few years, $230 million for fisheries that have been declared disasters twice now.

How do we get back to the point where, as the courts have told us, we would get back to relying on the best science available, which was not done in the previous Biological Opinions? You state in your statement that you are reconstructing this process, but how can we be assured that that is going to be the case?

Mr. MCINNIS. Thank you, Congressman, for the question. The answer that I can give you is that we are in the process of producing our first Biological Opinions coming through our new process of internal clearance and review and also the external, scientific, independent reviews. We will have those products on the table within the next few months. The Columbia River products are already there. The Klamath River is following shortly, and the Central Valley operations—

Mr. MILLER. We have a delta conservation plan being developed. What is the involvement of NMFS with that process?

Mr. MCINNIS. NMFS is participating in that to the level that we have the ability and the staff to do so.

Mr. MILLER. I guess what I want to know is, are you developing a set of standards of flows and management that will provide for the conservation of the species because what that group is doing is deciding how much water they can take out of the delta? But at some point, who checks to decide whether that is consistent or inconsistent with the recovery of the species, which is the standard?

Mr. MCINNIS. That would be part of our Biological Opinion for the operations of the Central Valley Project.

Mr. MILLER. You sort of have people moving along, deciding, given what the courts have done now, how can they take as much water as possible and not run afoul of the court, which is going to rely on your standards? So are you developing a model of the delta and the flows and others independent of that decision because those two actions may not be consistent?

Mr. MCINNIS. Our modeling in our work on the impact is interwoven with the proposal of the water managers.

Mr. MILLER. But the water managers are all customers, with all due respect. You have a group of customers sitting down deciding what the take is going to be. That is different than the independent, scientific analysis of what the system can stand and manage and provide for the recovery that you are under mandate to

provide. You are there because of the Section VII consultation. This is a threatened, endangered species. It has been listed.

Mr. MCINNIS. Yes. Not the fall-run Chinook, but the other Chinook runs in the Sacramento and Central Valley—

Mr. MILLER. So it would seem to me that there would be a development of independent, scientific standards, as was originally done and then overruled by the political operations in the organization, and then the question of whether or not the desire to transport additional water out of the delta is consistent with that or not, not whether or not the standards are consistent with the desire to export the water.

Mr. MCINNIS. Section VII under the ESA is a reactionary provision. We are given a proposal by a Federal agency that says, This is the action we propose to take. It is our responsibility to determine whether that action will jeopardize the continued existence of the species or their habitat.

Mr. MILLER. Why aren't the fishers included in that process, in the conservation plan process?

Mr. MCINNIS. I am sorry. I did not hear.

Mr. MILLER. Why isn't the fishing industry, the fishers, included in that conservation plan process?

Mr. MCINNIS. They are included. The next step, as I was going to say, is our recovery planning process, and that is independent of other actions. That is not reactionary. That is the National Marine Fisheries Service laying out its understanding of the requirements for recovering and eventually delisting these populations.

Mr. MILLER. And you developed that absent knowledge of the desire to export water from the delta.

Mr. MCINNIS. We developed that in full knowledge of what is happening in our society, and we will be—

Mr. MILLER. That is not a good answer. I am asking you whether or not you developed that absent the demands that people say they would like to put on the delta as opposed to what it takes to provide for the recovery and the conservation of the species.

Mr. MCINNIS. We developed that information and those standards based on the biology strictly.

Mr. MILLER. Thank you. Thank you, Madam Chair.

Ms. BORDALLO. I thank the gentleman from California.

Now I ask unanimous consent that Mr. Thompson be allowed to sit on the dais and participate in the hearing. Hearing no objection, so ordered.

The next person we will recognize is another Member of the full Committee, the gentleman from California, Mr. Costa.

Mr. COSTA. Thank you very much, Madam Chairwoman, for holding this hearing. I think it is appropriate and timely.

I believe there are multiple factors impacting the salmon on the West Coast, and, frankly, it is an opportunity here to try to focus on the combination of factors that are, in fact, impacting the decline of the salmon fisheries.

I am less familiar with the specifics of the Columbia and the Klamath, so, for the purpose of my questions, I want to focus on the Sacramento and San Joaquin River systems. As I look at the first panel, I think that most of the expertise resides with Mr.

McInnis, although I would be willing to hear any other opinions that the other three panelists have.

There are multiple factors, as I said, impacting the Sacramento and San Joaquin Rivers. As noted by my colleague, Mr. Miller, exportation of water certainly is one, but, Mr. McInnis, how about the factors of invasive species? How about the factors of the diversions within the delta, some 1,600, that are unscreened? How about the factors of urbanization of growth patterns over the last two decades that has quadrupled in the Sacramento and San Joaquin Delta area that has runoff, fertilizer road runoff?

When you compare those other factors, when you look at the North Coast streams that have declined as well, the Napa River, which has declined as well, that are not impacted by exports of water in the Sacramento-San Joaquin system, how do we evaluate the levels of impacts?

Mr. MCINNIS. Thank you, Mr. Congressman. That is part of our recovery planning process. The threats analysis is currently underway. There will be a draft released, at least to our cooperating agencies, shortly, and we will be looking at the nature of all of those threats.

You have provided actually a pretty good starting list. Then we can add to that issues, such as the loss of the riparian habitat and all of the up-slope impacts on the river systems. All of these things will be considered in that recovery plan.

Mr. COSTA. Well, but we are trying to offer remedies, and we are in a significant decline. We have banned all fishing on the West Coast, and it seems to me that, as we look at interim steps and long-term steps, it is akin to trying to fly an airplane in terms of offering solutions, in that we are only going to use one instrument on our control panel, and that is the altitude of the airplane, and we are going to try to fly it and offer corrections without addressing the other elements that, I think, can impact the salmon fisheries just as much.

So how do you establish a criterion for how much invasive species are impacting the fishery? How do you establish a criterion for how much the 1,600 diversions within the delta that have no screens, that are sucking up fish, are impacting the salmon? How about the impacts of the urbanization that puts fertilizer and all sorts of things that run off into the delta? What is the science that you are using to measure these things by?

Mr. MCINNIS. We are, as I said, we are conducting that threat assessment. The science is from multiple sources; it is not just NOAA.

Mr. COSTA. Well, let me ask the question in a different way. How are you working with the different agencies to develop a timeline to determine which of these biological studies will give us an indication, as policymakers, and we were provided $170 million in relief—it has been noted in this farm package yesterday, but that is triage. That is to try to deal with the immediate impacts. But we have to look at the interim and long-term solutions.

So, as we sit here as policymakers, when are we going to get this other information?

Mr. MCINNIS. This other information will be before you within this year.

Mr. COSTA. Within this year, because, as you know, there are other impacts, litigation that is being pursued, and there are court decisions that are being made, and the courts want this decision. I think the legislature in California, as well as the Members of Congress that are looking at this, need that information as well. We cannot make good decisions without good scientific science. Mr. Miller and I may disagree on certain aspects, but I think we both agree that we have to have good, sound science.

Mr. MILLER. If the gentleman would yield, I think, on this one, we agree because I think it goes to the status and the state of the delta for all of these cumulative reasons and individual reasons, and that is the point. Once you know that status, then you have to decide how much additional stress you can place on that system until you can start removing what we think are some of these additional causes, whether it is pumping or in-delta runoffs, all of the things you listed, a quite proper list, but that goes to the health of the entire system, and that is a severely stressed system. That is the point.

Mr. COSTA. My time has, obviously, expired, but I would like to ask the Subcommittee to direct questions so that we could get timelines from NMFS and the other Federal and state agencies on when we are going to receive this biological information.

Ms. BORDALLO. No objection. So ordered.

Now, the Committee Chair recognizes the next Member of the full Committee, and that is Mrs. Napolitano from the State of California.

Mrs. NAPOLITANO. Thank you, Madam Chair. Thank you for allowing me to participate.

The Subcommittee on Water and Power has some concerns, or, at least, I do as Chair, concerns about how this is going to play out in regards to the CalFed program because if the State of California decides to end the state's role in CalFed, how is this going to affect your programs, the fisheries, a whole area? This has been some of the support, if I am understanding correctly.

Mr. MCINNIS. Thank you, Madam Congresswoman. As we have said, and I think we have agreed here, these are broad issues that need to be addressed. CalFed was one of the fora in which we could address broad conditions with state and Federal agencies involved. It is important to continue the discussion, whether that label is on the discussion or some other label. Currently, the Bay Delta Planning Habitat Conservation Plan is picking up some momentum and does address a lot of the broad issues that need to be—

Mrs. NAPOLITANO. But what is going to be the impact?

Mr. MCINNIS. I am sorry. I did not hear you.

Mrs. NAPOLITANO. Is there going to be an impact?

Mr. MCINNIS. An impact to the benefit of the fish?

Mrs. NAPOLITANO. Right.

Mr. MCINNIS. We are counting on that. That is what we have to achieve in that habitat conservation planning. It would actually be eventually a plan that was reviewed under the Endangered Species Act, both the state and the Federal Endangered Species Acts.

Mrs. NAPOLITANO. But what role is NOAA playing in the Delta Vision process or the Bay Delta Conservation Plan?

Mr. MCINNIS. I am sorry. I did not hear your question. I apologize.

Mrs. NAPOLITANO. Is NOAA playing a role in the Delta Vision process or the Bay Delta Conservation Plan?

Mr. MCINNIS. We are playing a role in that. We have representation in those discussions.

Mrs. NAPOLITANO. OK. Piggy-backing on Mr. Costa's point in regard to the effect of runoff, other aspects of impact, on the fisheries, on the salmon, what specifically is the role of NOAA?

Mr. MCINNIS. Our role is multifold in that. Our most clear role is where there is a Federal action that is involved, or a Federally authorized action, we use the Endangered Species Act, Section VII, to consult to ensure that those actions do not jeopardize the—

Mrs. NAPOLITANO. But isn't this part of determining what affects the fisheries?

Mr. MCINNIS. And we are doing that under the recovery aspects of the Endangered Species Act and examining the threats overall.

Mrs. NAPOLITANO. Is part of the problem that you may not have enough funding to be able to carry out the programs you need?

Mr. MCINNIS. The president's budget last year had—

Mrs. NAPOLITANO. I am not asking about the president's budget, sir. I am talking about necessity to be able carry out, to then be able to ensure that steps are taken so that we have water in the dams, in the rivers, and be able to still protect the salmon.

Mr. MCINNIS. We are, of course, stretched by the workload. As I started to say, the president's budget had an increase. Congress, both Houses, passed that increase last year in the conference, and the final action that was taken did not make it into the final omnibus bill that we are working with right now.

Mrs. NAPOLITANO. Madam Chair, I would like to submit some other questions for the record because I really have not been able to fully capture some of the—I just got the witnesses' statements, and I have not had a chance to, but I would like to submit them for the record, and I thank you.

Ms. BORDALLO. Without objection, so ordered.

Mrs. NAPOLITANO. I will yield.

Mr. MILLER. Mr. McInnis, you mentioned in your statement that the court mentioned in its question of consideration of climate change in these new Biological Opinions. Is that, in fact, taking place again? Is that going to be a factor? We are talking about in relationship to the in-delta factors. Is that also now a factor in terms of the survivability of the species?

Mr. MCINNIS. That is a factor that we are considering in the new Biological Opinion. We have considerable help with that. NOAA's broader agencies, other than NMFS, have been providing us with the foundational information on climate change.

Mr. MILLER. Thank you. I thank the gentlewoman for yielding.

Mrs. NAPOLITANO. May I beg the indulgence for one question? Apparently, there has been some information handed to me dealing with the Butte Creek habitat, and I would like a question addressed to you and maybe have you respond in writing.

The seven-year activities on the record of the decision anticipated in 2006 scheduled the beginning of September 2006, due to the delays and increased cost of restoration, seeking additional fund-

ing, and I would like to know if NOAA does or does not support this.

Ms. BORDALLO. Thank you. The gentlelady has run out of time, and she has asked for a written answer to that question.

The Chair now recognizes the gentleman from Oregon, Mr. DeFazio, who is a Member of the full Committee.

Mr. DEFAZIO. I thank the Chair for the courtesy. I have thought most immediately we were coming, given the extraordinary closure, to discuss Sacramento stocks and their collapse, and I guess we have one witness who can address that, to some extent, and then mention was made of the closure, almost total closure, two years ago, which was due to the Klamath stocks, and we have one witness who is addressing that.

I came in during Mr. Williams' testimony, and I will first direct a question to Mr. Litchfield. Mr. Litchfield, I am always curious why people focus on the four public dams. To the best of my knowledge, the prime spawning habitat was further up the Snake and, in fact, is behind the dams that do not have any fish passage, the high dams. Is that correct?

Mr. LITCHFIELD. That is correct. The Snake River fall Chinook habitat was the interior part of the Snake River Basin above what is called the "Hell's Canyon complex," a complex of dams operated by Idaho Power.

Mr. DEFAZIO. So my question would be, as I understand, those dams are up for relicensing.

Mr. LITCHFIELD. They are.

Mr. DEFAZIO. Are you aware of anyone who has contested those licenses to try and remove the private dams that are blocking the prime spawning habitat? Why is all of the focus on the lower dams, the public dams, which are not blocking prime habitat and, in fact, have good fish passage?

Mr. LITCHFIELD. Well, there is a lot of habitat above the Lower Snake River dams in the Clearwater and the salmon complex that I think the people that advocate dam removal are trying to open up. So there is some habitat there, primarily for spring Chinook and steelhead, but I am unaware of anyone who is advocating for removal of the Hell's Canyon complex.

I suspect it is an interesting correlation that may be spurious. The salmon runs in the Columbia River happened to reach a fairly rapid state of decline in the late 1960s, and they declined through the 1970s. That now is highly correlated with a change in ocean conditions during that time period. It happens to be also the time period where the Snake River dams became operational.

Mr. DEFAZIO. The upper private dam.

Mr. LITCHFIELD. No, the lower public dams, the Corps of Engineers dams.

Mr. DEFAZIO. OK.

Mr. LITCHFIELD. And so a lot of folks have looked at that correlation of dams went in, and runs went down, and said they think that is the problem when, in fact, as I said, the indications are that it is probably much more attuned to a change in ocean survival during that period.

More recently, NOAA's research center has evaluated the survivals through the eight dams, the four lower public dams plus the

four lower public dams on the Columbia, so the Lower Snake and Lower Columbia dams, and the survival through that reach now is nearly the same, maybe a little higher in some years, than it was before the Snake River dams were completed.

Mr. DEFAZIO. OK. The last previous disaster was the Klamath, and, Mr. Rode, your testimony addresses that issue, does it not?

Mr. RODE. Yes, it does.

Mr. DEFAZIO. It does. OK. So what would you think, since it has been a couple of years—I do not know that we know yet, or will ever know, what happened to the Sacramento—what did you feel was the critical factor on the Klamath when we had that huge fish die-off?

Mr. RODE. Lack of flow. Lack of flow was the only controllable factor and was the critical factor. Let me paraphrase my comments by stating that weak Klamath stocks have been a problem that has impacted ocean fisheries from Monterey Bay to Cape Falcon, Oregon, for the last quarter century. This is not a new problem.

The issue we have done a lot of habitat work on the Klamath River. You probably recall that Congress passed the Klamath Act back in the mid-1980s, a 20-year program to restore the fisheries of the Klamath Basin. The Federal government spent $21 million, and an equal amount was contributed by the states. There has been a whole host of other programs trying to improve the habitat, but the one common denominator that has been lacking in all of those efforts has been the fact that we have not been able to do anything about the inadequate flows.

Mr. DEFAZIO. And the inadequate flows, as I understand it, come for two reasons. One is upstream impoundment that has diverted the irrigation, but also I understand, isn't some of the critical coldest and best water from the Trinity diverted over into the Sacramento system also?

Mr. LITCHFIELD. That is true, and we also have extensive agricultural diversions on two other tributaries, the Shasta and the Scott Rivers. So, combined, that has been the limiting biological bottleneck. It is hard to address that. The water coming from the upper basin is limited in supply, and it has been overallocated, and there just is not enough for fish.

Mr. DEFAZIO. But if the government were to initiate a program perhaps of, you know, voluntary buyouts or something, could that help to recapture some of the water rights?

Mr. LITCHFIELD. Sure. If you can reduce off-stream demand for water, that would improve conditions. There has been talk of willing sellers, I think, back as far as 2000, but nothing was done about that.

Mr. DEFAZIO. I thank the Chair.

Ms. BORDALLO. I thank the gentleman. I would like to make an announcement here at this point. I think we have time for just a couple of quick questions. We have votes. We have, I understand, five votes on the Floor. It will probably be about an hour.

So we are going to have to recess the hearing, but we will come back with Panel 1 again, and, right now, I would like to recognize Mr. McDermott, if he has a couple of quick questions that he would like to get in before going out to vote.

Mr. COSTA. A question, Madam Chairwoman.

Ms. BORDALLO. Yes.

Mr. COSTA. Based upon these votes and the recess, you said that we are going to come back to Panel 1 and then do Panel 2.

Ms. BORDALLO. Yes. That is correct.

Mr. COSTA. OK. All right. Thank you.

Mr. MCDERMOTT. Thank you, Madam Chair. I want to congratulate and commend the Chairman for having this hearing.

My bill has been in for a study for four sessions of Congress, so this is not some gratuitous thing that we dropped in at the last minute.

I want to talk to Dr. Williams, and I would like the clerk to put up on the screen the slide that I have put up there. You said that we had a consensus in the community, and I read Mr. Litchfield's testimony, and he says that it is salmon harvest that is really the problem. But if you look at this slide, you can see that the first column is the column of those killed by the salmon coming into the dam, the second one is the column of those going down the dam, the third one is the salmon that are caught in the in-river harvest, and then the fourth column, almost nonexistent in all of these studies, is what is caught in the ocean.

The only one that makes any sense at all is the middle one, which is the Snake River. That is the only one where there is any fishing done out in the ocean. That is the only place where salmon are harvested.

So what I cannot understand is when was the last good study done by a noninvolved group? When was the National Academy of Sciences or the GAO or somebody who did not have a stake in this business, when have we had a study like that?

Mr. WILLIAMS. I honestly do not know when the last independent—I guess you could define "independent" different ways, but I am not sure when the last independent analysis was done.

Mr. MCDERMOTT. At those meetings that you describe, where there was 90 percent and then 100 percent for dam removal, and, by the way, the Spokesman Review has called for a study—that is the paper in Spokane—and the Idaho Statesman has called for dam removal in Idaho. So there must be some consensus out there that has developed, but it is somehow ignored by the marine fisheries or NOAA or somebody. Explain to me what is happening here.

Mr. WILLIAMS. OK. I think you have kind of hit the nail right on the head relative to, at least, the Lower Snake system, and there is a strong consensus, I believe, scientifically, for the breaching of those lower four Snake River dams in terms of the biggest mortality factors and the one factor that, frankly, we have not adequately addressed.

The ocean conditions; we know that they do oscillate, and we know that they can be bad at times, but that is the reason why we have to focus on the major mortality factors. I think this whole question of the scientific complexity; salmon are very complex species to manage, so it is the importance that we employ the best available science in these Biological Opinions and our other management programs and that we focus on the big problems and that we put our money where it needs to go.

Mr. MCDERMOTT. The judge has thrown out the NOAA BiOps three times. He has now got another one on his desk since May 5th. What was the matter with the previous ones? What is it that NOAA is not looking at that the judge is saying, Hey, you guys, you are not paying attention here?

Mr. WILLIAMS. I still think that the big thing and the big problem, and I have two big stacks of that May 5th Biological Opinion on my desk that I am sort of sorting through right now, has been this inability to adequately address the mortality at the dams, particularly the downriver migrants, the delayed mortality that occurs with some of the passage, the degree to which predators can kind of focus in on fish going over the dams or through sluiceways. There is a variety of problems related to the dams that I still think have not been adequately addressed, and I think that is why Judge Redden has been sending those back for remand.

Mr. MCDERMOTT. Is that because NOAA is not following the law to put that into the BiOp, or is it that it is so difficult? In Seattle, we have always got people who want to shoot sea lions down by the locks because it is the sea lions that are causing all of the problems.

So I would like to know why, from NOAA's standpoint, have they not done that part of the study? Is it just simply avoiding the law?

Mr. WILLIAMS. Of course, I cannot speak for NOAA, but I know that NOAA scientists have participated in these meetings, such as I cited, the Idaho Chapter, American Fisheries Society, essentially the biggest recognized group of fisheries professionals, and during those meetings, as I said, it has either been 90-to-100-percent consensus that those dams are the huge problems and the one we have been avoiding.

Mr. MCDERMOTT. How did salmon get considered incidental damage in this count? If the dams incidentally kill fish, suddenly that does not affect the ESA. How did that ever get defined in that way?

Mr. WILLIAMS. Of course, in the Biological Opinions, the National Marine Fisheries Service has to look and understand whether something is jeopardizing or not, and then, still, once they have provided a reasonable and prudent alternative to avoid jeopardy, they still have to deal with some level of incidental take in their Biological Opinions.

So, in my perspective, it just has not been something that has been adequately addressed.

Mr. MCDERMOTT. The bill that I put in, Madam Chairman and Members of the Committee, was a bill originally that had in it if the science was correct, then there would be an authorization to take the dams down. The bill that is before the Congress in this session does not have an authorization to take the dams out. It seems to me, Madam Chair, that there is no reason that can be put forward why there should not be a study. If anybody on the Committee can give us a reason why NAS and GAO should not do a study of the Lower Snake dams, I would like to hear it.

Mrs. MCMORRIS RODGERS. Would the gentleman yield?

Mr. MCDERMOTT. I would like to hear from the panel. Mr. Litchfield may have an answer for that.

Ms. BORDALLO. I do remind the gentleman that the time is up. The clock was not running for about a minute and a half, so you are over time now.

Mr. MCDERMOTT. I am so grateful for your efforts on having this hearing, Madam Chair, I relinquish my question.

Ms. BORDALLO. I thank the gentleman, but I do invite you to come back. We are going to return after the five votes on the Floor.

Mrs. MCMORRIS RODGERS. Mr. Chairman, I would be interested in getting the answer. Could we get that answer to his question?

Ms. BORDALLO. All right. I will make an exception here. Go ahead.

Mr. LITCHFIELD. I think the question was to me.

Mr. MCDERMOTT. It is to both you and Mr. Williams, but go ahead.

Mr. LITCHFIELD. OK. So my response, Congressman, is that millions of dollars have been spent studying dam removal on the Snake River.

Mr. MCDERMOTT. Independent dollars?

Mr. LITCHFIELD. The project was managed by the U.S. Army Corps of Engineers. It involved a great deal of public participation and input from outside parties. There were detailed designs done and developed by engineers of how the projects would be removed. There were economic studies conducted of what the value might be of a free-flowing river in terms of recreation and boating and rafting. So there was a lot of effort put into this.

Mr. MCDERMOTT. This was 15 years ago, you are saying.

Mr. LITCHFIELD. No. I am saying—

Mr. MCDERMOTT. What is the most recent study?

Mr. LITCHFIELD. This one was done in the late 1990s.

Mr. MCDERMOTT. I have not seen that study because the only one I know is 15 years old. I would like to see the one that you say was done recently.

Mr. LITCHFIELD. I would be happy to give you a reference to it.

Ms. BORDALLO. All right. I thank the gentleman again, and the Subcommittee stands recessed until after the votes, and that should be about anywhere from 45 minutes to an hour. I would ask the witnesses to please stay and also Panel 2. Thank you.

[Whereupon, at 11:45 a.m., a recess was taken.]

Ms. BORDALLO. Good afternoon. We will now resume the hearing on the Subcommittee on Fisheries, Wildlife and Oceans. Before we ask the questions this morning, we left off with Panel 1, and we still had a number of Members and also guest Members here that would like to ask questions.

First, I would like to ask unanimous consent that Mr. Inslee from the State of Washington be allowed to sit with us on the dais and participate in the hearing. Hearing no objection, so ordered.

Now I would like to recognize for questions Ms. Eshoo.

Ms. ESHOO. Thank you, Madam Chairwoman, for extending the legislative courtesies that you have to those of us that are not Members of either the full Committee or the Subcommittee. We appreciate it.

I want to thank the witnesses for their testimony so far today, and I want to make a couple of observations first, and that is that I find stunning that the agency that is charged with carrying out

the protections and really being proactive so that we do not face the crises that we have now, or deal with the crises that do happen, would have their BiOps rejected by the Court.

When I first came to Congress in January of 1993, I was on what was then the Merchant Marine and Fisheries Committee, and NOAA was a blue-chip agency, really a blue-chip agency. I think that this is, along with the fishing failure, the failure of an agency and that there are contributing factors, obviously, to that. I do not know if the science is being twisted around, or that you are not allowed to do the proper science, or that political science may be brought to it, but to have a court reject not one, but several, BiOps, I think, is extraordinarily instructive.

I represent a district that has a magnificent part of the California coast, and we have many that are engaged in a robust fishing industry. There are many businesses that are attached to this, certainly boats and restaurants and tourism. In short, it represents the livelihood of people, and so what this closure, this unprecedented and historic closure, represents is real devastation for a lot of people. I think that you know that, but I think it is worth restating.

I would like to ask, Mr. McInnis, you stated in your testimony that the loss of all of the juvenile Chinook salmon at the delta pumps was below average in 2004-2005 and that you cannot verify the degree that delta pumping rates played in the decline of the salmon in the Central Valley. Are you suggesting that the pumps and out-of-delta transfers are the primary reason for the in-river salmon decline in the Sacramento River Basin?

Mr. MCINNIS. Thank you for that question, Madam Congresswoman. I am not making that suggestion, that it is the primary cause. It certainly has contributed, as have so many other factors, including the loss of essentially 90 to 95 percent of the natural habitat for Central Valley salmon.

Ms. BORDALLO. I just want to make a comment here that a joint U.C.-Davis and NOAA Fisheries study—I am sure you are aware of it because of your role at NOAA—shows that of 200 juvenile salmon tagged with GPS devices only two made it down the Sacramento through the delta to the Golden Gate Bridge, and there is a poster of that study here that really highlights the collapse and, I think, says that this is not just ocean conditions, which, it seemed to me, that is what you were pointing to in your testimony and perhaps in some of your answers to Members. Do you agree? Do you disagree? Do you want to comment on this?

Mr. MCINNIS. I would like to comment to correct that impression, if that is what I have left with you. The concern for the ocean conditions was specifically the look that NMFS scientists took at the current situation.

Ms. ESHOO. Where is NOAA going now, given this unprecedented closure? You are working on another BiOp. Realistically, is NOAA going to play a heavy-hitter's role in this? What do you plan to do? What can you do?

Mr. MCINNIS. We intend to bring the best science available to bear on the questions and make sure that we do our job with respect to recovering the endangered species.

Ms. ESHOO. How long is that going to take? Could you give us a timeframe on that?

Mr. MCINNIS. I can give you a timeframe on the recovery planning activity for the Central Valley, if that is what your question is.

Ms. ESHOO. Well, I know where I want to land. I think you know where we need to land, and that is that what is contributing to all of the factors that have brought about this unprecedented closure, that we reverse this. This is not a case where we can afford to put a band-aid on it. What worries me is, is there a difference between you doing your BiOp now and the ones that you did before? Can you give us some confidence that this is not going to be shot down by a court so that we can move on?

Mr. MCINNIS. We will do our best to make sure that it is robust for litigation. As far as the science goes, we have improved the amount of the existing science that is available, and we have taken steps to correct a couple of deficiencies, many of the deficiencies that were pointed out in the review that we had done on the previous Biological Opinion, including analysis of climate change impacts and a shortened time-step analysis of the effects of temperature on salmon in the—

Ms. ESHOO. My time is up. Madam Chairwoman, thank you again for your extending the legislative courtesies to us. We appreciate it. Is it the understanding of the Chair that Members can submit questions?

Ms. BORDALLO. Yes. That is correct.

Ms. ESHOO. Thank you very much.

Ms. BORDALLO. I thank the gentlelady. Her time was up, and now we go to the acting Ranking Member, Mr. Sali, the gentleman from Idaho.

Mr. SALI. Thank you, Madam Chair. First of all, I referred earlier to a report that I had the Congressional Research Service do on the generation of carbon dioxide emissions that would result from Snake River dam replacement. I would ask unanimous consent that that be included as a part of the record for this hearing.

Ms. BORDALLO. No objection, so ordered.

[NOTE: The CRS report submitted for the record have been retained in the Committee's official files.]

Mr. SALI. Thank you, Madam Chair. For the folks from NOAA, I want to thank you for the work that you have done to try and sort out what is a very difficult situation, along with the Corps of Engineers. I guess we all have opinions. My opinion is that the troubles we have had, at least on the Columbia and the Snake, result more from an activist judge who is trying to reach a certain result than it does from the work that you have done and the quality of that work, and I want to publicly thank you folks for the great effort that you have put to try and get the good science.

I would like to follow up with that. Mr. McInnis, I asked earlier, in my question relating to the Sacramento fall Chinook stocks, and the question is that those stocks have nothing to do with the Columbia and Snake River systems. Is that correct?

Mr. MCINNIS. Mr. Congressman, that is correct. There was some intermingling at some level in the ocean, but the Sacramento Central Valley Chinook are generally caught south of Cape Falcon in

Oregon, so south of the Columbia River, and the Columbia River stocks are generally north of that.

Mr. SALI. So the discussion about breaching dams on the Columbia and Snake Rivers has nothing at all to do with the closure south of that dividing line at Cape Falcon.

Mr. MCINNIS. The limited fisheries in the ocean off of Washington and the very far north tip of Oregon are primarily driven by the stocks that are north of the Central Valley, and those closures that were required this year were primarily driven by limits on endangered and threatened runs in the Northwest.

Mr. SALI. I guess I would like to ask Mr. Litchfield this. When that final weir is added to the Fork Dam on the Lower Snake, the Corps of Engineers and NOAA project that 96 percent of the juveniles will survive passage of those four dams on the Lower Snake. Is that correct?

Mr. LITCHFIELD. That is correct, that 96 percent will survive each dam.

Mr. SALI. And 98 percent of the adult salmon survive passage going back up the stream to spawn. Is that correct?

Mr. LITCHFIELD. Or higher in most cases, although NOAA recently found that there are a number of missing adults in the area between Bonneville and the McNary Dam that we do not really understand where they are going. In past years, they have been surviving that reach very well, but, in the last couple of years, there have been some significant numbers of missing adults.

Mr. SALI. For the stocks for which restrictions are in place for, that part of the West Coast fishery that lies north of Cape Falcon, those species enter the Columbia system but generally, for the most part, they do not try to spawn upstream from Ice Harbor Dam, the lowest of the four dams on the Lower Snake. Is that correct?

Mr. LITCHFIELD. Is that a question to me?

Mr. SALI. Yes, sir.

Mr. LITCHFIELD. So you are talking about which stock of fish?

Mr. SALI. The stocks which are north of Cape Falcon.

Mr. LITCHFIELD. Yes.

Mr. SALI. For the most part, those stocks do not try and make it up past Ice Harbor Dam. Is that correct?

Mr. LITCHFIELD. That is correct. Most of those fish are either Lower Columbia or coastal streams or the Hanford Reach.

Mr. SALI. I guess the final question is really, then, for the species in the West Coast salmon fisheries that have been closed or restricted for harvest, really removal of the four Lower Snake dams would have no impact on those stocks. Is that correct?

Mr. LITCHFIELD. That is correct.

Mr. SALI. And I want to ask another question. The pinnipeds, the seals and sea lions; am I correct that they generally are responsible for about seven percent of the total harvest of adults, which would be about the same amount that we generally attribute to the tribes up and down the Columbia and Snake? Is that correct?

Mr. LITCHFIELD. Generally, that is the right number, but I would characterize it as the Corps' estimates of seven percent mortality due to pinniped impacts below Bonneville Dam are actually observed impacts. The real impact is, obviously, much higher because

we cannot see about 150 miles of river that they are also working in.

Mr. SALI. And there would be additional issues relating to terns and other birds that exist on the Snake River for juveniles or the Columbia for juveniles.

Mr. LITCHFIELD. There is significant avian predation below Bonneville Dam and also up in the Columbia system where the Snake and the Columbia merge. There are some islands where there are large populations of Caspian terns.

Mr. SALI. Thank you, Madam Chairman.

Ms. BORDALLO. I thank the gentleman from Idaho, Mr. Sali, and now Mr. Miller from California, questions.

Mr. MILLER. Thank you very much, Madam Chairman. I want to sort of follow up where Ms. Eshoo was. As I read the court opinions and some of the controversy, it is not so much the science; it was the use of the science, or the misuse of the science. Either people put conclusions on the science that were opposed to the underlying science and just found the conclusions, Ms. MacDonald or somebody else, and the science was not used in a proper fashion. There was not a lot of question about the underlying science. Is that correct?

Mr. MCINNIS. Congressman, there were questions regarding some science that we did not have at the time that we did not consider, such as the climate change.

Mr. MILLER. I accept that.

Mr. MCINNIS. There were also challenges to our analytical framework, as it is termed, as to how we applied the science.

Mr. MILLER. I think we all want to sort of know how is this going to work this time? I worry that there is a great possible that the science is used to justify a preordained conclusion here.

Mr. MCINNIS. I assure you, sir, that is not the case. Part of the restructuring of the process that we have undergone within the National Marine Fisheries Service is the decision on signing that Biological Opinion is mine. So I will be doing it in the region rather than any participation from our headquarters.

Mr. MILLER. I guess it is quite conceivable that when we look at this system, as Mr. Costa has pointed out and others have in a lot of previous discussions we have had, we have a seriously stressed system with respect to the fisheries. It can be the smelt, it can be the salmon, all of the species, a seriously, seriously stressed system. I would assume that that requires that you look at all of these impacts and then try to develop the plan and the science that would mitigate those impacts so that we can provide for the recovery of the species. That is what you try to do.

Mr. MCINNIS. That is correct.

Mr. MILLER. Now, in a system that is as seriously stressed and the size that the delta is and its impacts through the Golden Gate to the fisheries, that is going to require some level of sort of multitasking a solution over a period of years, and that because there are not screened intakes in the delta, or because there is runoff, or because we are pumping more water than we have ever pumped before, you have to think about that nobody is going to get a free pass here because it is about the recovery of the species, in terms of your mission. Is that correct?

Mr. MCINNIS. That is correct.

Mr. MILLER. And that is why you are there under the consultation, and you have been brought in to this because of the Endangered Species Act, and that is the process.

Mr. MCINNIS. The consultations are a creature that is project oriented.

Mr. MILLER. Right.

Mr. MCINNIS. Recovery planning is more broad than that—

Mr. MILLER. Right.

Mr. MCINNIS.—and gives us the opportunity to look at all—

Mr. MILLER. And those projects and those decisions about the operation of the various parts have to then be consistent with the science and the recovery, as it dictates what your best judgment is at that time for recovery.

Mr. MCINNIS. That is correct because that will constitute the best information that we have available for those consultations.

If I may answer a question that you have not asked, regarding the timing on this, we will have a public review draft of our Central Valley Recovery Plan completed and available in September of 2008.

Mr. MILLER. OK. Back to the question of this conservation plan, as various plans are developed, whether pumping plans or management plans or conservation plans which could include all of those mentioned, I would also assume that you would want to assure that there is full participation by all stakeholders in that. My concern is, in the conservation plan, that does not appear to be true.

Mr. MCINNIS. It has not been true up to this point. The work that we have done so far has been with agency scientists and university scientists, and it outlined the biological portion of this. Now we are moving into what do we take on first, and how do we pay for it? That is what the public review draft is going to be, essentially the roadmap of how to get there.

Mr. MILLER. But that is going to be a comment on the findings of the conservation plan, is it not?

Mr. MCINNIS. It will be comments on our draft recovery plan for the Central Valley Chinook and the steelhead.

Mr. MILLER. I am talking about the proposed HCP—

Mr. MCINNIS. The proposed HCP.

Mr. MILLER.—which you will have to make a decision about also, whether that is sufficient for the recovery.

Mr. MCINNIS. That is correct. That will be part of the consideration, to make sure that that HCP does contribute to the recovery.

Mr. MILLER. Wouldn't it be important that you also assure that it has the widest participation of stakeholders in that process so that this is not a biased plan, and then you are asked to make judgments on, or a plan without sufficient input?

Mr. MCINNIS. At this point, that participation, as I know it, is predominantly state and Federal agencies—

Mr. MILLER. Right.

Mr. MCINNIS.—and it will move to the next step. Before we issue a permit for a Habitat Conservation Plan, it has to undergo public review.

Mr. MILLER. Well, I would just like to raise a red flag because I think we have a plan here where you have state and Federal

agencies, and you have the customers sitting down in a room and deciding what they can live with, and that starts to look like an HCP.

I just suggest that there are other stakeholders that, if you are going to have an HCP, have to have some input as to what that HCP should reflect rather than this will allow for historical water takings from the delta, exports. I would just raise a flag here because—

Mr. MCINNIS. Thank you. Your message is received.

Mr. MILLER. Again, I think we were all quite stunned with the discovery of what took place by political operatives. I am not talking about the professionals. Serious political interference here on the Klamath and in the delta. Thank you.

Ms. BORDALLO. I thank the gentleman from California, Mr. Miller, and now the gentleman from California as well, Mr. Costa.

Mr. COSTA. Thank you, Madam Chairwoman. I want to get back to Mr. McInnis in terms of the two points on the line of questioning that Mr. Miller was pursuing, one on the Habitat Conservation Plan, and what is required under the law to ensure that all of the interested parties have an opportunity to participate in the input.

Two, you did not really talk at great length about the collaboration effort with regard to the state participants, State Department of Fish and Game, State Water Quality Control Board, State Department of Water Resources.

So hold that thought for a moment, but the other three gentleman, I want to ask you, this is like a private investigation going on, or a public investigation, as to what is causing the decline, dramatic decline, of salmon fisheries on the West Coast, and certainly every river system, whether it be the Columbia or the Klamath or the Sacramento-San Joaquin, have circumstances that are unique to those river systems.

Having said that, it just seems to me, and I would like you gentlemen to answer concisely, what other factors are out there that there is a common situation that is causing all three river systems to experience the same dramatic decline. There has got to be something else that has got to be in common besides whatever is unique to each of the river systems. Let us start, James, with you, quickly.

Mr. LITCHFIELD. All right. Thank you for the question. The Pacific Northwest, the way we have approached it, is that it is a "4-H problem," we call it. It involves habitat, hydro power, hatcheries, and harvest. I would add there is a fifth H, which is really humans. So human impacts are fairly broad across the landscape and even in the ocean.

When you look at common factors that are affecting these fish, it varies by tributary and by stock. I can give you an example. This year, in the Columbia, Chinook are doing quite well in the Columbia this year. Klamath River Chinook are doing quite poorly. They are more like the Sacramento Chinook, and we do not really understand why. They enter the ocean at different times. They go to different places. They may have encountered a group of predators. We just really do not understand.

Mr. COSTA. All right. Mr. Williams?

Mr. WILLIAMS. Yes. Thank you. Certainly, the science of each river is different. These are all very complex questions which just point to the fact of the importance of science in these debates.

Climate change is certainly affecting all of these systems, and it is not just the ocean, but in the freshwater environments as well.

Mr. COSTA. They talk about the snow pack in the Sierra and elsewhere may come later or may come at shorter time intervals, and the runoffs may be much more rapid.

Mr. WILLIAMS. Exactly, exactly. Reduced snow pack earlier, timing of runoff lower—all of those things.

Another thing they have in common, frankly, is that the mainstem river systems are not in as good condition relative to the headwaters.

Mr. COSTA. OK. And what about the upwelling effect that they talk about in terms of the nutrients available out there in the ocean for the juvenile salmon?

Mr. WILLIAMS. Right. The ocean conditions do oscillate in terms of their productivity, based on upwelling and these sorts of things from north to south.

Mr. COSTA. Do you think that is a factor on the West Coast?

Mr. WILLIAMS. Sure. I think it is a factor, and I think one of the lessons we have learned from watching the ocean conditions is the value of maintaining high-quality habitat conditions on the freshwater side.

Mr. COSTA. Mr. Rode?

Mr. RODE. I agree with what Jim and Jack just said, in large degree. On the Klamath, for instance, and that is including the Trinity, the major tributary to the Klamath, the predominant race of Chinook salmon at one time was spring Chinook, and they have been all but eliminated. There is a very small remnant population in the Trinity, and we have a population of maybe a few hundred fish left returning to the Salmon River.

What is interesting about that race of fish is that, for instance, on the Salmon, the river is almost entirely in wilderness designation, so the tributary conditions are quite pristine, yet we see these fish continuing to decline because they have to enter the Klamath River, the mainstem.

Mr. COSTA. Could you do a follow-up on the written thing because my time is getting close to expiring, and I would like to ask Mr. McInnis to go back to my two points on the state collaboration and the other area, quickly.

Mr. MCINNIS. The collaboration on the Bay Delta Habitat Conservation Plan is broad. It does include the agencies that you have mentioned. When we do get to the point of having a permanent application submitted, there will be permits for the Fish and Wildlife Service, for the National Marine Fisheries Service, and through the state process as well.

Under our requirements, before we issue a permit, we will have to look at it under the National Environmental Policy Act, as well as the Endangered Species Act, and there will be broader public participation.

Mr. COSTA. And those are state and Federal environmental laws that you have to prescribe by. Right?

Mr. MCINNIS. Yes, sir.

Mr. COSTA. Could I have just one final question, Madam Chairman?

Ms. BORDALLO. You can go ahead.

Mr. COSTA. This is a general question. I know that in the late 1990s, because I was a part of an effort, working with my colleagues here—I was in the state legislature at the time—there were hundreds of millions of dollars provided on the Federal level, and then we passed two bond measures, you may remember, in California in 1996 and in 2000 that I authored that provided hundreds of millions of dollars for fishery restoration.

Why do you believe, after those efforts that took place within the last 10 years to provide significant state and Federal dollars, we were unsuccessful at trying to stymie the decline of these important salmon fisheries?

Mr. MCINNIS. Mr. Congressman, there are many, many sources of mortality for these fish. The fish that we focused on in those recovery plans, in those actions, were primarily the winter Chinook and the spring Chinook, and we have had some success in building those populations back up. In the case of winter Chinook, the population has gone from about 200 spawners up into the multiple thousands, up to 10,000, as recently as 2004-2005.

So we have had some success. This particular collapse of the fall Chinook in the Sacramento Valley, after having been at a high level of 770,000 to 780,000 spawners as recently as 2002, is something that we are still looking at. We have a NMFS panel that is leading a thorough analysis and will be delivering their cause-and-effect relationships, their analysis, at the close of this year, probably in November.

Mr. COSTA. Thank you.

Ms. BORDALLO. I thank the gentleman from California and now recognize the gentleman from the State of Washington, Mr. Inslee.

Mr. INSLEE. Thank you. I want to ask some questions about the impact of climate change on habitat. I am just going to read a quote, and I am actually not sure who the quote is from, but I want to ask if anyone disagrees with it.

"For specific salmon and steelhead, climate change will result in warmer waters, reduced snow packs, earlier spring runoff, reduced summer flows, more floods, more drought, and more wildfires in their watersheds. Changes in wind patterns will, in turn, impact oceanic currents and offshore conditions."

Does anyone on the panel disagree with that statement? No one is indicating they disagree with that statement, so that is a remarkable degree of scientific consensus.

The reason I ask you that is, despite the fact that we have this scientific consensus, the 2008 Columbia-Snake River BiOp assumes that climate conditions in the Northwest will get no worse than those experienced during the past three decades. I am just wondering how we can base a BiOp on a scientific assumption that nobody here agrees with, namely, like, it is not going to change.

All of the science indicates it is going to change. Most of it that I am aware of suggests, in a negative standpoint, as far as water temperatures, nutrient levels caused by different upwelling patterns, reduced summer flows, more floods, more drought, more wildfires. How can we have a BiOp based on such a grossly false

assumption? Does anyone want to suggest how we can have a BiOp like that?

Mr. LITCHFIELD. Congressman, I think it is a matter of timeframe. The first statement, I think I recognize it. I think it is in an ISAB, the Independent Science Advisory Board Review of Climate Change. It is a very important document. It came out this year. But the timeframes they are talking about are 50 to 100 years from now. The Biological Opinion that NOAA just adopted and provided to the courts has a 10-year timeframe. It goes from now to 2018. There will then be a need for a new Biological Opinion, assuming that this one meets court approval.

So the timeframe of 10 years; none of the scientists that I am aware of are predicting that there will be that rapid a change in snow pack, runoff, water temperatures in the Northwest to have a significant change from what we have already seen, and if you go back to the historical record, we saw a very low productivity period from the eighties into the mid-nineties.

Mr. INSLEE. Well, I think that is totally ignoring what I am experiencing in living in the State of Washington. You know, I just cannot see how you conclude other than we are not already experiencing, with a high degree of probability, some changes in our climactic systems, including upwelling systems associated with wind. Maybe you cannot say it beyond a reasonable doubt, but it is entirely consistent with what the models predict.

I have just lived through rain incidents that reminded me of Bali or something or Indonesia compared to Seattle. Seattle, you know, it only rains once, which is all winter, and it just drizzles. But in the last two years, we have had rainstorms that are entirely consistent with the models. They closed Mount Rainier National Park for the first time in 120 years. It was closed. It was wiped out by these horrendous rainstorms.

I can tell you, we are experiencing these changes, humans are, and if humans are, I will bet you salmon are, too, and I just think it is remarkable that we have not built that in, to some degree, in the BiOp at all. As I understand it, the BiOp basically just goes off on this assumption that there will not be any changes in the next 10 years, and they are already here.

I mean, does anybody disagree that we are already seeing changes that have been observed that are consistent with what the models predict? Does anybody disagree with that? Dr. Williams, it looks like you have a comment.

Mr. WILLIAMS. I do not disagree at all, but I do have a comment. I think you are exactly right. I think we see in numerous places, both in the freshwater arena and in the oceans, climate change is already occurring. We have a dead zone that has been forming off the Oregon coast for the past several years because of changes in ocean currents. It has nothing to do with pollution. This is sort of a new phenomenon of dead zones that seems to be consistent with what scientists predict on climate change.

I was reading some work just the other day showing insects in streams, adult insects emerging much earlier, which is part of this change in timing from reduced snow pack, earlier runoff. So we are seeing these things. In fact, they have been occurring, I think, for several years. The indications are they are going to get much

worse, so I agree completely. Trying to ignore or minimize these changes is going to have critical consequences for salmon.

Mr. INSLEE. Yes.

Mr. LITCHFIELD. I would like to add, I do not disagree with any of that, but there is huge variability in a natural environment that affects these fish. For example, this year, as you know, in the Pacific Northwest, we are experiencing what is predicted to be an average water year. We have tremendous snow pack in the Cascades.

So for this particular year, it looks like we are going to get nearly average flows and, I would expect, average temperatures in the mainstem Columbia and Snake Rivers this year.

So the problem is, yes, I think changes are occurring, but how they will express themselves in the river environment where NOAA's Biological Opinion applies is really the major uncertainty.

Mr. INSLEE. Well, I just think this is one of those pieces of the huge jigsaw puzzle of lost opportunities during the last eight years to save the planet and America from a very dangerous change. I think it is very sad, and as a person who has grown up with salmon as part of our culture and legacy in the Pacific Northwest, it is very, very sad. Thank you.

Ms. BORDALLO. I thank the gentleman from Washington, and I wish to thank all of the other Members that were here earlier for their questions and the witnesses on the first panel for their testimony. We greatly appreciate it.

The Chairwoman now would like to recognize our second panel of witnesses, and I do wish to thank the first panel for being so patient, waiting for the voting to take place and so forth. So thank you again very much on behalf of all of us.

As they are seated, I will introduce them. The witnesses on the second panel include Ms. Laura Anderson, Local Ocean Seafoods; Mr. Roger Thomas, Golden Gate Fishermen's Association; Mr. Joel Kawahara, the Commercial Salmon Troll Fishermen; Mr. Richard Pool, Pro-Troll Fishing Products; and Mr. Jason Peltier, representing San Luis Delta Mendota Water Authority.

I guess one thing for sure during this second panel: You will only have to face me for now. I do not know. Thursday, ladies and gentlemen, is a very busy day in Congress, so we are going to try to have our Subcommittee meetings earlier in the week from this time forward.

I now recognize Ms. Anderson to testify for five minutes, and I will note again, I do watch the time. You have five minutes, and the red timing light will turn on, and the light in the middle means that you have one minute left—it is the yellow light—and then when it turns red, you know your time is up.

So, again, I would like to introduce Ms. Anderson. Please begin.

STATEMENT OF LAURA ANDERSON, RESTAURATEUR AND WHOLESALER, LOCAL OCEAN SEAFOODS

Ms. ANDERSON. Thank you, Madam Chairwoman. My name is Laura Anderson. I own and operate Local Ocean Seafoods. We are a seafood restaurant and fish market, formerly a wholesale fish dealer, in Newport, Oregon.

My business serves about 10,000 customers each month. We grossed about $1.5 million in sales last year off of local seafood. I

am also the daughter of a commercial salmon fisherman. I started salmon fishing with my dad when I was 14 years old. He fished with his father, starting when he was 11 years old.

I started Local Ocean Seafoods in 2002. I was only 31 years old. I am what the media likes to call a new generation of entrepreneurs, "natural capitalists," "socially responsible business." For those of us and thousands like us, salmon means business, family wage jobs, cultural heritage and pride for our coastal communities, as well as a delicious and healthy sustainable food source for our nation. My business demonstrates this reality, and there are many other examples like it along the Pacific coast and throughout the nation.

Although the restaurant just started in 2005, we actually started out in 2002 buying and selling wholesale salmon. My very first year, I started with a little over $100,000 in sales, but it was obvious that the demand was there, and by the second year, my sales had grown by 350 percent. By the end of my third year, I was selling almost a million dollars in salmon wholesale.

So what started out as me driving a flatbed pickup with a few hundred pounds of fish up to Seattle quickly became sourcing five to 8,000 pounds a week and mainline trucking it for customers that were varied: Whole Foods Market, Nationwide, the World Famous Pike Place Market. I had about 30 chefs in Portland, Oregon, that I was servicing as well.

It is just not an option to be in the wholesale business, particularly in the last three years. Once the restaurant opened in 2005, it was everything we could do just to source enough fish to keep our fish market and restaurant supplied with salmon. We actually captured about 15 percent of the local harvest last year, and that was just enough to keep our fish market and restaurant going.

So a little bit about my current business, in terms of the impacts to communities like mine. Out of my sales, salmon accounts for a pretty large part of it: about 37 percent of our high-end dinner entrees, 18 percent of our sandwiches, 22 percent of our fish market, zero percent of our wholesale now.

When a consumer spends a dollar in my restaurant, about a third of it goes to pay staff and employees. We provide good family wage jobs and health insurance for about 35 people in our community. We also spend about a third of that dollar paying the fishermen for the product that they brought in, and, of course, they, in turn, spend these dollars in our community even further.

What happens at the end of the day is I am lucky if I have about six cents of that dollar left as profit that I need to expand to buy new equipment and to continue to innovate in what is a very risky business. I am concerned that salmon represents a big chunk of that six percent that I am counting on for this year.

I do want to say that the losses do not stop at the bank. Preserving and protecting salmon for human consumption is a lot more than just the economy, and it is a lot more than just a wistful environmental plea or some kind of a romantic notion. We have a valuable food economy, culture, and tradition in my family that spans three generations.

I wanted you to know that I speak not only for myself, my employees, and the 100,000 customers that we serve every year. There

were 200 chefs and food service professionals that signed onto a letter to Congress last year pleading for improved management of salmon. Those restaurants are all the way from Nora's here in Washington, D.C., all the way to Higgins in Portland, Oregon. If you multiply the impacts to my business by just these 200 restaurant businesses that are also affected, we are talking about tens of thousands of jobs and millions of consumers, in addition to the fishermen that are affected by this crisis.

I do want to say that, in the end, I think that Congress and NOAA should recognize that the failure to act is a huge economic and social injustice. The fishermen in the coastal communities and the consumers are bearing the brunt of what, in my mind, seems to be bargains and deals that have been made for limited water resources, and we can expect that in the future the nature of water shortages in the West is going to get worse.

Are we simply going to allow our rivers to dry up and watch our natural resources go with them? I certainly hope not. Thank you.

[The prepared statement of Ms. Anderson follows:]

Statement of Laura Anderson, Owner/Operator, Local Ocean Seafoods

Synopsis

1. Salmon mean business, family wage jobs, cultural heritage, and pride for our coastal communities as well as a delicious, healthy, and sustainable food source for our nation. My business demonstrates this reality, and there are many other examples like it all along the Pacific coast and throughout the nation.
2. NOAA's failure to adequately protect the rivers where salmon reproduce is contributing to serious, ongoing, coast wide declines in salmon. Coastal communities, seafood related businesses, and American consumers are paying a considerable economic, cultural, and social price for these declines.
3. Going forward, Congress owes it to our region and the country to hold NOAA accountable for following the science and the law, and to protect and invest in the river resources salmon need to thrive. Restoring healthy salmon populations on the Columbia, Klamath, Sacramento, and other rivers will be a considerable task, but it is worthwhile. We can solve this problem if we are willing to follow the science, existing law, and the basic rules of fairness and balance.

1. Introduction

My name is Laura Anderson. I own and operate Local Ocean Seafoods. My business is a seafood restaurant and fish market in our port town of Newport, Oregon. We serve premium quality, local and sustainably harvested seafood to about 10,000 people each month.

I started the business in 2002. I was 31 years old. I am what the media likes to call the new generation of "natural capitalists" or "socially responsible business". We know that we need to make a profit to stay in business, but we also recognize that we there are limits to the natural capital on which our business depends, and that we must respect the social and cultural context within which our business operates.

I am the daughter of a commercial salmon fisherman. I started fishing with my dad, Roger Anderson, when I was 14. He started trolling with my grandfather, David Anderson, when he was 11. Salmon was my bread and butter growing up, eventually putting me through college where I earned a degree in biology. After two years in the United States Peace Corps, working with Filipinos on coastal management issues, I returned to Oregon and completed a Master's Degree in marine resource management. Recognizing that the majority of my college classmates were angling for Federal and State fishery management jobs (presumably to work on habitat and harvest issues), I opted to make my mark in the business community, working on economic and marketing issues.

I started Local Ocean Seafoods with a commercial fisherman, Alan Pazar, as my business partner. At the time salmon were still receiving low commodity-based prices and we wanted to provide more selling opportunities for our local fleet. I'll talk about the rise and fall of our wholesale salmon business in a moment, but first I would like to talk about our current business.

The people who come and eat in my restaurant and shop at my fish market are one of two types: locals or tourists. The locals choose Local Ocean Seafoods because they know when they spend their money with us they are getting the freshest, best

quality product available, often caught that day as well as spending their money within their local economy and supporting their commercial fishing fleet.

Tourists come to Newport to experience a part of coastal culture. Seafood, and salmon in particular, is fundamental to that experience. They eat at Local Ocean because they want an authentic experience, consuming seafood that is both local and sustainably harvested.

For both these groups, salmon has been a natural and integral part of that experience. That is until now.

I recognize that my customers often feel conflicted about consuming seafood and salmon in particular. On the one hand their doctors have told them to eat more seafood because of its unsurpassed nutritional content—it is the best source of Omega-3 fatty acids that protect against heart disease and other chronic illnesses. They love the flavor and the simplicity of preparation as well. On the other hand they are concerned about the sustainability of the resource. They hear words like "overfishing" and "threatened and endangered species" and fear that they may be consuming the very last Snake River salmon on the planet.

Their confusion is compounded by sound bites like that from Jim Balsinger, Acting Administrative Assistant for National Marine Fisheries Service. Last week he was quoted in papers across the country as saying, "It's a tough decision, but the condition of the salmon fishery forces us to close most of it to ensure healthy runs of this valuable fish in the future."

We agree with the scientific consensus that taking every last salmon fishermen off the ocean will not be enough to "ensure healthy runs in the future". That, in fact, the biggest thing we can do for salmon is restore adequate flows of clean water in free flowing rivers where salmon reproduce. A responsibility that is well out of the hands of the fishing community. Yet we are ones who bear the burden, economically and culturally, when the salmon decline or go extinct.

2. Local business bottom line

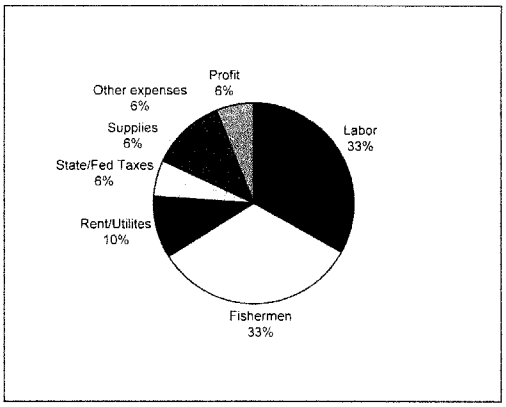
When a consumer spends a dollar in my seafood restaurant about one third of it goes to labor. I employ upwards of 35 people in the summer months in my operation. I provide good paying jobs, health insurance, and a safe and fun working environment. Last year I paid out about a half a million dollars in payroll to folks in our local community.

Another 33 cents of the dollar goes to fishermen who harvest the seafood. We pay top dollar, often more than our port's average price for delivering us premium quality product.

The employees and the fishermen take those Local Ocean Seafoods checks to the bank and spend them on more local goods and services thus circulating those consumers' dollars further. Just this week the owner of a local truck supply and repair business told me that he believed that about 15% of his decrease in business last year was a result of the salmon disaster.

The other 34 percent of the dollar covers all the overhead, state and federal taxes, rent and utilities, banking fees, insurance, supplies and the like. At the end of the day, our restaurant is doing well if we retain 6 cents for each dollar a consumer spends in our restaurant.

Figure 1. Local Ocean distribution of each dollar of salmon sale



Now lets see what that looks like without salmon. Obviously there are no consumers purchasing salmon. That means that the consumers will go elsewhere and find a lower quality product, perhaps imported farmed fish, or week(s) old Alaskan salmon flown down to the lower 48. I now have less money to payout to staff. No money to pay out to salmon fishermen. And my bottom line suffers, making expansion, capital equipment purchases or other improvements difficult if mot impossible.

In 2007, Local Ocean total sales exceeded $1.5 million. Salmon accounts for a large part of our daily sales. For dinner entrees in its price category ($15 and up) it represents 37% of sales. For sandwiches, our Wild Salmon Burger is 43% of sales. In our retail fish market, whole fish, fillets, smoked, and canned product collectively represent 22% of sales.

Figure 2. Percent of Total Local Ocean Sandwich Sales (2007) that require salmon.

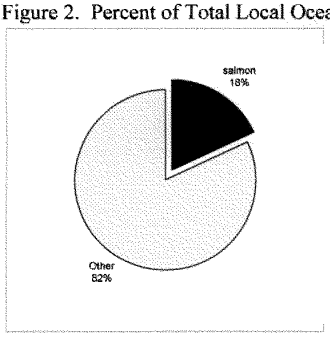


Figure 3. Percent of Total Local Ocean Entree ($15+) Sales (2007) that require salmon

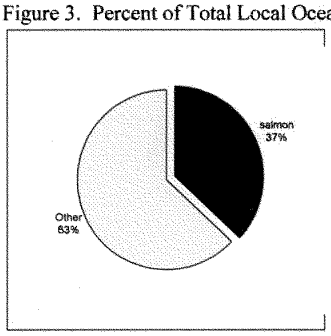
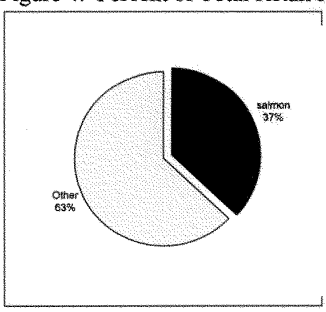


Figure 4. Percent of Total Retail Fish Market Sales (2007) that require salmon.



3. A brief salmon history for Local Ocean Seafoods

Although our restaurant and fish market just opened in 2005, Local Ocean started buying and selling salmon wholesale in 2002. We started with a mere $122,000 in sales our first year. By year two the customer demand for salmon increased our sales 350% to $425,000. A typical weekly salmon operation involved sourcing up to

10,000 pounds of fish, offloading and boxing the product in Newport and shipping it to a freight forwarder in Seattle. Once the product reached Seattle it was released for pick up our regular customers.

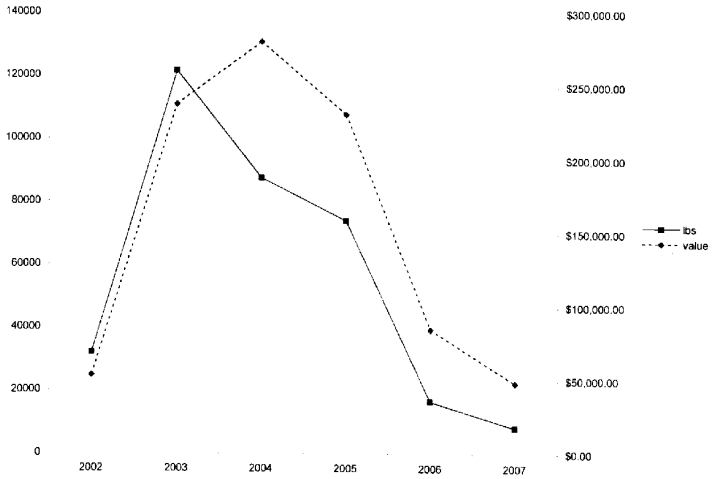
In 2004 sales grew 44%. We were servicing Whole Foods Markets nationwide as well as regional specialty markets like the world famous Pike Place Market in Seattle. We also regularly serviced over twenty white table cloth (Would "high-end" be better? "White table cloth" is a common food industry term but is possibly unknown to others.)restaurants in the Portland area.

I was amazed at how quickly the demand for our product grew. What started as driving a couple thousand pounds of salmon the 300 mile journey to Seattle in iced totes on the back of a flat bed truck, quickly became mainline trucking of 5,000 to 8,000 pounds a week.

It has not possible been possible to be in the wholesale business in the last three years. Once our restaurant opened in 2005 it was everything we could do just to keep us supplied with salmon. We were buying as aggressively, capturing about 15% of the local harvest.

If we were still working exclusively in the wholesale market we would have been out of business two or three years ago. And in fact I have seen a number of wholesale businesses fail in this time. People doing the exact same thing I was—working with high quality fishers to get the best possible product into the best paying markets, and trying to make a living doing it. Now they are working for larger seafood corporations or not working at all.

Figure 5. Local Ocean purchases by pounds and ex-vessel value (2002-2007).



You may ask, "why not sell your customers something else, some other species of fish?" To this I answer with an analogy: Imagine you are getting married and want to buy your beloved a diamond ring. But the storeowner tells you, "I am sorry sir, all the diamonds are now being diverted to fuel the new 'Diamond Energy Generation' plant. You can either have a fake cubic zirconia or you can have another one of our other lovely gems, perhaps a ruby, an emerald, or a sapphire."

You may respond, as many of our customers do, with outrage, "But a diamond is tradition, my father gave my mother a diamond ring, and his father to my grandmother. There is simply no substitute, it is the best, the one, the only wedding ring for my beloved." Or perhaps you are not among this contingent, and you complacent nod to storekeeper in quiet despair, accepting something less.

Salmon are no different than that diamond. There will be those consumers that choose farmed salmon in lieu of wild, black cod in lieu of salmon, or Alaskan salmon instead of local caught. But for the many of us who have traditions rooted in salmon consumption, who want the best for our healthy bodies and minds, who strive to eat local, sustainable foods, there simply is no substitute.

4. The losses don't stop at the bank

There is much more to this story than mere economic loss. Some businesses, like mine, are diversified and will make the attempt to sell salmon customers other local

seafood products. Some fishermen have their boats paid for, a diverse set of gear types to allow them to work in other fisheries, and savings in the bank from the good salmon years. We will be less impacted than most.

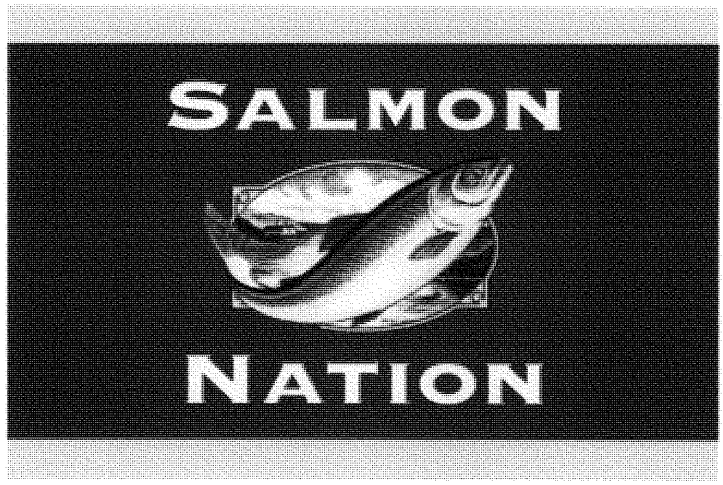
But that is not the case for many of these businesses. In fact many of them are salmon specialists. They don't have other gear, skill sets or savings. The loss of the salmon is the loss of their career, a career they have worked their whole life for. The loss of the fishery can result in a complete loss of dignity and self respect.

When fisheries fail in coastal communities is invariably leads to a cascade of social problems. These include increased drug and alcohol abuse, increase domestic violence and crime, and increase health and human service problems. Many coastal communities, like the little fishing town of Port Orford on the southern Oregon coast are already barely surviving at or below poverty level. A blow like this takes away what is left of a community's pride.

Salmon represent so much more than just money in the bank. The salmon is a powerful icon for our entire Pacific Northwest Region. Coastal people identify with the strength, abundance and resilience of this creature that has continued to coexist with humans. Unfortunately, our coexistence with salmon is at risk of ending.

Preserving and protecting salmon for human consumption is more than just a romantic notion or a wistful environmental plea, it is an appeal to preserve a valuable food economy, culture and tradition—a tradition that spans three generations in my family alone.

Figure 6. The Salmon Nation Flag



5. What can be done?

Citizens of the United States have given the responsibility of stewarding our fish resources to the National Oceanic and Atmospheric Administration. The mission of NOAA Fisheries is stated as "Stewardship of living marine resources through science-based conservation and management and the promotion of healthy ecosystems."

They further state, "Under this mission, the goal is to optimize the benefits of living marine resources to the Nation through sound science and management."

While it is clearly understood that the agency cannot control all the factors that affect the status of fish stocks, they are bound by their mandate to use the best available scientific information and management tools to provide the best possible outcome for the species. The agency has repeatedly failed to do so in the case of salmon.

In recent years, NOAA's plans to protect the weakest stocks of salmon in the Sacramento, Klamath, and Columbia have all been thrown out by courts for being scientifically and legally inadequate. This is an astonishing record of failure, and the salmon and coastal communities have been paying the price.)

With confidence I speak for me, thirty five people employed at Local Ocean, twenty + fishermen from whom we purchase salmon, 25 regional fish markets we

once supplied, 18 chefs to whom we in the past delivered fish, and 100,000 customers served at Local Ocean Seafoods each year.

Now multiply my small businesses impact by the more than 200 chefs and other food professionals from Nora's in Washington DC to Higgins in Portland, Oregon that signed onto the "Chef's Letter to Congress" last year pleading for improved management of salmon. You now have some idea of the impact that this crisis has on consumers. We are talking about tens of thousands of jobs, millions of consumers and untold other causalities across the country.

Our local customers are reeling from this loss. Many are from fishing families like mine that have long traditions rooted in consumption of the first of season salmon catch. Fishermen bartering and gifting salmon to family, friends and neighbors is a spring custom. Moreover, visitors travel from all over the world to Oregon to experience our coastal culture. Seafood, and salmon in particular, is fundamental to that experience.

The pleasures of eating fresh Oregon Chinook salmon range from the pure sensory enjoyment of the soft, rich, buttery flavor and flaky texture to the deep psychological satisfaction of knowing you are putting in your body one of natures most wholesome and perfect foods.

The truth is that the real loss is more than economic or consumptive. It is a loss of coastal culture and deep-rooted food tradition. No amount of disaster relief money can replace our salmon heritage. Disaster relief checks will not nourish our human community with good, clean, fair foods. Nor will they nourish our river ecosystems that are dependent on the return of salmon to deliver nutrients back from the ocean.

As business owners and consumers, we implore Congress to hold the agency accountable to its purpose, mission and legal mandates. To ensure healthy populations of salmon and an adequate supply of free flowing, clean water in all our river systems. At least $200-300 million of our collective coastal economy depends on it. Our Pacific Northwest heritage and traditions are rooted in it.

We recognize that there are competing interests for the fresh river and delta water that salmon need. Increasing pressure from urban development, manufacturing, agriculture, and hydropower are just some of the industries that are vying for this limited resource. However, it is stated that the agency is bound to "[balance] multiple public needs and interests in the sustainable benefits and use of living marine resources, without compromising the long-term biological integrity of coastal and marine ecosystems."

It is clear that the decisions of the last 20 years, particularly in the Klamath, Columbia and Sacramento River systems have compromised the long-term biological integrity of the salmon.

As we move towards a new paradigm of Ecosystem Based Management (EBM), application of our best science will become critical. Indeed in the 2007 publication of "Ten Commandments for Ecosystem Based Fisheries Scientists" (co-authored by three NOAA Fisheries Scientists), there is explicit recognition of a fundamental concept in resource management: a working perspective that is holistic, risk adverse and adaptive. The authors go on to demonstrate the critical importance of maintaining viable fish habitats. The EBM paradigm openly acknowledges the value of maintaining ecosystem resilience and allowing for ecosystem change through time.

For salmon this would clearly call for ensuring an adequate supply of clean, abundant water and spawning grounds in the river. This basic provision has proven to be effective in maintaining the ability of salmon to deal with changing ocean conditions for thousands of years. In terms of EBM, healthy habitat supports salmon resilience even as ocean conditions continually change.

We agree with the majority of fisheries scientists that fishing pressure is not the primary cause for the salmon's recent decline. Loss of habitat is.

Please hold the agency and administration responsible for the basic requirement. Please hold them accountable for their own Biological Opinions.

Using the tools provided by the Magnuson-Stevens Act, the Clean Water Act, the Endangered Species Act, and the Public Trust Doctrine, NOAA should ensure recovery of these protected marine species without impeding economic and recreational opportunities. With the help of the Northwest regional office and the Pacific Fisheries Management Council, NOAA must work with communities on salmon management issues.

6. Moral of the story

In the end, Congress and NOAA should recognize that failure to act is resulting in a huge economic and social injustice. Fishermen, coastal communities and consumers are bearing the brunt of the bargains and deals that have been made for limited water resources. We can expect that in the future the nature of water short-

age in the West is going to get worse. Are we simply going to allow the rivers to dry up and watch our natural resources go with them?

At best what is happening is incompetence and failure of the agency to meet its most basic mandates and requirements. At worst the collective impact of NOAA's decisions and actions could be deemed criminal economic exploitation. Either way action is necessary.

Specifically, please hold NOAA accountable for using the best science available. Please hold them within the rule of the existing laws to protect salmon species, namely the Magnuson-Stevens Act, the Endangered Species Act, the Clean Water Act and the Public Trust Doctrine. Finally please be forward thinking in crafting legislation and making investments that require the conservation of our water resources. Whether through replacing leaking irrigation pipes, screening irrigation pumps, and removing unnecessary dams. We need to launch projects that make conserving and re-using water a top priority in this country. We need to establish a system to account for and control groundwater withdraws from new wells.

These are the actions that will bring back the salmon habitat and then the salmon. These are the actions that will support free flowing clean water for all species in the future, including humans.

Salmon are dear to me for so many reasons. The infusion of capital into our coastal economy. The existence value of just knowing this magnificent, strong, intelligent and agile creature continues to survive. The cultural value of harvesting and sharing our natural wealth. My memories of summers spent salmon fishing with my Dad. But most of all I really just want to eat salmon—because they taste delicious and they are good for my body!

I am grateful for your time and consideration in recognizing the gravity of this crisis and rectifying this problem. Thank you.

Ms. BORDALLO. Thank you very much, Ms. Anderson, and, remember, the full text of your statement will be entered into the record.

Our next witness is Mr. Roger Thomas.

STATEMENT OF ROGER THOMAS, PRESIDENT, GOLDEN GATE FISHERMEN'S ASSOCIATION

Mr. THOMAS. Thank you, Madam Chairwoman and Congressman. My name is Roger Thomas. Thank you for providing me the opportunity to speak in regards to the salmon crisis as it exists off the West Coast of California and Oregon.

I am here on behalf of the Golden Gate Fishermen's Association, which represents the majority of the commercial passenger fishing vessels located in the following California ports: Monterey, Santa Cruz, Half Moon Bay, Berkeley, Emeryville, San Francisco, Sausalito, Bodega Bay, and Fort Bragg.

In addition, I will speak on my own behalf as owner/operator of the vessel, SALTY LADY.

The economic impact to the commercial passenger fishing vessel fleet in each port, and I surveyed this last week, and actually talking to my members, we covered the 10 ports I previously mentioned, and the total economic impact for the 49 vessels is $5,432,000 direct income that is coming off those vessels gross. This figure is all due to salmon closures.

Vessels located in the following ports were not included: Port San Luis, Morro Bay, Eureka, and Crescent City. I was unable to contact them.

The California Department of Fish and Game licensees records indicate that there are 85 commercial passenger vessels who are properly licensed and eligible to participate in the recreational salmon fishery. The percentage of loss by these vessels due to salmon closure ranges from 50 to 100 percent of their total income. This

is variable due to seasons, weather, and accessibility to other fisheries.

Income losses to these vessels have a dramatic effect on local economies. Most vessel operators have laid off their full-time crews and utilize part-time help. Many businesses located in these ports, such as bait, tackle and booking shops, and fuel docks, are also greatly impacted.

In some years, our fleet carries over 200 anglers yearly for salmon fishing. The loss of these fishers will have a direct effect on all local businesses: restaurants, motels, and so on and so forth. This loss is very difficult to measure but will have a dramatic effect on these communities.

On May 10th, Mr. Dan Temko, Harbor Master, Pillar Point Harbor, San Mateo, provided me with a statement in regard to his projected loss due to salmon closure for Pillar Point Harbor. That loss is $415,970, and you can see this letter attached, and I would make the assumption that that figure applies to most of the other ports that I was able to contact.

Margaret Beckett, owner of Huck Finn Sportfishing at Pillar Point, estimates her business loss to be approaching $60,000 in 2008 due to the closure, and she has also written a letter. She has taken up and advertising walking dogs as a part-time job to help supplement her and her husband's income, and she closes her shop because there is a lack of business when she gets that opportunity to supplement her income.

In my particular case, personally, based on 2004 and 2005 business records of salmon revenue earned, 2008 will result in a personal loss of $155,255. This is approximately 80 percent of my income. Besides the loss of personal gross income, the value of my vessel, which I always considered a major part of my retirement, has decreased due to the salmon closure, if I could even sell it.

This is the worst crisis the salmon fishery has ever faced. As bad as dams have been on the fish, the droughts of the seventies and early nineties, the El Nino of 1982-1983, or the fish kills in recent years, this is the first total closure of salmon fisheries in California and Oregon history.

In response to all of those events, there were actions taken by the Pacific Fishery Management Council, where fishermen gave up parts of their seasons, total closures, limit sizes, and a whole bunch of other things, remembering that all of this was caused by nature, and the fishermen paid the price.

I have listed a whole bunch of things which you can read, and I am not going to go over them, as recommendations, but one paragraph I really want to get in there is—some Congresswoman mentioned earlier, and I did not get her name, the acoustic monitoring movement pattern on juvenile salmon. There were 200 salmon released and tagged with tags in Battle Creek, and they had receivers up and down the whole system to monitor their trek and their movement through the delta. Four salmon made it to the Golden Gate, four out of 200.

Fishermen blame the problems in the delta, not on the ocean, not on the environment, because throughout all of these other environmental things I mentioned, the fish have survived. Thank you for the opportunity to talk to you.

[The prepared statement of Mr. Thomas follows:]

Statement of Roger Thomas, on behalf of the Golden Gate Fishermen's Association

My name is Roger Thomas. Thank you for providing the opportunity to speak in regard to the salmon fishery crisis that now exists off the West Coast of California, Oregon, and Washington.

I am here on behalf of the Golden Gate Fishermen's Association (GGFA), which represents the majority of the commercial passenger fishing vessels (CPFV), located in the following California ports: Monterey, Santa Cruz, Half Moon Bay, Berkeley, Emeryville, San Francisco, Sausalito, Bodega Bay, and Fort Bragg.

In addition, I will speak on my own behalf as owner/operator of the vessel Salty Lady.

ECONOMIC IMPACT TO CPFV FLEET IN EACH PORT:

Monterey	
5 vessels	$ 430,000
Moss Landing	
1 vessel	90,000
Santa Cruz	
2 vessels	160,000
Half Moon Bay	
6 vessels	550,000
San Francisco	
7 vessels	600,000
Emeryville	
6 vessels	700,000
Berkeley	
7 vessels	847,000
Sausalito	
6 vessels	775,000
Bodega Bay	
2 vessels	400,000
Ft. Bragg	
6 vessels	900,000
The total for 49 CPFV vessels is:	$5,432,000

This figure represents a direct economic loss to those vessels due to salmon fishing closures. Vessels located in the following ports were not included: Port San Luis, Morro Bay, Eureka and Crescent City.

The California Department of Fish & Game's licensing records indicate 85 CPFVs who are properly licensed and eligible to participate in the recreational salmon fishery.

The percentage of loss by vessels due to salmon closure ranges from 50% to 100% of total income. This is variable due to seasons, weather and accessibility to other fisheries.

Income losses to CPFVs have a dramatic effect on the local economies.

Most vessel operators have laid off their full-time crew and will utilize part-time help when needed.

Many businesses located in these ports, such as: bait, tackle and booking shops, fuel docks, marine electronic repair, shipyards, marine mechanics will be impacted by loss of CPFV income.

In some years, our fleet carries over 200,000 anglers for salmon fishing. The loss of these fishers will have a direct effect on all local businesses—restaurants, hotels, motels, service stations, tackle shops, etc. This loss is very difficult to measure, but will have a dramatic effect on these communities.

- On May 10, 2008, Mr. Dan Temko, Harbor Master, Pillar Point Harbor, San Mateo County, provided a statement in regard to projected loss due to salmon closure. The loss to Pillar Point Harbor is $415,970.00. (See attached letter.)
- Margaret Beckett, owner of Huck Finn Sportfishing at Pillar Point Harbor estimates her business loss to be approaching $60,000.00 in 2008 due to salmon closure. (See attached letter.) The losses related to the closure of the recreational and salmon fisheries will severely affect all ports and infrastructure that supports the fishing industry.
- FV Salty Lady—based on 2005 business records of salmon revenue earned, 2008 will result in a personal loss of $155,255.00
- Besides the loss of personal gross income, the value of my vessel, which I always considered a major part of my retirement, has decreased due to this salmon closure.

2008 Salmon Closure

This is the worst crisis the salmon fishery has ever faced. Bad as dams have been on the fish, the droughts of the mid-'70s and early "90s, the El Niño of 1982-83, or the fish kills in the Klamath in recent years, this year will be the first total closure of salmon fisheries in California and Oregon in history.

In response to droughts, El Niño events and the Klamath fish kills in recent years, fishermen have responded through the Pacific Fishery Management Council by recommending the following changes:

- 1978—Response to drought—Reduction in recreational limit.
- 1992—Winter Run ESA Listing—Recreational season reduced by two months. Commercial season April opening delayed to May 1st.
- Fishing gear changes to reduce mortality for both recreational and commercial include barbless J hooks and barbless circle hooks while drifting.

These regulation changes in all cases were recommended by the ocean marine harvest groups in a dedicated spirit for conservation of the salmon resource.

Our Fleet supports Practical and Necessary Actions to Solve the Salmon Crisis

Reduce impacts of export pumping and diversions in the Delta.

- Limit total exports through Delta to a maximum of 4.5 million acre-feet per year and eliminate pumping during periods of peak smolt migration.
- Require mitigation for all direct or indirect losses of salmon.
- Construct state-of-the-art screening and salvage operations at water diversions and pumping facilities including state and federal projects.

Improve water quality in the Delta and on Central Valley rivers and streams.

- Eliminate the Central Valley agricultural waiver to pollution discharge.
- Reduce urban pesticide loading in urban storm runoff.
- Enforce federal and state clean water laws.

Improve access to blocked salmon habitat.

- Remove destructive and obsolete dams, especially on the Klamath River and Battle Creek.
- Remedy passage and entrainment problems, especially on the Yuba River and Butte Creek.
- Keep the gates up all year on the Red Bluff Diversion Dam.

Improve habitat in Central Valley rivers and streams by enhancing flows, providing cooler temperatures and restoring functional floodplains.

- Implement the American River flow standards and fully implement restoration flows on other rivers such as the Trinity and San Joaquin.
- Increase cold water habitat below salmon-blocking dams.
- Systematically provide for restored functional floodplain habitat including mitigation for levee projects that limit salmon rearing habitat.

Reduce impacts of hatchery operations on fish of native origin.

- Mark 100% of hatchery fished released.
- Implement "Integrated Hatchery Programs" and the standards of the Hatchery Science Review Group.

- Truck all hatchery fish to acclimation pens below the delta.

Provide effective governmental leadership.

- Provide funding resources to enable regulatory agencies to do their job.
- Enforce all existing laws and regulations: State and federal Clean Water Acts, Endangered Species Act, mitigation requirements, and river flow standards and regulations.

Acoustically monitored movement pattern of juvenile Chinook salmon.

We support the efforts of this project to provide data that is necessary for proper management in the Delta.

Data indicated in attachment titled: Survival and Migration Patterns of Central Valley Juvenile Salmonids shows a survival rate of 2% at the Golden Gate.

We believe in ultrasonic technology and urge continued use of this technology to provide us with information in regard to problem smolts encountered in their travel to the ocean.

San Mateo County Harbor District
Pillar Point Harbor

Board of
Harbor Commissioners

Ken Lundie, President
Leo Padreddii , Vice President
Sally Campbell, Treasurer
Pietro Parravano, Secretary
James Tucker, Commissioner

Peter Grenell, General Manager

1933 – 2008
Celebrating 75 Years

May 10, 2008

Roger Thomas

Ref: **Response to your request for information regarding the Economic Impact to Pillar Point Harbor resulting directly from the Salmon Season Closure.**

Dear Mr. Thomas,

The table below lists the projected dollar revenue losses that Pillar Point Harbor expects to see in for the coming fiscal year, resulting from the closure of the entire California Salmon Season. The figures are based on losses already incurred during fiscal year 07-08 and projected to continue through fiscal year 08-09.

The San Mateo County Harbor District provides much needed public services at Pillar Point Harbor in Half Moon Bay California, These services include: Public marinas, launch ramps, trails, parks, beach access, restrooms, Harbor Patrol, and 24 hour Ocean Search and Rescue services. The Last but not least Item, Ocean Search and Rescue Services Is provided by the Harbor District, because there are no Coast Guard Stations on this area of the coast (the nearest stations are San Francisco and Santa Cruz.)
The projected losses listed below will severely compromise the San Mateo County Harbor District's ability to provide these crucial public services:

Projected Economic Impact to Pillar Point Harbor, San Mateo County Harbor District's Operating budget for fiscal year 2008-2009 due to Salmon Season Closure

Berth Revenues decreases	249,458
Transient Berths decreases	45,000
Launch Fees decreases	30,000
Boat Wash decreases	1,500
RV Parking decreases	7,500
Rents and Concessions decreases	100,000
Total reduction in revenues	**433,458**
Original Operating Revenues	2,003,429
Revenues With Closure	1,569,971
Total Operating Expenses	1,985,941
Shortfall	**$415,970**

Sincerely,

Dan Temko, Harbor Master Pillar Point Harbor

One Johnson Pier, Half Moon Bay, CA 94019
(650)726-6626 F 726-4470
www.smharbor.com

Huck Finn Sportfishing
P.O. Box 1432
El Granada, CA 94018-1432
Located at 15 Johnson Pier – Pillar Point Harbor
http://HuckFinnSportfishing.com
650-726-7133 Phone 650-726-2525 fax

May 10, 2008

Roger Thomas, President
Golden Gate Fisherman's Assoc.

Re: Request for information regarding potential income loss based on 2008 salmon season closure

Dear Mr. Thomas,

My husband Bill and I have owned our Sportfishing landing in Half Moon Bay since 1990. He has fished all of his life and knows nothing else and I have been a deckhand, licensed captain with my own boat and a landing operator most of my adult life. We book eight independently owned passenger fishing vessels, and receive income from that as well as the bait & tackle sales and fishing licenses to their customers and private boaters. This is how we make our living. Alternative fisheries only provide a small portion of our income. What is happening this year with the salmon season closure has us unsure how long we will be able to continue with our business.

We have had diminishing seasons and regulations have been constantly changing to reduce the take of the Chinook salmon over the years, but a total closure of how we derive most of our livelihood has left us scrambling to figure out what our options for the future might be.

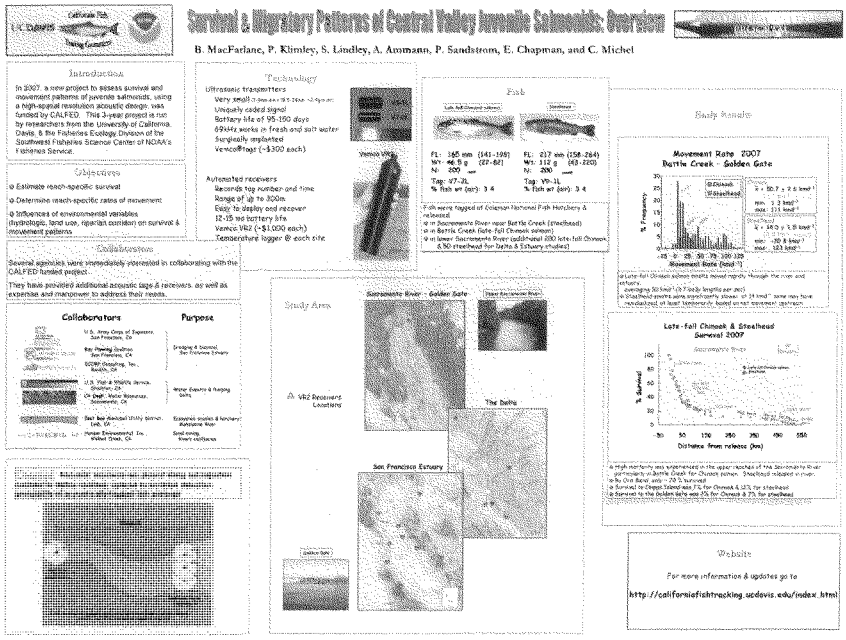
We were fortunate to be eligible for funding from the 2006 Klamath salmon disaster, in the amount of $33,000.00. That was a salmon season that was still open, but produced bleak results and a greatly reduced clientele. With a total closure like this year, I anticipate financial losses to be greater than that, possibly as much as $60,000.00. I know that April which is what would have been our opening month of salmon season, this year our cash register revenue alone, without booking fees, was down $15,000.00, based on the same year comparisons.

We would be happy to provide any further information that you or the subcommittee might need to further clarify the disaster that is happening not only for us but anyone associated with the salmon industry.

Sincerely,

Margaret Beckett

Margaret Beckett



Ms. BORDALLO. Thank you very much, Mr. Thomas, for your testimony, and now we will go to Mr. Joel Kawahara.

STATEMENT OF JOEL KAWAHARA, BOARD MEMBER, WASHINGTON TROLLERS ASSOCIATION

Mr. KAWAHARA. Thank you, Chairwoman Bordallo and Members of the Subcommittee on Fisheries, for the opportunity to provide this testimony today on how Federal management of our rivers and ocean conditions are impacting West Coast salmon fisheries.

For the record, my name is Joel Kawahara. I am a commercial salmon troller from Quilcene, Washington. I hold salmon-trolling permits from four states: Alaska, Washington, Oregon, and California. I have sold salmon from Yakutat, Alaska, to Morro Bay, California.

I have owned my boat since 1987 and have been fishing salmon commercially since 1971 with my dad. I am here to tell you how the failure of NOAA Fisheries to issue and implement effective legal and scientifically sound Biological Opinions and recovery plans for salmon in the Columbia, Snake, Klamath, and Sacramento Rivers has negatively affected salmon fisherman along the West Coast.

Starting in the North, the Southeast Alaska Troll Fishery harvests Chinook originating in Alaska, Canada, Washington, Idaho, and Oregon. As the blue chart over there shows, salmon from the Columbia and Snake Basin migrate up to Alaska, and they represent about 28 percent, average, of the all-year Southeast Alaska Chinook harvest. Consequently, actions in the Columbia and Snake watershed have serious implications for Alaskan fishermen.

The Pacific Salmon Treaty harvest levels for Southeast Alaska are specifically regulated to meet conservation goals for Endangered Species Act-listed Columbia and Snake River fall Chinook, primarily Snake River fall Chinook. The Pacific Salmon Treaty, in 1985, promised a Southeast Alaska troll harvest of 450,000 Chinook on an annual basis, but the 2008 allowable harvest is 125,000. The associated economic loss is estimated at $33 million this year.

Going on to Washington, Chinook harvests have dropped 70 percent since 1976. Coho harvests, however, have dropped 97 percent. Consequently, days people have fished on the ocean have dropped 95 percent, and the number of boats has dropped 97 percent since 1976. There is a $19 million loss, based on 1976 levels. This year, the reason we are not harvesting $19 million worth of salmon is because somebody other than the fishermen screwed up. The total lost in Northwest economies from the decline in the Columbia and the Snake Basin has been at least $51.7 million annually.

For the rest of the West Coast, Oregon and California, of course, you know it is a 100-percent loss this year. Nobody is going to go fishing down there commercially. As you are aware, the closure will result in $290 million of economic impact loss and an estimated 4,200 total jobs.

Let me summarize a very grim picture from my industry. We have lost 95 to 99 percent of our industry because successive administrations have been unwilling to follow the science and the law and care about the people affected by their negligence. These are staggering and sobering numbers, sober commercial fishermen, if you will. Coastwide, the economic loss is estimated at $342 million.

The coastwide salmon crisis is not the mystery the administration officials claim. It is not because some big monster in the ocean rose up out of the depths and ate the fish. Cyclic ocean conditions certainly significantly affect these fish over the years, but the catastrophe I am addressing is largely a consequence of human management, primarily by Federal agencies, of the rivers from which the salmon come, management which has ignored and even suppressed science and thereby sacrificing the long-term well-being of wild salmon fishing families in fishing communities up and down the West Coast.

Federal judges are now involved in managing the Columbia, Klamath, and Sacramento Rivers because the Federal government, which operates dams and water diversions on all three rivers, has repeatedly produced illegal Biological Opinions that have cost $9 billion, we have heard earlier, to generate the 95-to-99-percent loss I just summarized. If this performance occurred in the private sector, the company responsible would have been liquidated and its managers fired a long time ago. In fact, if this was a corporation in Seattle, the CEO would be asking the board if we could acquire Yahoo and save the company.

The fishermen are the workers in this company. The American people are the shareholders. The natural resources of this nation are held in trust by the government for the beneficial use of its citizens. The CEO is the Executive Branch of the Federal government, including NOAA Fisheries. The Board, the body responsible for reversing and repairing failed management when it occurs, is the

U.S. Congress, and its executive committee on fisheries issues is this Subcommittee.

I speak as a shareholder and a worker, Madam Chairwoman. I suggest that your CEO has failed miserably. In the timeframe of one working career, from 1976 to present, NOAA Fisheries has overseen a complete collapse of this business, one that still markets, one that still has valuable products to offer and high demand from customers but is no longer able to function. The CEO has failed, and the board must now act. Thank you, Madam Chairman. I will be glad to answer any questions.

[The prepared statement of Mr. Kawahara follows:]

Statement of Joel Kawahara, Commercial Fisherman

Chairwoman Bordallo and members of the subcommittee on Fisheries, Wildlife, and Oceans, thank you for the opportunity to provide this testimony today on "A Perfect Storm: How Faulty Science, River Management, and Ocean Conditions Are Impacting West Coast Salmon Fisheries." For the record, my name is Joel Kawahara, and I am a commercial salmon troller from Quilcene, Washington. I hold salmon trolling permits from four states: Alaska, Washington, Oregon, and California. I have owned my boat since 1987 and have been fishing salmon commercially since 1971 when I crewed for a friend of my dad's out of Neah Bay, Washington. In a way, I am a second-generation commercial fisherman because my dad sold fish in Seattle and also worked in a cannery in Alaska prior to World War II. I am here to tell you how the failure of NOAA Fisheries to issue and implement effective, legal, and scientifically-sound biological opinions and recovery plans for salmon in the Columbia-Snake, Klamath, and Sacramento rivers has negatively affected salmon fishermen along the West Coast.

Columbia-Snake River Basin

The Columbia-Snake River Basin was once the largest salmon-producing basin in the world. When Lewis and Clark explored the Western Territory, upwards of 16 million salmon called the Columbia-Snake Basin their home. The Snake River, the largest tributary to the Columbia River, produced more than 50 percent of the total salmon within the Columbia-Snake River Basin and today still holds more than 70 percent of the remaining healthy habitat.

Over the years, due to several impacts—overfishing, habitat destruction, and the construction of dams on the Columbia and Snake rivers—salmon populations in the Columbia Basin plummeted. Until the mid 1970's, when four federal dams were built on the lower Snake River, Snake River salmon were able to hold their own and allowed for a relatively robust salmon fishery. In fact, in its 1949 Annual Report, the Washington Department of Fisheries stated its strong opposition to the construction of these dams noting that the construction of the lower Snake River dams was "not in the best interest of the over-all economy of the state. Salmon must be protected from the type of unilateral thinking that would harm one major industry to benefit another." (see attached, "Department of Fisheries Annual Report for 1949.") Over the state's objections, these four dams were built in the late 1960s to mid-1970s. Once constructed, the Snake River stocks fell into a precipitous decline. Now 13 salmon populations in the Columbia-Snake Basin are listed for protections under the Endangered Species Act (ESA). All Snake River salmon and steelhead are either already extinct or are listed under the ESA.

In the late 1970s and early 1980s, due to concerns around these low salmon populations, salmon fishing was seriously curtailed. Sport and commercial fishing saw harvest rates decrease by upwards of 70 percent. The economies that had been built around the salmon industry in the Northwest fell silent. But still, under the circumstances, limiting fishing was the right thing to do. The salmon were in trouble and it was necessary to restore this remarkable and renewable resource by reducing the impacts of harvest.

At the same time, the federal government and private companies built more dams on the Columbia & Snake rivers and their tributaries. As the attached map indicates, the Columbia River Basin is now the most dammed watershed in the nation, with more than 200 large dams.

Today our fisheries remain heavily regulated. As the diagram attached to this testimony indicates, imperiled salmon from the Columbia, Klamath, and Sacramento mix in the ocean environment with healthy salmon populations. As ocean fishermen, we need to be careful not to harm the weakest and most sensitive of these salmon

populations. As a result, our fishery is managed to protect the most endangered salmon populations in order to ensure that we are doing as little harm to the listed salmon stocks as possible. Ocean fishing on Columbia-Snake River upper river spring chinook, sockeye and steelhead is non-existent. From the Columbia-Snake Basin, only summer, fall, and lower river spring chinook and coho salmon are harvested in the ocean fisheries.

Ocean Harvest of Columbia-Snake Basin Salmon

Starting in the north, the Southeast Alaska Troll Fishery harvests chinook salmon originating in Alaska, Canada, Washington, Idaho and Oregon. On average, up to 27 percent of the salmon caught in Alaska waters come from the Columbia-Snake River Basin. (Pacific Salmon Commission Joint Chinook Technical Committee Report, TCCHINOOK(05)-3.) Alaska's salmon-bearing rivers are generally in good condition and the biggest issue there is trying to protect those healthy rivers from development and harm. Consequently, what happens south of Alaska in the Columbia-Snake watershed has serious implications for Alaska fishermen.

The harvest of chinook salmon is managed under the Pacific Salmon Treaty, which regulates international catch of salmon from both U.S. and Canadian rivers. The Pacific Salmon Treaty harvest levels for Southeast Alaska are specifically regulated to meet conservation goals for Endangered species Act-listed Columbia and Snake River fall chinook. The stated goal of the Pacific Salmon Treaty in 1985 was to recover Columbia River chinook stocks to allow for a Southeast Alaska troll harvest of 450,000 chinook on an annual basis by 1990.

The 2008 quota for Southeast Alaska troll chinook is 125,000. Based on an average of 14.5 pounds per salmon, and an estimated price of $7.00 per pound, the failure to recover chinook stocks in the Columbia River to allow the harvest of 450,000 chinook in the Southeast Alaska troll fishery reduces the economic value of that fishery by $33 million dollars. That's a $33 million loss to the industry and to the economies of the Northwest.

In the state of Washington (north of Cape Falcon, Oregon), the total harvest of chinook salmon for the period between1976-1980 was 206,000. (PFMC 2002 Salmon SAFE.) In 1994, 1995 and 1996, the harvest of Chinook salmon was zero; in 2002, the Chinook harvest was 106,000; and the harvest will be 57,000 in 2008. Based on a 12.5 pound dressed average weight, and an average price of $7.00 per pound, the difference in value from 1976 to 2008 to the troll fleet is $13 million.

The pre-1980 206,000 chinook level does not represent full recovery, but it is an indication of the potential for harvest with healthy Columbia River fall chinook stocks. $13 million is therefore the minimum difference between this year's fishery and the economic value of a fishery based on fully recovered chinook stocks in the Columbia River.

Of significant note is the over 90% decrease in coho fishing for both the commercial and recreational fleets north of Cape Falcon, Oregon. The average annual commercial troll harvest of coho for the period 1976-1980 was 717,302. This year, the coho quota for the troll fleet is 24,000. The price per pound in 2007 dollars was $1.46, and the average size coho is 5.5 pounds. That leaves a loss of $5.7 million in ex-vessel value.

In the period 1976-1980 fishermen in Washington state fished 44,042 days. In 2007, we worked 2,115 days. In 1978 there were 3,041 boats fishing the Washington coast. In 2007, just 79 boats fished the same waters.

To summarize the situation for Washington, since the late 1970's, chinook salmon harvest has dropped 70% and coho salmon harvest has dropped 97%. The number of fishermen-days worked has dropped 95% and the number of independent troll fishing boats has dropped 97%. The total loss to Northwest economies from the decline in Columbia-Snake River salmon has been at least $51.7 million annually.

If this were a corporation, the CEO would be asking the board if acquiring Yahoo would save the company from going under. Of course the CEO, board of directors, employees, and shareholders would be very angry that a once-thriving business that still has viable markets cannot produce at more than 5% of its potential.

At the same time, the federal government has not fairly shared the burden of salmon restoration in the Columbia-Snake River Basin. The federal government owns and operates 26 dams in the basin. Of those, 14 comprise the federal hydropower system, collectively known as the Federal Columbia River Power System. This series of dams exacts a huge toll on salmon populations in the basin. In fact, since 1993, soon after the first Columbia-Snake River Basin salmon were listed under the Endangered Species Act, these federal dams have been the subject a series of biological opinions intended to guide their operation to ensure that salmon are not further jeopardized and may someday recover. Since that time, NOAA has released five biological opinions. Three of the last four plans were found illegal by

federal courts. The 2004 biological opinion was so ridiculously flawed and devoid of science that it defined the federal dams as immutable parts of the environment—like a mountain—that could not be changed. The 9th Circuit Court of Appeals called this analysis a "sleight of hand" and stated that the ESA "requires a more realistic, common sense examination." (NWF v. NMFS, 481 F. 3d 1224, 1239 (9th Cir. 2007).)

I fear that NOAA's newest biological opinion, released just last week, offers much of the same and as such will likely face a similar fate. This so-called "new" biological opinion has very little new in it. While it does not state that the federal dams cannot be modified, the end result is similar to the 2004 plan and the federal government goes as far to actually include rollbacks in the plan from what salmon are currently experiencing in the river due to judicial oversight. Further, the federal government is still not taking on its fair share of the burden in salmon restoration efforts. Let me give you one very real example of why I say that.

In this newest biological opinion—the 2008 biological opinion—the federal agencies have allowed the federal dams to take—that is to kill—upwards of almost 93 percent of some ESA-listed salmon runs. Ninety-three percent. That is a jaw-dropping figure. Certainly, that is not the case with all of the listed salmon populations in the Columbia-Snake River Basin, but it is the case with some, and all of the Snake River salmon populations have at least about a 40% allowable take associated with the federal dams. That's incredible.

In contrast, the total impact of sport, commercial and tribal salmon harvest on endangered spring chinook, for example, is less than 10%!

Last year, only four Snake River sockeye salmon returned to the Stanley Basin in Idaho. These fish travel more than 1,900 miles round-trip and climb higher than 6,500 feet in elevation. That's a distance greater than from Washington, DC, to Tucson, Arizona, and higher than five Empire State buildings stacked one on top of the other. They are a remarkable fish. They spawn in the wildest and best salmon habitat left in the lower 48 states—Idaho's Sawtooth Mountains. There is almost no habitat that is more intact and yet, we are watching these fish disappear before our very eyes. While ocean fishing harvest rates are approximately zero for these fish (as it should be under the circumstances), the federal dams are allowed to take upwards of 92% of them. There is something wrong here.

The bottom line is that the federal agencies have not followed the science in their Columbia-Snake River biological opinions. The courts have been clear on this front and have spoken with precise and sharp words. Perhaps the most relevant to this hearing is a statement from Judge James Redden, federal District Court Judge in Oregon. In remanding the 2004 BiOp back to NOAA, Judge Redden said, "The government's inaction appears to some parties to be a strategy intended to avoid making hard choices and offending those who favor the status quo. Without real action from the Action Agencies, the result will be the loss of the wild salmon." (National Wildlife Federation v. National Marine Fisheries Service, cv-01-640-RE (Oct. 7, 2005) (Opinion and Order of Remand) at 8.)

I am grateful to you, Madam Chairwoman, for beginning the dialogue on this important issue. And for recognizing what is at stake here—our wild salmon in the Pacific Ocean and the communities that depend upon them. Now we need Congress to fully investigate the lack of scientific underpinnings in this latest biological opinion. My job, the job of hundreds of commercial troll fishermen, and the coastal communities that depend on our incomes and our services look forward to that Congressional review.

Klamath & Sacramento Rivers

South of Cape Falcon, Oregon, while Columbia-Snake River salmon are found in those waters, most of the salmon off the southern Oregon and California coasts come from the Klamath and Sacramento rivers. The Sacramento was once the second largest salmon producing river in the lower 48 states and the Klamath was number three. Until this year, the Sacramento was known as the work-horse of the Pacific Ocean—producing a consistent and healthy population of salmon that allowed for a sustainable fishery. Those days are gone.

The Sacramento had actually been recovering until the last two years. As is the case with the Columbia and Snake rivers, the administration's tendency to develop illegal and unscientific biological opinions have sent these more stable fish populations into a tailspin. Columbia and Snake salmon have been in a constant and steady decline for decades, slowly eroding our fishery; Sacramento salmon have disappeared virtually overnight.

Historically, the Klamath produced an estimated 880,000 returning adult salmon. In 2001 and 2002, massive irrigation withdrawals allowed by an illegal biological opinion in conjunction with water quality degraded by four privately-owned hydropower dams contributed to the collapse of Klamath River salmon. Fewer than

35,000 salmon returned to their natural spawning areas in 2004, 2005, and 2006. Commercial fishermen in Oregon and Northern California lost $50 million in 2005 and $100 million in 2006 as a result of cancelled fishing seasons caused by these low numbers.

The Sacramento - San Joaquin has been an even bigger salmon producer for West Coast fishermen. When salmon fishing began in the mid-1800's, the Sacramento - San Joaquin produced about two million chinook salmon. From 1997 through 2006, an average of 475,000 adult chinook salmon returned to spawn in the Central Valley. In 2004 and 2005, however, the federal government allowed record amounts of water to be pumped from the Sacramento River system. In 2005 alone, more than half of the natural river flows were diverted, according to the San Francisco Chronicle. In 2007, only 90,000 adult salmon returned to the Sacramento River Basin—one of the smallest returns on record. This year's run is expected to dip to just 54,000 salmon and as such, has lead to "the worse ever [fishing] season off the West Coast," according to Don McIsaac, Executive Director, Pacific Fisheries Marine Council.

Because of the federal mismanagement of the Sacramento-San Joaquin and the defiance of science in the Sacramento Winter Chinook biological opinion, the commercial salmon fishing season from northern Oregon to the U.S.-Mexico border has been shut down this year. That closure will result in a $290 million economic impact and the loss of an estimated 4,200 jobs. (see Letter from Governors Arnold Schwarzenegger, Theodore R. Kulongoski, & Christine O. Gregoire to The Honorable Nancy Pelosi, Speaker, U.S. House of Representatives (April 21, 2008).) That's similar to the number of jobs lost in the Enron debacle.

This year's Sacramento-driven shutdown would have been difficult enough on its own, but the collapse of the Klamath a couple of years before and the ongoing, decades-long decline of the Columbia-Snake salmon make this closure even more difficult to weather. The Sacramento River and the fish it produced was my industry's safety-net. We relied on it. We built our businesses around it. And we believed that NOAA Fisheries' Office of Sustainable Fisheries would manage it to protect this economic and natural resource. We were wrong.

Defying scientists' calls for more water, this administration released a plan that allowed far too much water to be withdrawn from this river basin. Now, fishermen are paying the price and so are our larger communities.

Conclusion

Let me summarize a very grim picture for my industry. For the entire west coast, in the period 1976-1980, commercial chinook harvest averaged 1,039,878 fish annually. Coho harvest averaged 1,669,299 annually. In 2008, due to the largest salmon fishing closure in West Coast history, the entire harvest of chinook and coho will occur north of Cape Falcon, Oregon. That means only 57,000 and 24,000 of each species, respectively, will be harvested. The drop in chinook harvest is 95 percent and the drop in coho harvest is 99 percent. Employment has obviously also plummeted. For the period between 1976-1980, fishermen averaged about 180,972 boat days. In 2008, we have estimated that there will be about 2,000 boat days, dropping working days by 99 percent.

These are staggering, sobering numbers. We've lost 95-99 percent of our industry because successive administrations have been unwilling to follow the science, follow the law, and care about the people affected by their negligence.

The coast-wide salmon crisis is not the mystery that administration officials claim. It is not because a big monster in the ocean rose from its depths and ate these fish up. Cyclic ocean conditions significantly affect these fish in up and down directions, but the catastrophe I just discussed is largely a consequence of human management, primarily by federal agencies, of the rivers from which salmon come: management which has ignored and even suppressed science, and thereby sacrificed the long-term well-being of wild salmon, fishing families and fishing communities.

Federal judges are now involved in managing the Columbia, Klamath and Sacramento rivers because the federal government, which operates dams and water diversion projects on all three rivers, has produced repetitively illegal biological opinions that have cost literally billions of dollars to generate the 95-99% negative impact I just summarized.. In short, the federal government has shown that it would rather waste money on illegal recovery plans and delay tactics than invest in solutions that are vital not only for salmon, but the West Coast's economy. If this performance occurred in the private sector, the company responsible would have been liquidated and its managers fired long ago.

Who are the workers of this failed company? My industry, for one. Who are the shareholders? The American people. The natural resources of this nation are held in trust by the government for the beneficial use of the citizens. The CEO is the

Executive Branch of the federal government, including NOAA Fisheries. The Board, the body responsible for reversing and repairing failed management when it occurs, is the U.S. Congress. and it's executive committee on fisheries issues is this Subcommittee.

I speak as a shareholder and a worker. Madam Chairwoman, I suggest that your CEO—in the form of NOAA Fisheries—has failed miserably. In the timeframe of one working career, 1976 to 2008, NOAA Fisheries has overseen a complete collapse of this business—one that still has markets, still has valuable products to offer, still has high demand from customers, but is no longer able to function. The CEO has failed, and the board must now act.

As Judge James Redden said in Portland, Oregon, "[W]ithout real action from the Action Agencies, the result will be the loss of the wild salmon." I ask today for real action.

Let's require real action from our CEO and his staff. Let's require real action to protect our wild salmon. Let's require more than status quo in all three of these rivers. And let's require these agencies to follow the science to do what is right for these fish.

The legal and scientific failures of the biological opinions in the Columbia, Klamath and Sacramento rivers have been economically devastating. On behalf of my industry, I ask the U.S. Congress to provide oversight of this disaster, and to begin repairing it.

I was asked to outline the problem today, not focus on solutions. I have tried to comply with that request. But I hope I have made clear that without solutions, quickly, you are looking at a former fisherman who will need to give up the job he loves because it no longer exists. I am one of thousands in all sectors of the salmon economy who is in this sinking industry.

So I will only say that it is clear beyond any plausible challenge that the solutions will not come from the management of this company. Solutions must come from the board—from the U.S. Congress.

Madam Chairwoman, I want to thank you again for beginning this important discussion. It took courage and foresight. It is only with this type of dialogue that we will get to the bottom of the issues in each of these basins and create the necessary climate that ensures science, not politics, guides our biological opinions.

Thank you and the Subcommittee for the opportunity to testify today. I would be pleased to answer any questions you or other members of the Subcommittee may have.

Ms. BORDALLO. I thank you, Mr. Kawahara, for your testimony, and now I recognize Mr. Richard Pool.

STATEMENT OF RICHARD POOL, PRINCIPAL OWNER, PRO-TROLL FISHING PRODUCTS

Mr. POOL. Thank you, Madam Chairman. My name is Richard Pool. I am the principal owner of Pro-Troll Fishing Products. We are a specialized salmon equipment manufacturer. We have been in business 30 years. I am also here representing the American Sport Fishing Association, which is the trade association of the fishing tackle industry.

Today, I would like to speak for fishermen and the fishing industry. I would like to make some brief comments on the current salmon situation, the economic impact, the actions that fishermen and the fishing industry are taking, and then what we need to have from NOAA.

First of all, the California disaster, we rank as one of the largest, man-made, economic disasters in this country. We rank it right alongside disasters, man made, such as the Exxon Valdez, the New England cod collapse, and the Atlantic striped bass collapse. The economic impact of this total failure of salmon in California is staggering. I will refer to some charts to that.

If you have the charts, I would like to talk from the charts, and I would like to start with the chart on page 10, if you have my testimony.

Ms. BORDALLO. Please proceed.

Mr. POOL. The chart on page 10 starts in 1990 and shows the total returns of salmon for almost a 20-year period, and you can see an ascending period there. In 1990, the winter-run fish was declared endangered, and, through good management, good plans, good implementations by NOAA and the fishery agencies, the good project implementation, you will see that, in 2002, we hit a modern record of returning salmon of 780,000 fish to the Upper Sacramento River.

Almost parallel to that, you will see immediately a collapse down to almost no fish in 2007 and a projected very few in 2008. The good news is the ascent. Salmon fishermen were cheering. The bad news: The descent parallels the problems of the delta, and we certainly rank the excess pumping from the delta—there is a number of causes, but, in our minds, that excess pumping, which the court has also agreed with, was the primary cause. You can see that the cause dropped significantly before the 2005 and 2006 ocean disaster.

Now, if you would flip to page 13, where I would like to touch on some economics of sport fishing in California. The economics of sport fishing are staggering. There are 2.4 million fishermen. You can see the annual equipment expenditures of sport fishermen are $2.7 billion, $4.8 billion in economic impact, and so on.

For most of the figures on this page, in both boating and fishing, California is the second state in the nation, as far as the magnitude of these numbers. In boating and marine, the impact of the fishing closure not only affects fishing and fishing equipment; it is having a staggering impact on the boating community. There are 894,000 registered boats in California. Seventy percent of them are used for fishing. That is a huge number. You see the $1.2 billion in marine sales in 2002; $16.5 billion economic impact and 300,000 jobs touched by the boating and marine industry.

My message here is that there are huge economics at stake. We are already seeing tremendous losses. I know of six tackle manufacturers that are out of business already. I know of two major boat dealers out of business already. Boat sales from some of the major builders have dropped in half. So the economic impact is already taking place.

If you could go to Chart 12, what are fishermen trying to do about this? We are trying to do two things. First, the fishing industry, in working with the agencies, is trying to scope some projects, and I would say we have some scoped that can bring a recovery. There is no season in 2008. We think it is highly improbable that there will be a season in 2009. There are just no fish in the ocean.

Our target is getting a season back in 2010. We have had some very cooperative programs with the agencies in trucking hatchery salmon around the delta so they will not be lost, and we are hoping to have that season.

From a fisherman's standpoint, about a year and a half ago, we organized what we call "Water for Fish.org." It is a Web site where fishermen can go and register their concern about water policies.

Fishermen had no voice, and, at this point in time, it is a grassroots political action. You have all been receiving e-mail letters from these. You can see down at the bottom, so far, we have 56,000 people that have gone on this Web site and sent letters to the California delegation, the congressional delegation, and so on.

I am holding a book here of 800 pages of double-sided, small-print that is 50 percent of the people that have gone on requesting action by committees like yours, the state, and everyone else.

So I will quit with that. We have laid out, in our written testimony, some recommendations that we feel are very important for actions that we think NOAA should take. Thank you.

[The prepared statement of Mr. Pool follows:]

Statement of Richard Pool, Pro-Troll Fishing Products

My name is Richard Pool. I appreciate the opportunity to appear before this committee to discuss fishery issues. I also want to express appreciation for the leadership the committee is demonstrating in attempting to find answers to the severe fishery crisis now unfolding in California and the states of Oregon, Washington and Alaska.

I am here today representing my company, Pro-Troll Fishing Products which is a large producer of salmon fishing equipment. I am also representing The American Sportfishing Association (ASA) which is the National Trade Association that represents the sport fishing industry. Pro-Troll is headquartered in Concord California and ASA is headquartered in Alexandria Virginia.

I would like to discuss three subjects:

1. The collapse of the Central Valley salmon stocks as viewed by fishermen and our industry.
2. The economics of the West Coast sport fishing industry and the impact of the salmon closure.
3. The kinds of actions we believe are needed to recover these fish.

The Salmon Collapse

California faces an unprecedented collapse of its Central Valley Chinook salmon runs. We rank this as one of the top ten man-made fishery disasters in the country. The economic consequences of the loss are staggering and reach all the way to Alaska. We believe history will rank this disaster in the same category as the Exxon Valdez, the collapse of the New England Cod Fishery and the collapse of the Atlantic Striped Bass fishery in the 1980's. The steps leading to the collapse have been progressing for years but fishermen, biologists and environmental groups have been unable to impact the policies that could have prevented it. The disaster is now upon us. Unfortunately, now, there are no quick and easy fixes.

I have attached a chart called "The Rise and Fall of the Central Valley Chinook Salmon Returns". It summarizes the factors we see as the major contributors to the collapse. The chart shows the total number of Chinook salmon that returned to the Central valley by year. It starts in 1990 when the returns of the Winter Run salmon became so low it was listed under the Federal Endangered Species Act. The Winter Run is one of four separate salmon sub species that return to the Sacramento River to spawn. At the time it was listed, it was virtually extinct. In 1992 only 191 Winter Run spawners returned to the Upper Sacramento River.

Following the listing, The National Marine Fisheries Service supported by the other agencies implemented a highly successful Winter Run Recovery Program. Four major projects costing $1 billion were implemented in the Sacramento River. The projects not only helped the Winter Run but also dramatically improved the other three runs. Salmon responded as they will when their habitat is right and by 2002—780,000 spawners from all four Sacramento runs returned. It appeared we had a major success story.

Unfortunately, after 2002, the delta collapse took over. Increased export pumping and river flow management for exports rather than for fish along with badly polluted delta waters took a heavy toll on salmon. The graph shows the crash starting after 2002 with the final poor ocean conditions of 2005 and 2006 wiping out the balance of the weakened runs. There are two major conclusions to this graph.

1. The rapid rise from 1992 shows that given good habitat conditions, salmon can recover quickly. If we do the right things, this pattern can be repeated.

2. The crash started well before the problem with ocean conditions in 2005 and 2006.

My second chart shows the decline of other species of fish which reside in the delta. In every instance the decline is dramatic. Unlike salmon, most of these fish do not migrate to the ocean. This is strong evidence that the primary fishery problems are associated with the delta. Over pumping, harmful water movements and pollution have taken their toll.

Fishermen concur that there were several factors that led to the salmon collapse. However, we believe the evidence is overpowering that the excess delta pumping is the leading cause of the decline. Heavy pumping and the associated detrimental water movements cause many other problems with river flows and temperatures that are harmful to salmon. We believe the salmon can be recovered but it will not be easy or inexpensive. The runs are now so low and the collapse is so complete that every run of Central Valley salmon could now be a candidate for Endangered Species listing.

The Economics of California Sportfishing

Fishing is huge in California. There are 2.4 million recreational fishermen in the state. Each year they spend $2.7 billion in equipment purchases. The full economic impact of the activity is $4.8 billion. The industry supports 41,000 jobs and pays $1.6 billion in wages and salaries.

California has been second only to Florida in fishing equipment purchases. Salmon and Striped Bass are the top economic generators in the bay, coastal and Central Valley regions of the state. The loss of these fisheries will bite heavily into these economics. Hardest hit will be coastal communities and small river communities that depend on income from salmon, steelhead and striped bass. Lodges, camps, restaurants, tackle shops, marinas, guides and charter operators will all lose substantial income. It is already happening. Scores of businesses have already failed and many others are barely hanging on.

I am aware of six major fishing tackle retailers in Northern California who are already calling it quits. Every major city is being hit from Sacramento to The Bay Area to San Jose and Santa Cruz. I can also speak for my own company. As a major salmon equipment producer we are in serious economic distress. We have been in business for 30 years and have never seen the kinds of sales drops we are currently experiencing.

The Economics of California Boating

Closely paralleling the economics of fishing is the Boating and Marine Industry. There are 894,000 registered boats in California. 70% of boat purchases are for fishing. Sales of boats in 2006 were $1.2 billion and there are 83 boat manufacturers in the state. Salmon fishing requires a boat. Manufacturers and boat dealers are already reporting dramatic drops in sales. There will be huge economic losses in this sector.

I recently received a report from a sales group representing multiple boat lines in the 13 Western states. Two years ago their sales were $60 million. In 2008 they expect $32 to $34 million. They attribute most of this drop to the salmon closure. Sales of offshore boats and river fishing boats are at a near standstill. One major boat dealer has already closed its doors and many more are teetering on the brink.

The following tables show the combined economics for California, Washington, Oregon and Idaho. The figures show that recreational fishing is a huge economic generator in the West.

West Coast Sport Fishing

	Millions of Fishermen	Billions in Equipment Purchases	Billions Economic Impact	Billions Wages & Salaries	Jobs
California	2.4	$2.7	$4.8	$1.6	41,000
Washington	.7	1.0	1.7	.5	15,000
Oregon	.6	.6	1.0	.3	11,000
Idaho	.4	.3	.5	.2	6,000
Total	4.1	$4.6	$8.0	$2.6	73,000

If sport fishing in the U.S. were ranked as a corporation, it would be #47 on the 2007 Fortune 500 list based on sales. That's well ahead of global giants such as Microsoft and Time Warner..

West Coast Marine Industry

	Boat Registrations	Billions Sales 2006	Boat Builders	Employees	Marinas
California	894.000	$1.2	83	8,000	624
Washington	271,000	.6	70		343
Oregon	186,000	.3	35		141
Total	1,351,000	$2.1	188		1,108

Water4Fish.org Advocacy Website

As California moved into the 21st century it became obvious to fishing leaders that the politics of water had changed radically. The corporate agricultural interests were demanding more and more water and they had the political muscle to get it. No costs were spared in political contributions, high paid lobbyists and teams of lawyers. The state and fishery agencies lost control of their ability to protect and enhance fisheries and the water agencies became more aggressive. Exceptions to laws were found and biological opinions were overruled to allow more water pumping. The largest salmon kill in history took place on the Klamath River in 2002 because of a ruling that took the flows away from salmon and steelhead.

In early 2007 a decision was made. The only way fishermen could fight back and represent themselves was to get organized politically. A website Water4Fish.org was established and petitions were developed asking our political leaders to change water policies to protect fish. Over 100 major fishing groups and fishing business immediately signed on as sponsors of the campaign. When a fisherman or supporter signs onto the website, his name, address, email and political representatives are captured in a database. He can then send email letters to the governor, his Sacramento legislators and to congress

The campaign has been a success. As of the end of April a total of 56,574 letters and petitions have been generated.

15,532 have gone to the Governor
17,954 have gone to members of the House
16,022 have gone to Senators Feinstein and Boxer
17,573 have gone to the California Assembly
17,205 have gone to the California Senate

Supporters from all corners of the state have logged into the database. It is now the largest database of fishermen in the state. At the current rate we will have 100,000 signers by year's end. These fishermen are mad as hell and they have every right to be. Through no fault of their own, their heritage and rights to a public resource has been taken away.

What Fishermen Need from NOAA

Fishermen look to NOAA and the other fishery agencies for the policies and leadership needed to protect and enhance the fisheries. In the Central Valley salmon recovery of the 1990's, NOAA led the way. We highly commend the agency for its leadership at that time. An excellent recovery plan was developed, the proper permit requirements were put in place and the right projects were implemented. The payoff to the fishery and to the economies of California and the other West Coast states was huge.

The failures of NOAA since that time have been well documented by the collapse of the salmon fishery and the court decisions. Fishermen now look to NOAA to reverse these disasters and once again lead a recovery. We need strong NOAA directives in the Central Valley and we also need them on the Klamath River, the Columbia River and The Snake River where the runs have also collapsed. We need:

1. New biological opinions based on solid science, the full extent of the law and the current conditions of the fisheries. They should include rigid and enforceable permit requirements that will rebuild the stocks and avoid technicalities that would allow other interests to avoid compliance.

2. The biological opinions should not be shortcut. They need to be complete, well reviewed and comprehensive. They must stand up in court. If more time is needed to accomplish this, it should be granted.
3. The preponderance of science should dictate the actions. Weak maybes of secondary causes should not be a basis for no action. We believe that NOAA and the other fishery agencies are the proper place for fisheries management rather than the courts.
4. A strong recovery plan is needed for each watershed that not only focuses on endangered species but on all the runs that have collapsed. NOAA has the responsibility and obligation to protect all marine species.

We are deeply concerned about the NOAA resource capabilities to do this job particularly in the Southwest Region. The rapid and complete collapse of the Central Valley salmon and the complex nature of the problem have placed a huge burden on this region. We strongly support increased staffing and funding for this region. We look to congress to help see that the resources needed are made available to the Southwest office.

We are also concerned about the pending biological opinion for the Klamath River. We remain optimistic that the four dams currently blocking the migration paths will be removed but it may take 10 to 15 years for this to take place. In the meantime the endangered fish of the river must be protected from disease and lethal water conditions. We urge a strong opinion from NOAA that will ensure these fish have adequate water flows and habitat to survive under normal and drought conditions.

Proposed Recovery Actions

We believe that if a number of immediate steps are taken, a salmon fishing season is potentially possible again by 2010. Some of the steps are short range and some are longer. Substantial funding will be needed. We urge the committee to support these steps and others that will emerge as further studies are made. The steps are:

Take Emergency Recovery Steps to allow a salmon fishing season in 2010

There are so few fish currently in the ocean that no meaningful salmon fishing can occur in 2008 or likely in 2009. If several emergency steps are taken to get 2008 smolts to the ocean, it may be possible to have a season on two-year old fish in 2010.

Emergency Trucking of All Hatchery Salmon around the Delta starting in 2008 & 2009

This project could save the 2010 season. With the losses occurring in the delta, if hatchery fish are trucked around the delta to the bay and then held in adapting pens, survival rates can be improved by 5 to 1. This was recently proposed to The Calif. Dept. of Fish and Game and the agency agreed. The trucking of all state hatchery fish was started the week of April 7th. A parallel plan for the Federal Coleman hatchery fish is underway.

Reduce Delta Pumping and Increase Pulse Flows for All Outbound Smolt Migrations. Start in 2008 & 2009

Pumping schedules need radical changes. Currently, adjustments are sometimes made for endangered fish but other runs like the large fall run, which has been the backbone of the salmon fishery, suffer from poor flows and water conditions. Water managers have access to very good real time information as to when endangered and other fish are in the delta in large numbers and thus can and should be ordered to reduce or stop the pumping until the fish can move by. Secondly: The pumps are so powerful that they reverse the natural stream flows of the delta which are needed by juvenile salmon to get from the river to the sea. Current practice includes releasing small amounts of pulse flow water to help flush these young salmon safely out to sea but these pulses are too small to get the job done. They need to be longer in duration.

Close The Delta Cross Channel Gates During All Downstream Migrations. Start in 2008 & 2009

The cross channel is a man-made channel dug into the delta to facilitate the flow of water directly to the pumps. Young salmon are very susceptible to being pulled off course into the cross channel which usually results in their death. Closing the cross channel gates has been a major help to endangered species to keep them from being sucked out of the Sacramento River into the central delta to perish in sterile waters with no protective habitat. Closing the gates during all smolt migrations will have an immediate highly beneficial result in getting more fish to the ocean.

Install State of the Art Fish Salvage at the Delta Pumps

Fish of all species that bypass the louvers at the state and federal pumps are captured and held in tanks. Periodically the tanks are emptied into trucks and are hauled and dumped in the North delta. Survival could be dramatically improved with better handling and the use of adapting pens at the dumping sites. The small fish are currently dumped in a highly stressed and weakened condition. Predator fish and birds kill a high percentage. Many of these fish are endangered species. The minor costs of doing this job right are insignificant in terms of the potential benefits to survival.

Develop a Longer Term Comprehensive Salmon Recovery Plan

Longer term plans are needed. There are hundreds of projects that can repair habitat, open new habitat, improve survival, improve water quality and allow better up and down stream migration. The fishery groups have a list and so do the fishery agencies. State and federal leadership is needed to see that these projects are set in priority, funded and implemented. One example is the retirement of the Red Bluff diversion dam with screened pumping installed as a replacement. Another is the removal of barriers blocking access to 32 miles of spawning grounds on Battle Creek on the upper Sacramento River. Early estimates indicate that up to a billion dollars will be required to implement the critical projects.

Require Full Mitigation for all Direct and Indirect losses at the state and federal pumps

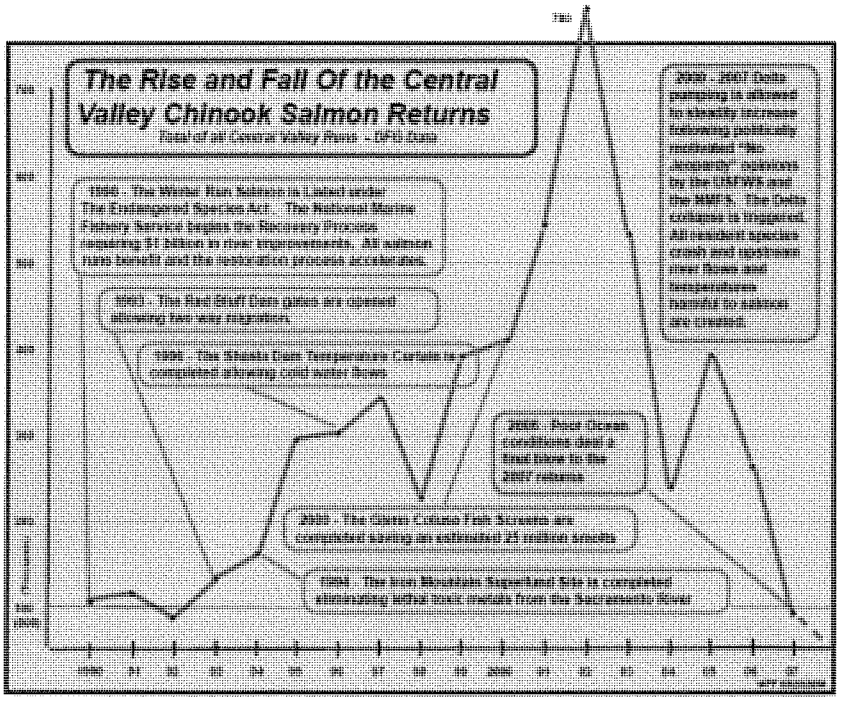
This action is long overdue. There is no question that the state and federal water projects have been destroying millions of game and non-game species annually for fifty years. When viewed from a cumulative perspective, this impact is a major factor in the decline of the Central Valley fisheries. There has been very little successful mitigation for the losses they created. The state provided some mitigation but only for direct losses of salmon, steelhead and striped bass. The federal pumps mitigated for direct losses for a few years but then withdrew from their written agreement with California Department of Fish and Game. Neither the state nor the federal pumps have ever mitigated for indirect losses. Indirect losses are fish that perish because they are pulled out of their normal migration paths and perish before they get to the pumping plants. Many biologists believe that indirect losses far exceed the direct losses. Mitigation funding used properly for habitat and water flow improvements, could go a long way towards the recovery of many species as was originally intended by the Central Valley Project Improvement Act. The California Assembly has a bill in process, AB1806, which would require mitigation for direct and indirect fishery losses caused by the operation of the by the state and federal Water Projects. The bill has passed the Water Parks and Wildlife Committee and is now at the Appropriations Committee for consideration. This action needs federal support and a possible parallel federal bill.

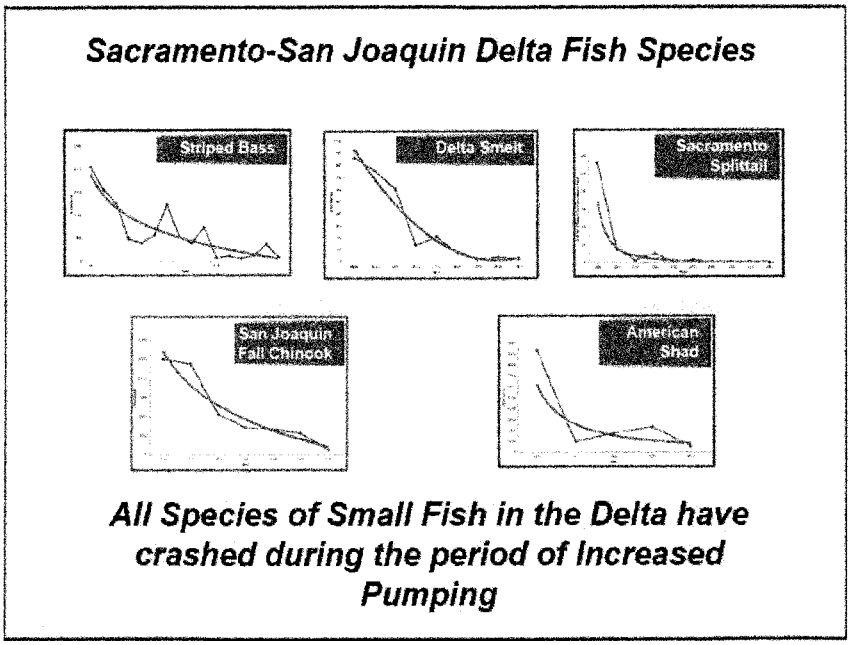
Remove 4 Klamath River Dams

The Klamath River remains a salmon disaster. The fishery agencies, and virtually every fishery and tribal group agree that the best fishery solution and economic solution is the removal of four dams on the river. Continued state and federal leadership is needed to bring this about. In the meantime firm biological opinions are needed to see that the endangered fish in the river can survive until the dams are gone.

Install State of the Art Screening at the Delta Pumps

Hundreds of thousands of fish currently perish at the state and federal pumps. Some are salvaged and subsequently die and others are pulled through the louvers and perish in the canals. These pumps are crucial to future California water deliveries with or without a peripheral canal. The final answer is to separate the fish from the water with modern screens and solve the problem once and for all. Fish screens do this all over the world. The current louvers are archaic in terms of the current state of the art. They should be replaced with state of the art screens like those successfully operating at the GCID and Contra Costa water diversions.


The Rise and Fall Of the Central Valley Chinook Salmon Returns


Sacramento-San Joaquin Delta Fish Species
Striped Bass
Delta Smelt
Sacramento Splittail
San Joaquin Fall Chinook
American Shad
All Species of Small Fish in the Delta have crashed during the period of Increased Pumping

Water4Fish.org Website

- ***A Grassroots Political Action Program***
- ***The Only Recourse for Fishermen is to Organize***
- ***Letters are Sent to Political Leaders***
- **Results – To date 56,574 letters and petitions have been sent to legislators**

  15,532 have gone to the Governor
  17,954 have gone to members of the House
  16,022 have gone to Senator Feinstein and Senator Boxer
  17,573 have gone to the California Assembly
  17,205 have gone to the California Senate

The Economics of Sportfishing in California

Fishing

Fishermen	2.4 million
Annual Equipment Expenditures	$2.7 billion
Full Economic Impact	$4.8 billion
Wages and Salaries	$1.6 billion
Jobs	41,000

California has traditionally been second only to Florida in the purchase of fishing equipment

Boating and Marine

Boat Registrations	894,000
Boats used for Fishing 70%	625,000
Boat and Marine Sales 2006	$1.2 billion
Full Economic Impact	$16.5 billion
Boat Builders in Calif.	83
Marinas in Calif.	624
Jobs related to Marine Industry	300,000

California has the second highest number of registered boats in the nation

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Ms. BORDALLO. I thank you very much, Mr. Richard Pool, for your testimony, and I now would like to ask Mr. Jason Peltier to proceed with his testimony.

STATEMENT OF JASON PELTIER, DIRECTOR, SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

Mr. PELTIER. Thank you. It is an honor to testify in Congress. While we often talk about farmers and fishermen in conflict, I should say that Roger Thomas and Dick Pool are people that we

share an awful lot with and have worked with over the years, and there is no question about their heartfelt sincerity and desire to be constructive in addressing and resolving problems.

That is where we find a lot of common ground with the fishing community because, for the beneficiaries of water projects, the beneficiaries of the dams and the canals and the pumping plants that put that water to good use to grow food and serve our communities, a healthy fishery is also a part of our critical path. An unhealthy fishery leads to big problems for us, and that leads to economic dislocation. So we do have a very solid basis of common interests. We have some points of disagreement also.

Briefly, I would just like to say I have included a National Marine Fisheries Service scientific paper as an attachment to my testimony, which identifies primarily ocean conditions as a cause here. Certainly, we recognize that the large pumping plants in the delta are a factor—there is no question—directly and indirectly, in the way they change patterns of flow in the delta. They are a factor, but I have never seen a credible statistical analysis that shows us what is lost at the pumps and how significant of a population-level effect that is.

In fact, I have some comments. I had hoped Mr. Miller would be here. I did not want to have to say this behind his back. His staff is missing, too, unfortunately. I am sure he might want to respond to some of the things he said that I found to be inaccurate, or I misheard, that have to do with the impact of the pumps and how they are regulated.

I think an important thing not to lose sight of, as you heard on the Columbia, there has also been a tremendous amount of change in the last 15 years in the Central Valley of California. Investment on the order of a billion dollars-plus in ecosystem improvement, primarily aimed at salmon stressors; $200 million, easy, spent on science, research, monitoring, trying to understand how this ecosystem functions and how the fish are affected by that, and how further changes might be put in place to help fisheries.

Forty-six million acre-feet over the last 15 years have been reserved, prioritized, for fishery purposes, everything from direct curtailment of pumping plants to increased flows in rivers to minimum pools and reservoirs to maintain temperatures, and half a billion dollars by the customers of the Federal Central Valley Project have been spent to improve fisheries. Unfortunately, we, like many, are disappointed in the results.

The delta, as you have heard, is undergoing many significant changes. There is a lot of planning process because there is common recognition that the delta, where the San Joaquin and Sacramento Rivers come together before going to the ocean, is under stress from a variety of factors and is not sustainable.

I would like to say, in commenting on a couple of things that Mr. Miller said, I heard him say that the water users take as much water as they can or as possible. That is true, but what is possible is severely regulated by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. So we have Biological Opinions that control.

I thought I heard him say that the customers decide what the take level is of the fish. Incorrect. We are on the endangered, win-

ter-run salmon. If a pair of spawning salmon produces, say, 4,000 young salmon, we are permitted to take two percent of those at the export pumps and recognize that the vast, vast majority of them are lost and die before they even make it to maturity in the ocean.

I would also like to comment on the importance and need to engage the fishing community in the development of the Bay Delta Conservation Plan. This an open process. They are quite welcome. There are a lot of environmentalists that are at the table and engaged.

So, to the extent that the fishing community wants to participate in the development of the Bay Delta Conservation Plan, come on in, and we can use your expertise. Thank you for the opportunity to speak.

[The prepared statement of Mr. Peltier follows:]

Statement of Jason Peltier, Director, San Luis & Delta-Mendota Water Authority, Chief Deputy General Manager, Westlands Water District

Thank you for the opportunity to present testimony on the decline of our salmon fisheries on the West Coast. I will also discuss the dramatically changed landscape of ecosystem investment and operations of the Federal Central Valley Project (CVP) since the last major drought to hit California and the Central Valley Project Improvement Act was passed by Congress 15 years ago.

There is no question about the dramatic decline in returning salmon spawners in the Sacramento River as determined by the National Marine Fisheries Service. There is, however, some uncertainty about the driving forces behind the decline. Attached to my testimony is a paper prepared by National Marine Fisheries Service scientists that identifies "ocean conditions" as the primary common factor behind this disaster (attachment #1). This widespread disaster that has hit the largest river systems to the smallest streams that flow directly in to the ocean up and down the West Coast. Some feel passionately that water project development and in particular the delta export pumps are THE cause for the salmon decline. I respect their right to have an opinion, but disagree with their conclusions. The huge body of science and data that relates to this tragedy, and the delta in particular, simply does not support this conclusion. Attachment 2 is a graph that shows the relative quantities of water diverted from the delta system.

The Sacramento-San Joaquin Delta is the focus of a number of significant planning processes that start with the recognition that the Delta is broken from many perspectives. Fisheries are in decline, water supplies that move through it for the people and farms of California are inadequate and unreliable, water quality issues persist, a major earthquake induced collapse is quite likely, and the ecosystem has become dominated by invasive species—some of which are harmful to the food chain and native fisheries.

Ecosystem Investment

Since 1992, when Congress passed the Central Valley Project Improvement Act a significant amount of change has occurred for the farmers on 3 million acres of irrigated land served by the project, the five million household served by the project and the aquatic ecosystem. These changes and investments have coincided with significant investments by the CALFED process and significant changes in the regulatory environment.

In the last fifteen years:

- Over $1 billion has been invested in habitat improvements—primarily focused on salmon stressors.
- Over $200 million has been spent on scientific research and monitoring.
- Over 46,000,000 acre feet of water from the CVP has been prioritized for fishery improvements. That is about 3.1 million acre feet of water annually that is no longer reliably available to support food production or communities.
- Over $200 million has been spent on the Environmental Water Account for the benefit of the fisheries.
- CVP water and power contractors have contributed nearly $460,000,000 to support these environmental restoration efforts.

At the same time:

- The 32 water districts from the CVP that receive water south from the Delta have regularly faced 40% water supply reductions, even in wet years.

- This year the CVP faces a 55% shortage and the State Water Project (SWP), which serves 20 million Californians, has a 65% shortage.

In Westlands Water District:

- 100,000 acres have been taken out of irrigated agriculture.
- Cropping patterns have shifted in response to water shortages and higher water costs. Over 100,000 acres of the 600,000 acres in the district are now in vegetables and nearly 100,000 acres are planted to permanent crops-primarily almonds.
- This year our farmers will pay about $100 per acre foot for their water from the CVP.

I provide this detail to demonstrate the commitments of the farmers, the agencies and the regulators to be responsive to the fishery concerns we have. There is also a widely held belief that we have ignored or done much too little to address the "other stressors" in the Delta impacting our fisheries. Too few resources have been focused on invasive species, the changing food chain and declining nutrients, and toxics, in particular ammonia from urban sewer discharges that surround the Delta, introduced predators, and some 2,000 unscreened and unmonitored water diversions with a combined capacity that exceeds the CVP.

Broken Delta:

I have attached to my testimony the "articulation table" (attachment #3) that shows the many processes addressing the challenges we face in the Delta. Of these, the Bay Delta Conservation Plan and the Governor's Delta Vision process deserve your notice. Two common realities pervade all of these processes: 1) A recognition that the status quo cannot and will not stand and that we face a choice: either we take action to address the ecosystem and water management infrastructure problems or the system will collapse and we will move directly into an environmental and economic disaster; and 2) The existing means of conveying project water through the southern delta needs to be changed for a variety of reasons and a canal around the Delta should be built to a location that can support an effective screen for separating the water for 25 million Californians and 3 million acres of farm land from the fish in the Delta.

In the BDCP process, the water and environmental interests are working with the Federal and State fishery and Water Project agencies to develop a comprehensive habitat conservation plan. This planning effort will identify conservation measures that can be counted on to put the listed species on the road to recovery. It is a complex and intense undertaking, one that is driven by our common needs to address our water and environmental problems.

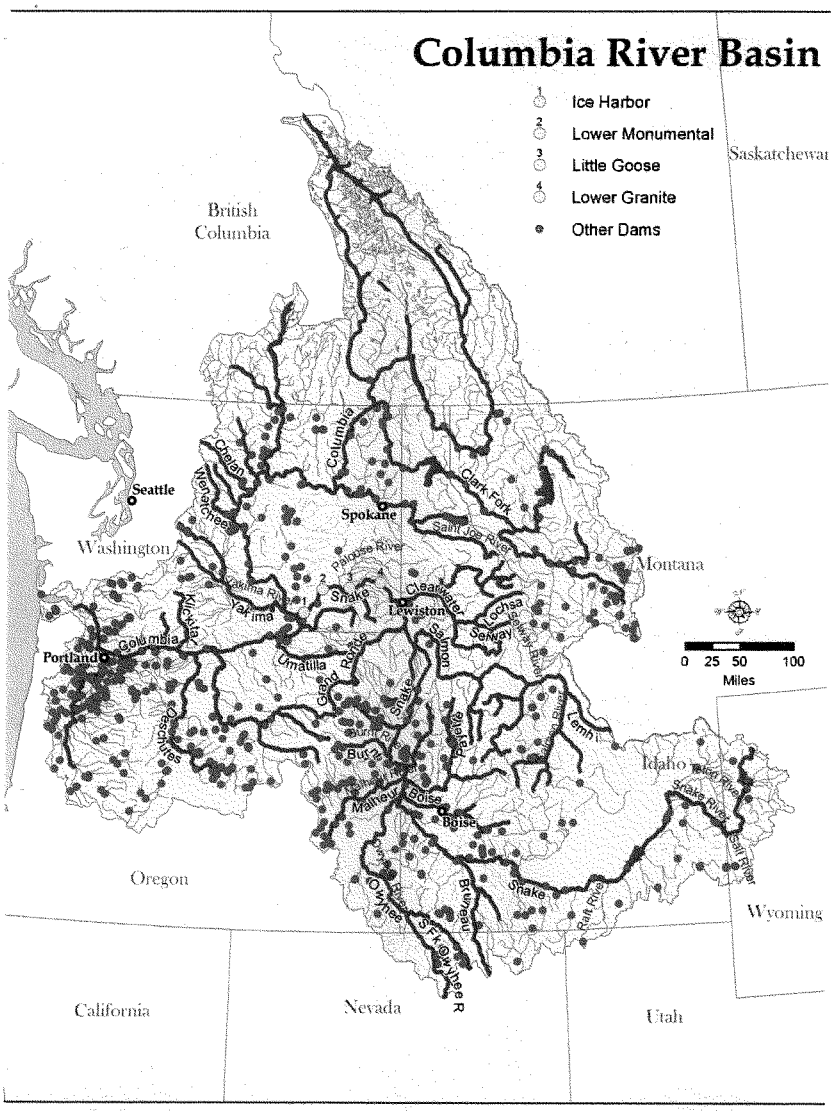
Science in the Delta

The Delta suffers from complex scientific and historic political conflicts. This is an area for which we have a tremendous amount of scientific data and completed research. However, just looking at the conflict over the causes of the salmon decline, you quickly get the picture that different people draw different conclusions from the same data. This conflict spills over to the Biological Opinions which guide and restrict the operations of the CVP and SWP.

We must and will live with these conflicts as we attempt to find common ground and make decisions that will assure that future generations can enjoy a healthy ecosystem and a robust economy.

Conclusion

The federal interest in sustaining our fisheries, farms, and communities is enormous. As usual, we all struggle with the competing societal values when it comes to the intersection of our water management responsibilities and our desire to promote healthy fisheries and ecosystems. As our conflicts will be on-going, it is essential that we keep our eyes on and resources properly focused on all of the stressors, all the causes of problems and not make the error of a narrow minded focus that fails to look at the whole picture-at the totality of the problems we face.


Columbia River Basin
Ice Harbor
Lower Monumental
Little Goose
Lower Granite
Other Dams
British Columbia
Saskatchewan
Washington
Montana
Idaho
Oregon
Wyoming
California
Nevada
Utah
Seattle
Spokane
Lewiston
Portland
Boise
Columbia
Chelan
Wenatchee
Yakima
Kittitas
Clark Fork
Saint Joe River
Palouse River
Snake
Clearwater
Lochsa
Selway
Salmon
Grande Ronde
Umatilla
Malheur
Owyhee
Bruneau
Weiser
Payette
Lemhi
Salmon River
Big Wood
Little Wood
Raft River
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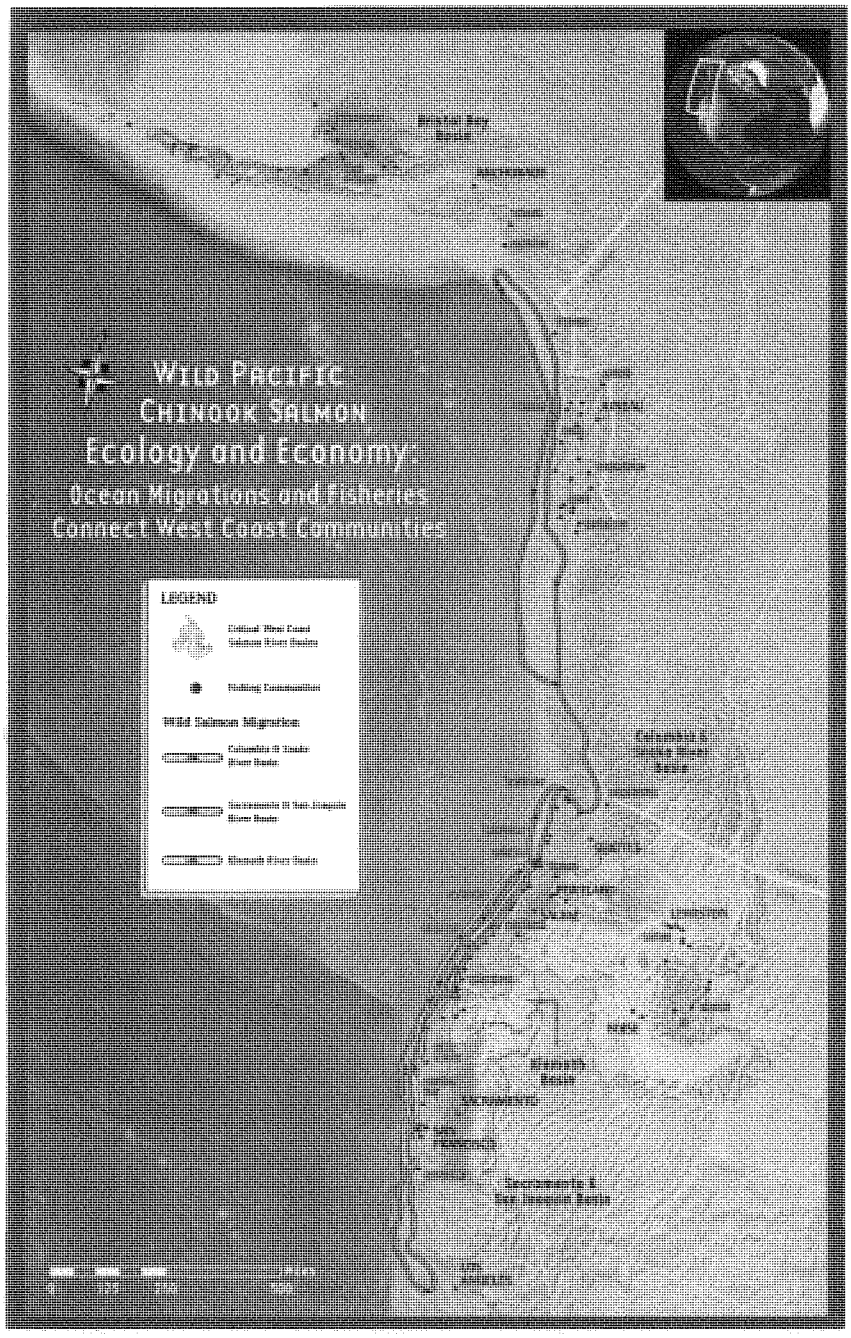
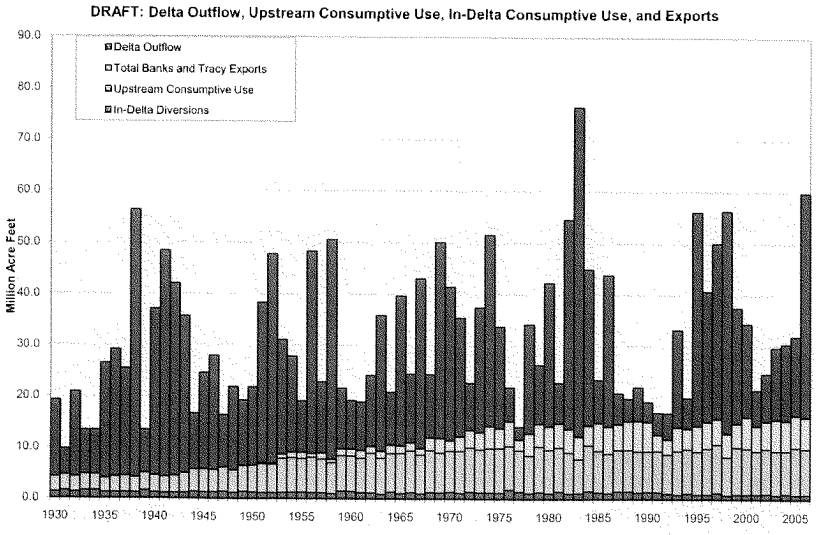

Wild Pacific
Chinook Salmon
Ecology and Economy:
Ocean Migrations and Fisheries
Connect West Coast Communities
LEGEND
Wild Salmon Migration:



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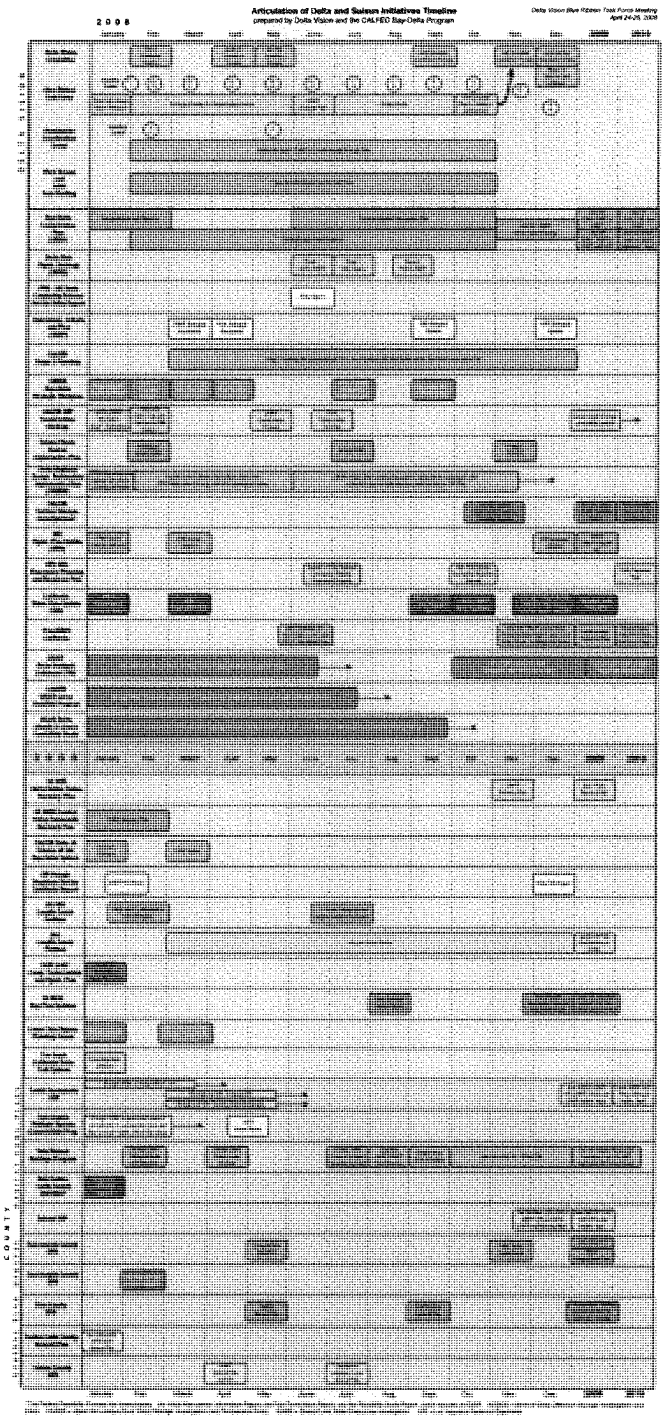
Articulation of Delta and Salmon Initiatives Timeline
prepared by Delta Vision and the CALFED Bay-Delta Program
2008
Delta Vision Blue Ribbon Task Force Meeting
April 24-25, 2008

Coho and Chinook Salmon Decline in California during the Spawning Seasons of 2007/08

Prepared by R.B. MacFarlane, S. Hayes, B. Wells
2 February 2008

The short version

Near final data from across the range of coho salmon on the coast of California reveal there was a 73% decline in returning adults in 2007/08 compared to the same cohort in 2004/05. The problem extends beyond California: preliminary data from the Oregon coast show a 70% decline. The low coho salmon numbers come on the heels of the Pacific Management Council's report of exceptionally low Chinook salmon returns to California's Central Valley (and other streams in California, Oregon, Washington, and British Columbia) in the fall of 2007. Because of the broad spatial extent of the decline and the similar ocean ecology of the two species, ocean conditions are suspected as a main causative agent. The Wells Ocean Productivity Index (WOPI), an accurate measure of central California ocean productivity, reveals poor conditions during the spring and summer of 2006, when juvenile coho from the 2004/05 spawn entered the ocean. The WOPI also showed low productivity potential for the spring and summer of 2005, which may explain low returning Chinook salmon numbers in 2007. Further, if the WOPI has predictive power, adult Chinook salmon returns in 2008 should be low.

The long version

The Pacific Fisheries Management Council (PFMC) reported on 29 January 2008 unexpectedly low Chinook salmon returns to California in 2007, in particular to the Central Valley. Adult returns to the Sacramento River, the largest of Central Valley Chinook salmon runs, failed to meet resource management goals (122,000-180,000 spawners) for the first time in 15 years.

Now preliminary reports near the end of the 2007/08 spawning run indicate coho salmon are experiencing poor returns as well. As coho spawning season is nearing an end in California, state and federal biologists, using a variety of techniques, including visual, video, spawner/carcass, and redd surveys have found coho salmon returns to be far below what was expected, based on returns three years earlier, which are the same populations or yearclass lineages. Coho salmon are listed as endangered and threatened in the Central California Coast and Southern Oregon-Northern California Evolutionarily Significant Units (ESU), respectively, under the U.S. Endangered Species Act (ESA). Coho have essentially a fixed three-year life cycle in California, in contrast to Chinook salmon, which may return as mature adults as three (primarily), four, and some five year olds. For coho, each yearclass can be considered essentially a separate population because there is little mixing among yearclass lineages, with the exception of "jacks" that return as 2-year old males in limited numbers.

In California, mature coho salmon return to natal streams between late November and late January into February in coastal streams between the Oregon border and Scott Creek in Santa Cruz County. They return earlier in the northern part of the state grading to mid-December to mid-February in Scott Creek. In recent years, returns to Scott Creek were essentially complete by the end of January. Typically, spawning occurs within a month

or so after stream entry, whereas at the southern end of the range, it occurs almost immediately. Juvenile salmon emerge from redds in late winter – early spring and spend one year in the stream before migrating to the ocean in the following spring. They spend about 1.5 years in the ocean and return to spawn in the late fall-early winter three years hence.

Coho salmon returns in 2007/08

Of 13 streams between the Smith River and Scott Creek where surveys are conducted, there has been a 73% decline in returning coho salmon, compared to the same yearclass lineage returns in 2004/05 (Fig. 1). No stream had an increase or level returns. One stream, Redwood Creek in Marin County had a complete failure, with no returns for the first time on record. Scott Creek had only four jack returns, compared to 329 adults in 2004/05. There is a slight trend of greater declines toward the south, but for the most part, the data show large reductions in returning adults throughout the California coast. It appears that this phenomenon extends beyond California; preliminary and incomplete surveys of 22 streams through January in the Oregon Coast ESU found a mean decline in coho returns of 70% relative to returns in 2004/05. Their estimate of 51,000 returning adults to the Oregon Coast ESU in 2007/08 is the lowest since 1999. Further, their data show the decline has been continuing for the past three years.

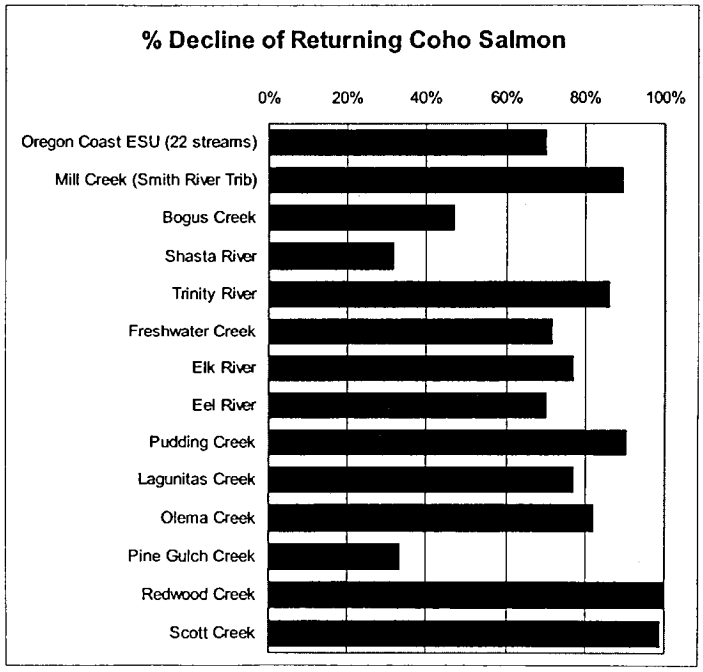

Figure 1. Percent decline of returning coho salmon to streams in California and Oregon 2007/08 relative to returns in 2004/05. Streams listed from north to south.

Causation

Although there are no shortage of potential contributors to the decline, including such wide ranging factors as poor fecundity of the 2004/05 yearclass; hydrologic flushing of fry prematurely to sea by high stream flows in 2005; increased predation by avian, pinniped, and/or other marine predators; and anthropogenic factors such as oil spills, fishing bycatch mortality, irrigation, and water exports from streams, the spatial extent of the problem points toward a broader agent: ocean conditions.

It is known that the first few months in the ocean are a critical period for growth and survival in salmonids. Recent work in the Fisheries Ecology Division shows that the greatest rates of growth and energy accumulation for Chinook salmon occurs in the first one to three months after ocean entry. Chinook salmon in California enter the ocean as subyearling and at a smaller size than coho, which enter the sea as yearlings after about 1.5 years in freshwater. Thus, Chinook and coho hatched in the same year, enter the ocean one year apart. Both enter in late spring to early summer, theoretically driven by evolutionary adaptation to seasonally beneficial feeding and growth conditions from a suite of climate and oceanographic factors that result annually in high biological productivity on the California coast between spring and late fall.

Ocean conditions were poor for salmon growth and survival during the spring–summer of both 2005 and 2006. The Wells Ocean Productivity Index (WOPI), a composite index of 13 oceanographic variables and indices, weighted heavily by sea level height, sea surface temperature, upwelling index, and surface wind stress, has been used to accurately predict zooplankton, juvenile shortbelly rockfish, and common murre production along the California coast, and is thus a valid indicator of ocean productivity. Index values for the spring-summer of 2005 and 2006 were low, indicating poor conditions for growth and survival (Fig. 2). In fact, only the El Niño years (1982-83, 1992-93, 1999) had lower WOPI values. The WOPI assesses conditions on a local scale for California, but has tracked another index, the Northern Oscillation Index (NOI), which is based on the strength of the North Pacific high pressure cell and describes a broader region of the North Pacific Ocean. In 2005 and 2006, the WOPI decoupled from the NOI, suggesting local conditions on the California coast were worse than for the larger North Pacific region. These results indicate that ocean conditions in the spring and summer, when juvenile coho and Chinook salmon enter the ocean, were unfavorable to growth and survival. This may explain the poor returns of both coho in 2007/08 and Chinook salmon in 2007. And, if the WOPI has predictive power, adult Chinook returns in 2008 should be low, supporting independent findings by the PFMC's Salmon Technical Team, which reported a record low in the number of jacks returning to the Central Valley this past fall. Jack returns have been a useful predictor of run size in the next year, in this case, 2008. In 2007, only 2,000 jacks returned compared to the previous low of 10,000 and the long-term average of 40,000.

Further Considerations

Given the imperiled nature of coho (2 of 2 ESUs listed by ESA) and Chinook salmon (10 of 13 ESUs listed) in California it is critical that coastwide instream monitoring programs be implemented and maintained to allow warning of impending

problems to these valuable resources. Without the existing minimal monitoring effort, since coho are not commercially fished or regulated, there would be little notice of their decline.

Further, the need for ocean monitoring on a consistent basis to understand the changing conditions, responses of salmon and other marine organisms, and to provide data to improve our ability to forecast impacts on marine resources, including California's salmon, cannot be overemphasized. Implementation of ocean observing systems, as recommended by two independent federal reviews of ocean policy and California's Proposition 40, would greatly improve our understanding of the ocean, which would benefit the sustainability of our valuable marine resources, as well as society in general.

The dire situation evident this year also emphasizes the importance of genetically-diverse captive broodstocks, such as those at Warm Springs Dam on the Russian River and at the Fisheries Ecology Division laboratory (Southwest Fisheries Science Center, National Marine Fisheries Service) in Santa Cruz, which supplies mature fish and their gametes to Kingfisher Flat Hatchery, operated by the Monterey Bay Salmon & Trout Project, in the Scott Creek watershed. With fluctuating, and sometime adverse, ocean conditions that impact salmon over broad areas, maintaining a pool of broodstock derived from extant populations, may be the last best effort at preserving these stocks until more favorable conditions are reestablished.

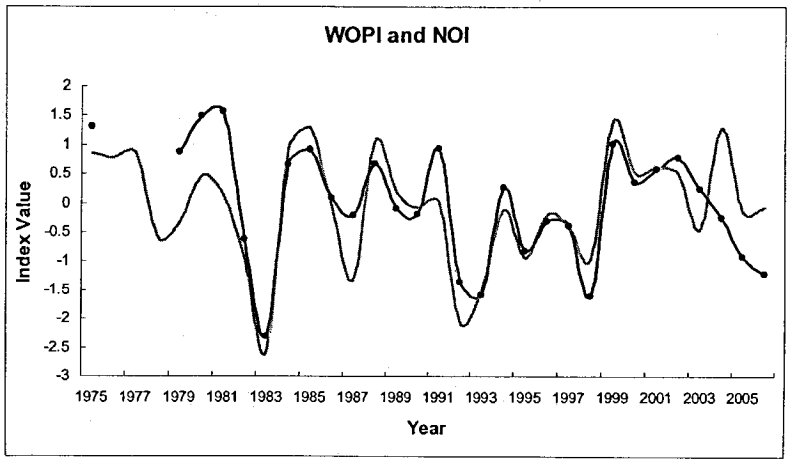

Figure 2. The Wells Ocean Productivity Index (WOPI, black line) and the Northern Oscillation Index (NOI, grey line) between 1975 and 2006. Values derived for March-August. Note the close fit between the larger-scale NOI, which represents the strength of the North Pacific high pressure cell, and local-scale WOPI, except for recent years (2004-2006), suggesting a change in local conditions. Low values indicate conditions for lower biological productivity.

Ms. BORDALLO. Thank you very much, Mr. Peltier.

The Committee has heard your stories. Many of them are shocking situations that you are in, and most of you, all of you, are in the fishing industry. So I have learned a great deal from just listening to you, and I know that the Members now, some of them

are back, and they would like to be allowed to ask a few questions. But, first, I ask unanimous consent that Mr. Wu, David Wu, be allowed to join the Subcommittee on the dais and participate in the hearing. Hearing no objection, so ordered.

Now, I would like to ask the gentlelady from California, Mrs. Lois Capps, who is a Member of the Subcommittee, to ask her questions.

Mrs. CAPPS. Thank you, Madam Chairman, and I want to thank the witnesses for their testimony, particularly of the fishers and those related to the fishing industry, for your eloquent testimony today. I want to ask three of you for your response: one a fisherman, a small business owner, and Laura regarding the restaurant. So I want your answers to be brief enough that we can cover all three areas. Everyone is affected by this.

Commercial fishers, as I hear you say, are struggling to stay afloat. Some shift to other fisheries like, in my area, crabbing, but many will have to survive on disaster aid checks and hopes that the next season will be better. It is difficult to shift gears, as you know and have said. New licenses, gear types, and boats are needed.

So, Mr. Kawahara, how will the salmon closure affect other fisheries? What impacts do you expect on the fishing industry as a whole?

Mr. KAWAHARA. Madam Chairwoman and Congresswoman Capps, I think guys will go into other fisheries. Most likely, they will concentrate on albacore tuna this year. That is what I hear. The other people who have Dungeness crab permits will keep their gear in the water longer. That is it quickly.

Mrs. CAPPS. It is really hard. As you impact other fishermen, there is more competition, and there is less to go around. Am I hearing you say that?

Mr. KAWAHARA. That is correct. The Pacific Fisheries Management Council is currently struggling with competing the FMP on albacore, and, right now, we do not have an overfishing——

Mrs. CAPPS. So this disaster with salmon affects every aspect of the fishing industry.

Mr. KAWAHARA. That is correct. There is displacement into other industries.

Mrs. CAPPS. Thank you very much.

Now, Mr. Pool, as you know, and as you have stated, fishers are not the only ones struggling because of the decimation of the salmon. It has a ripple effect throughout the whole economy of the area that is affected. Boat crews, suppliers, and others are hurting, too. They are not getting as much attention, you folks, because what little attention there is, is being paid to the fishermen, which I know you would have us do, but let us know the ways that we could provide, and should be providing, relief to other related workers who are also impacted in this situation.

Mr. POOL. Is that a question for me?

Mrs. CAPPS. Yes, it is, Mr. Pool.

Mr. POOL. I would hope that others other than direct commercial fishermen can participate in the emergency funding. Certainly, my own business, we have been in business 30 years. I have never seen more red ink than I have looked at in the last year or two.

We make salmon equipment, and if there are no salmon, there are no sales. So our situation and a lot of others—guides, charter operators—they are all terribly impacted. Up the Sacramento River, there are a lot of guys who no longer have anything to employ them. So if that money can be spread somewhat, that would be very helpful.

Mrs. CAPPS. So the economy of the whole region, the West Coast region, is impacted, I am hearing you say, up and down the rivers and all along the shore, and really a lot of this feeds into tourism, too, doesn't it?

Mr. POOL. Actually, it does. Starting all the way from your area up through Fort Bragg, Bodega Bay, the coastal communities and the river communities and the delta communities are the ones that are going to be hit the hardest, along with industries like the boat industry that serves all of those communities.

Mrs. CAPPS. Thank you. That is eloquent. I want to now turn to Laura Anderson. I was engaged by your eloquent testimony. You know, I have to focus on Morro Bay in my district because that is the most poignant for me: a small fishing community that I talked about earlier.

One of the things that people like the best about Morro Bay, and they come from far and wide, is that you can still eat the catch of the day at some of the restaurants right on the waterfront. It is fabulous. But as much as we like to eat the fish right off the boat, the opportunities for that are not as frequent as they once were. How can we continue to ensure that restaurants like yours can provide local, high-quality fish to customers?

The reason I ask you this, as well as Mr. Pool, is because we need to ensure that all stakeholders are at the table when decisions that impact stocks are made. I am sure the fishers would agree with this. Thank you.

Ms. ANDERSON. Thank you for the question. Certainly, we will be pushing marketing efforts toward underutilized species. Black cod, I think, will be a major contributor to our coastal economy this year, and it is going to take some work to get consumers used to eating that in substitute for salmon.

In that same vein, I know some restaurateurs will be sourcing salmon from Alaska and from other places. There are a lot of businesses like mine that that is simply not an option. Most high-minded, seafood restaurateurs would not be caught with foreign salmon in their restaurant at all. It would be a terrible thing, but, for me, even buying Alaskan salmon is really a challenge. The name of my business is Local Ocean Seafoods. People come there for an authentic experience.

When Joel and his other skippers come into the restaurant and sit down and eat, and they are elbow to elbow with the tourists and the visitors, it creates a very unique experience that is just irreplaceable. Salmon is integral to that, and it is something that we will not be able to re-create without having the fishery.

Mrs. CAPPS. Thank you very much. That was beautifully said. You have to know that you have some allies here. This is a part of the American life that we are determined to see preserved. Thank you. Thank you, Madam Chairman.

Ms. BORDALLO. I thank the gentlelady from California.

Now I recognize Mr. Wu. He was here earlier this morning, and I have overlooked you, and I am sorry, David. So please proceed.

Mr. WU. Thank you, Madam Chairwoman. I guess the point of my question or statement is really directed at the former panel, and I wish they were still here, but some of them are in the room. But members of the current panel may have opinions on this also.

What I have observed during my nine or 10 years now in the U.S. Congress is a changing cavalcade of crises rotating between the major river basins of the West Coast—the Sacramento-San Joaquin system, the Klamath system, the Columbia River system—and the explanations that we have been given just do not seem to make sense. The explanations of fisheries policy and the closures and the water management in the river systems just do not seem to make sense when you try to focus on the data.

It occurred to me, as I was trying to make sense of this, that what locks it into place is, if you stop trying to make scientific sense of this, and then just kind of realize that there is a political layer between the scientists and the regulators and that these decisions are really politically driven and that they are driven to help those folks who have been helpful to the administration and hurt those folks who have not been helpful to the administration. Once you look at the changing cavalcade of regulatory approaches, all of a sudden, then the picture kind of snaps into focus, and it makes sense. At least, that is the way it seems to me.

I would love to hear from the members of the prior panel about the intervening layer, how much input the scientists have, as opposed to the folks who are in the political layer, but perhaps some members of this panel have some opinions on that topic also, and perhaps we could hear from some of the fishing folks before we hear from some of the agricultural folks.

Why don't we start at this end and go forward? I think the gentleman in the middle had his hand up first.

Mr. KAWAHARA. Thank you, Congressman Wu. Concerning high-level, political interference in the fisheries management of the West Coast, in 2006, I believe it was, when the Pacific Fisheries Management Council was considering an emergency rule to provide for a fishery on robust Sacramento stocks and almost nonexistent Klamath stocks, the emergency rule would have required us violating our spawning escapement goal for the Klamath by 5,000 fish.

I witnessed the director of NMFS Northwest running around the halls with his staff, complaining that the White House Council on Environmental Quality was constantly e-mailing him, on what topic, I do not really know; however, it does not seem to me that the decision was being made locally, having overheard that.

Mr. WU. Thank you for that very interesting point. Yes, sir.

Mr. POOL. Richard Pool again. I think you are exactly right. Our conclusion, a couple of years ago, was that fishermen have traditionally been terribly unorganized. They are not organized at all, and the political process is against us. Our adversaries have plenty of money and have a lot of lawyers. They have a lot of lobbyists, and they are after your attention daily.

That is why we organized this Water for Fish political campaign. Fishermen now can go on a Web site. They can register. We have their e-mail. We can communicate with them. We now have the

biggest database in California of fishermen, and they are madder than hell. We have finally given them someplace to go to organize politically so that we can let you folks know and, hopefully, make it politically possible to move some decisions in our direction.

Mr. WU. Thank you very much. Yes, sir?

Mr. PELTIER. I would disagree with you on both counts.

On the first, that nothing has happened, when I look at the——

Mr. WU. I did not say nothing has happened. I said there has been a cavalcade of disasters and that there has been a set of politically driven decisions. That is what I said.

Mr. PELTIER. I will get to the politics second, but, first, we have seen dramatic reductions in our water supply, directly driven by Biological Opinions. We have lived, since 1992, with 40-percent cutbacks on a pretty regular basis. This year, we have a 55-percent cutback. The State Water Project, which serves Southern California, has a 65-percent cutback, fish driven.

So we have seen dramatic changes, in addition to the billion dollars that has been spent on ecosystem improvement and the science. So there have been dramatic changes.

On the science question, I have a very different perspective. Having been a political appointee in this administration, I was amazed at the lack of political involvement with scientific issues. There was an aversion and a fear in the distance, and you heard Mr. McInnis talk about the Biological Opinions were done at the field level, exactly the case.

Our frustration is not political meddling. Our frustration is, in a system where a mid-level biologist, working with very uncertain information, with wide degrees of opinion in the scientific community, can land in a place and say, "This is it," and any questioning of that is, "Oh, you are tampering with the science." The uncertainty is so dominant that we have to live with that I think the arm waving about bending the science ignores the fact that the uncertainty and the variability of scientific opinion is enormous.

Mr. WU. Well, is it true that NOAA requested that the U.S. Fish and Wildlife staff be excluded from commenting on the BiOps?

Mr. PELTIER. I do not know. I have no knowledge of that, what you are referring to.

Mr. WU. Uh-huh.

Mr. PELTIER. I am aware that the inspector general of NOAA did carry out an investigation and found what they thought were problems and suggested that the agency ought to take a new approach in developing Biological Opinions. One of those, I think, is going to be horribly destructive to the whole process, and that is this notion that they should peer review the Biological Opinions. There is such a fast pace of new Biological Opinions being developed, court decisions. We are in a horrible world of uncertainty, and——

Mr. WU. Let us engage on that topic just for a second.

Mr. PELTIER. OK.

Mr. WU. If peer review slows the process down, doesn't it slow the process down even more to have a series of BiOps that are subsequently rejected by the courts as inadequate under law?

Mr. PELTIER. That is a fair statement, but I do not think that peer review of a Biological Opinion is going to result in an opinion

which is any more safe or more immune from court action than the agencies were.

Mr. WU. Mr. Kawahara was referring to White House biologists e-mailing folks on the West Coast. I thank the indulgence of the Chair.

Mr. POOL. Me, too.

Ms. BORDALLO. Your time is up, the gentleman from California, but we will get back to you, if you would like a second round.

I would like to recognize Mr. Miller from California.

Mr. MILLER. Thank you. Jason, that is an interesting response, except it just does not jibe with the history of what took place in this agency and what the courts found out, what the investigations have found out, what this Committee found out, and what the Department of the Interior admitted to.

They had a political appointee trampling all over the evidence here, e-mailing her friends, letting her attorneys in on decisions and conversations, and it went for an extensive period of time. She changed no to yes and yes to no. She was not a scientist. She had no authority. I mean, she had authority. She had no background here. Huge conflicts of interest. That is the public record.

To suggest that there was not enough meddling, the record would also suggest, from the vice president down, people were meddling in the Klamath or in the delta or elsewhere. It does not seem to be much open for a debate.

Mr. PELTIER. Do you want my disagreement?

Mr. MILLER. Well, you can, but that is sort of the public record. That is why we are back. We are back at the beginning here. We have blown several years now trying to deal with fixing the delta, but the court looked at it, and, you know, you look at the language of the court, and you look at the underlying actions that were taken, and it is a scandal.

So now we are back, all over again, starting over, and, you know, it would probably be pretty sensible, given the past history, unfortunately, of the good work of a lot of scientists that probably you are going to have to peer review because the system has got its credibility right out on the table here.

Mr. PELTIER. Mr. Miller, unless it was informally, over a beer or something, I do not think I would ever take you on by trying to argue this issue because you are well prepared. However, I have a very different perception and perspective on——

Mr. MILLER. I am just talking about the public record. It is out there on the public record.

Mr. PELTIER. I agree. I have a different view of the public record and what the public record says and what——

Mr. MILLER. That is fine, then. OK. But that is a different answer than you gave Mr. Wu, the suggestion that somehow this did not take place.

Mr. PELTIER. I do not want to get too specific, but when we look at the salmon Biological Opinion that Judge Wanger found defective, his focus was on, I believe, the primary focus was on the way it dealt with temperature control target points in the Upper Sacramento River and the way it failed to deal with the climate change, and those are things that are being remedied in the development of the new Biological Opinion.

Very importantly, though, he let stand a very important part of that Biological Opinion, which was the adaptive management approach that NOAA Fisheries had identified and included because, in recognition of all of the variability, all of the uncertainty, that was let stand.

I am not going to argue the big case, but I am happy to look and deal with the very specific issues, both in the court case and in the process.

Mr. MILLER. Mr. Pool and Mr. Thomas, are you involved in the habitat, the Bay Delta Conservation Plan or Habitat Conservation Plan? That is what I would know it as.

Mr. POOL. Is the question to me?

Mr. MILLER. You and Mr. Thomas.

Mr. POOL. No. In fact, I do not know of any fishermen or fishing interests that are involved.

Mr. MILLER. Did you ask—to be involved?

Mr. POOL. No. I am trying to run a business, for the most part.

Mr. MILLER. Well, has anybody in the organization?

Mr. POOL. No. We have had some very minor interaction. Mr. Peltier and I have known each other for some time, and we talk from time to time, but that is the limit of it. I do not know of anyone else that is involved. I am not sure we have been invited formally.

Mr. MILLER. Mr. Thomas, have you been involved?

Mr. THOMAS. Thank you, Congressman Miller. No, I have not been. For the last 30 years, I have been deeply involved in the Federal end with the Pacific Fishery Management Council, and now that I am out of business this year, I will have some time to devote to issues like this, and if my association or myself was asked, we would certainly get involved with the committees and stuff.

Mr. MILLER. But the association has not asked to——

Mr. POOL. No, no, we have not, sir.

Mr. MILLER. Don't you think you should?

Mr. POOL. I think we should, yes. I definitely do.

Mr. MILLER. Jason?

Mr. PELTIER. I am deeply involved in the development of the Habitat Conservation Plan. The fishermen would certainly be welcome. We have a steering committee that is made up of the water users, environmentalists, agencies, Farm Bureau, that meets every other Friday from nine to noon, about. There are about 80 people in the room. That is kind of the main body that drives the development of the Habitat Conservation Plan. We have a biological working group and various working groups that could benefit from the engagement of the fishing community. There is no doubt about it.

Mr. MILLER. I would hope, Mr. Pool and Mr. Thomas, that you would consider that an invitation——

Mr. POOL. I sure will.

Mr. MILLER.—and see about engaging them. I am not saying you personally, but the association or somebody because, obviously, many members of this panel represent communities that are impacted by the actions on the fisheries, and I think that that group is going to have considerable say in how we rethink the operation of the delta. So I think that would be important.

Mr. POOL. Well, I certainly agree with you, Mr. Miller, and I will contact Mr. Peltier and get some information on the meetings and see what we can come up with to get some representation.

Mr. MILLER. Thank you. Thank you. Thank you, Madam Chair, for the time.

Ms. BORDALLO. I thank the gentleman from California, Mr. Miller, and now I would like to call on Mr. Costa from California for any questions he may have.

Mr. COSTA. Thank you very much, Madam Chairwoman.

Mr. Pool, I was looking with great interest on your testimony and the charts that you provided us. You made reference to all three of them, but, on page 10, you were talking about the recovery, and, of course, what we have here is the peaks and the valleys. It almost looks like the housing crisis in the country over the last 20 years.

The year 1992 was really kind of the end of the drought that we had in California, if you remember correctly. It was a six-year drought, and you cited, in your testimony, the recovery that took place, and I will assume that your numbers are the right numbers, and, up until 1997, that recovery continued, and then there was obviously something happening for a time period, for a year and a half, for two years, where there was another decline in the rise and the fall of the Central Valley Chinook salmon returns.

Then it began, sometime in 1998, late 1998, to increase again, in terms of the returns, and it continued at, actually, a very impressive, when you look at the entirety of the schedule, increase that went all the way and extended to 2002, so for a period of five years, approximately. What do you attribute that to?

Mr. POOL. There are several things. As you can see on the chart, the declaration of the winter run as being on the endangered list in 1990 triggered a number of actions. We give NMFS and the fishery agencies a lot of credit for identifying the right projects, for getting in firm permits in the right places. They did a good job. And then there are four major projects that, in total, accounted for about a billion dollars: the temperature curtain at Shasta; the Glen Caloosa fish screens; the Iron Mountain Superfund Site, which was poisoning the upper river; and opening the Red Bluff Dams. Four major, major projects, along——

Mr. COSTA. Do you think that some of that money that we provided at the state level with Propositions 96 and the Federal dollars helped as well?

Mr. POOL. All of that helped. Sure. The CVPIA money helped. There are a lot of things that helped in here. We were ecstatic on the rise of this. Ocean conditions were generally favorable in this period of time. So a number of things, and it kind of proves to us, if you get conditions right, and particularly the freshwater side of things, salmon can respond and will respond.

Mr. COSTA. At the same time, I look at another chart that was submitted by Mr. Jason Peltier on the amount of delta outflow to the banks and traces the export of water, upstream consumptive use, and then delta diversions. What it basically shows is that, with some exceptions, from 1975 until 2005, the export of water, with some changes, has remained relatively the same. I am sure

Mr. Peltier will show you his chart, if you are interested in looking at that, if you have not seen it.

It just seems to me that there are a number of contributing factors, and I think we need to figure out, and I would urge you to participate in the Habitat Conservation Plan, my two fishermen friends from California, because I think that would be helpful in this dialogue.

I do not think it does any good, us blaming each other for the problems. We can play that game, and, with some of my colleagues, we have played that game. I try not to play that game. You can blame me, you can blame them, you can blame the other guy, but, at the end of the day, we are all in this together, and it just seems to me that we all have, you know, interests that are compatible at the end of the day.

I do not want to deprive fishermen of the ability to enjoy fishing, whether it is for recreational or commercial purposes, and I am one of those recreational boaters in your other graph, so I pay my boating license, and, at the same time, I think you folks like to eat. So having a viable agricultural economy in California, I think, is as important.

Let me ask Mr. Peltier, do you have any opinion on the specific suggestions that were raised by Mr. Thomas and Mr. Pool on suggestions for improving fisheries?

Mr. PELTIER. A curious aspect of this hearing is we are not really talking about "So what should we do?" very much, and that is why Mr. Thomas' list of 18 specific items is helpful and is worth looking at. I have to say, the 18 specific actions that he suggests, I am probably there on 15 of them. Three of them, I have a problem or a concern with or question how well it work, given the cost.

Mr. COSTA. So let us repeat that for the record. Of the 18 suggestions that Mr. Thomas suggested, you think that 15 of them, you could agree on and implement.

Mr. PELTIER. Exactly.

Mr. COSTA. Well, that is the kind of dialogue and the kind of effort I think we need to be pursuing, frankly.

My time has expired, Madam Chairwoman. I will wait for the second round, but I would like unanimous consent to submit for the record a letter and documentation for the Modesto Irrigation District that has been participating with other entities on what is referred to as the studies done on non-native fish species.

It is a part of the VEMP overall effort on the Sacramento-San Joaquin River Bay Delta estuary, and there are some very interesting biological efforts that are being taken to maintain the winter-run salmon and to make other efforts that would, ultimately, we hope, help improve the fisheries in the San Joaquin and Sacramento Rivers.

Mr. COSTA. Without objection.

Ms. BORDALLO. Without objection, so ordered.

Mr. COSTA. OK. Thank you.

Ms. BORDALLO. I wish to thank the gentleman from California. There is an awful lot going on up here, so please excuse me.

I would like now to recognize the gentlelady from California, Mrs. Capps, for further questions.

Mrs. CAPPS. Thank you again, Madam Chairwoman, for allowing a second round of some more questions to be asked.

I want to focus my questions to Mr. Thomas, as you are part of the Pacific Fishery Management Council. Isn't it true that this council has made numerous recommendations to NOAA and to the Department of the Interior regarding flows and Biological Opinions and salmon protection issues?

Mr. THOMAS. Yes, Congresswoman Capps. I am a former member. I completed my last nine-year term as an active council member in June of 2006. In my 30 years on advisory panels and 13 and a half years as a voting council member from California, through our habitat committee, we had many recommendations on environmental issues, water and all of the things that affect our valuable salmon resource, and we did make many recommendations to NOAA and different agencies on the problems that we saw.

Mrs. CAPPS. Right. During the past few years, just as you were leaving, or maybe you have kept in touch with some of the proceedings since you were no longer an active member, does the council believe that the concerns that the council raised were adequately addressed and incorporated into Biological Opinions that were developed? In other words, do you feel like you were really a partner, at any level, with the decisions that were made representing the community.

Mr. THOMAS. Well, I cannot speak for the entire council, but, as a very active council member, I think most of us felt that we were only there in an advisory capacity, and what we recommended was not always initiated to our satisfaction.

Mrs. CAPPS. You were left with no recourse. Let me get specific. We have on the record a summary of some of the council recommendations. For example, the council recommending to reinstate ESA, Section VI, consultation, as soon as possible. This recommendation was made to DOC and DOI. Do you recall if this was ever responded to or acted upon?

Mr. THOMAS. Well, I cannot remember the exact year now, but when the ESA listing came about, it was acted on, and we had closed seasons and lots of restrictions that came out of it, but they were basically all on the fishermen, except what was done at the pump level in California, which there is some variable where they still can take some winter-run salmon when they are outmigrating.

Mrs. CAPPS. So you do not believe the ESA——

Mr. THOMAS. Well, it has been productive, as pointed out by Mr. Pool's chart showing where there have been increases. The winter run, at the time that it got listed, was 191 fish, adults, returning. I do not have the figures off the top of my head for this year's return, but I think it was somewhere in the 4,000 level. It was just a little bit higher prior to that. So what they have done has been successful for the winter run.

Mrs. CAPPS. OK. When they invoked Section VII, it was successful.

Mr. THOMAS. Yes.

Mrs. CAPPS. Let me mention about four more, and then either you or Mr. Pool might want to respond. I want to find out if the council recommendations were taken seriously, if they were acted upon, if you felt like you were being listened to. For example, "Re-

initiate coho and Chinook salmon EFH consultation," this request both to DOI and DOC. "Establish a flow management advisory committee as soon as possible. Complete the SEIS and implement the Trinity River ROD in a timely fashion," and, finally, "To provide the council an opportunity to comment on the EIS for the Long-term Operations Plan."

These were some of the recommendations I have on record here that were made by the council to the various agencies, and what I want to get from you who are in the water or involved, did you feel like you were being listened to? Was there a response that you felt was taking you seriously?

Mr. THOMAS. Well, we were certainly listened to, at a council level, with their representatives because they heard our recommendations.

Mrs. CAPPS. But were there actions taken?

Mr. THOMAS. In regards to the actions, the Trinity River, with the changes in where some of the water went, is much better than it used to be. I cannot comment on the others. I am not up to speed on that.

Mrs. CAPPS. Does anyone else on the panel wish to do that? All right. No one else? All right. Thank you. I was trying to get at the purpose of the council, which is to be the stakeholders making a difference, and I wanted a reaction to see if you felt like this was something—clearly, there is something that went wrong in the outcome, and how can we strengthen this relationship?

Mr. THOMAS. I think the general belief, if I can make another comment——

Mrs. CAPPS. Sure.

Mr. THOMAS.—with the stakeholders' group or fishermen, myself as well as all of the commercial fishermen and stuff, is that if the decisions can be made locally or in the region without any political influence coming from someplace, it seems to work very well, but some of the things get changed when they get back to this venue back here, not Congress, but the national level.

Mrs. CAPPS. I hear you. Thank you very much, Madam.

Ms. BORDALLO. I thank the gentlelady from California, and I would like to recognize Mr. Costa again for further questions.

Mr. COSTA. Thank you very much, Madam Chairwoman. I, once again, want to thank you, as we draw—I think this hearing is coming to a close—for your time and your efforts and patience and the Committee staff for the hard work of both the minority and the majority staff on what I think, as I said at the outset, is a timely and an important hearing.

I have some additional questions that I want to raise, but I will submit them for the record with the 10-day time period for the witnesses, both on the first panel and the second panel. But I do have a concluding statement, and it is this, and I am going to, once again, refer to Mr. Thomas' chart here on page 10. This is yours? Yes.

That is what this chart tells me is that we can still export water south of the delta and provide water for other important purposes in the State of California, as we talk about the crisis impacting the Sacramento and San Joaquin Rivers, and still improve the quality of fisheries. We did it over a period from 1992 to 1997. We had a

decline, and then from 1998 to the year 2002, a little past that, we maintained the increases.

So it really does no good to blame each other. What we really need to do, and, Mr. Peltier, I think your comments really, at the end of the question I asked you, were instructive for all of us.

This Subcommittee, and I thank you for allowing me to sit in on the Subcommittee that deals with fisheries, and another subcommittee that I am a member of, the Subcommittee on Water Resources, frankly, ought to look at holding some joint hearings out in the affected areas. We ought to look at coming together and figuring out how we can, together, look at solutions that involve the multiple factors that are impacting the decline of the fisheries on the West Coast and get beyond and get over it, this sort of political rote that we are just accustomed to doing because that is the way we do things, of blaming other constituencies that may not be our constituencies.

Frankly, it does us no good, and it does not solve the problems that we can solve if we sit down together like, I hope, our fishermen friends will take advantage and become a part of this Habitat Conservation Plan and meet every other Friday in Sacramento with the other group, or wherever you are meeting, to work on that.

I do not know, and I do not pretend to have the expertise on the areas of the Klamath and the Columbia. Obviously, there is an effort to bring together a settlement agreement on the Klamath to make up for the mistakes that were made there, and I think we should acknowledge that settlement agreement, just as we have done on the San Joaquin River. We had a lawsuit for 18 years on the San Joaquin River, and we moved legislation last week through the U.S. Senate that Senator Feinstein had. We moved a bill out of the entire Committee last October that I carried.

We have to find viable, common-sense, cost-effective solutions that take into account all of the multiple factors and all of the interest groups that are a part of this and get past the blame game.

So, Madam Chairwoman, in closing, I want to thank you again. I want to suggest that you and Chairwoman Napolitano, two strong, powerful women who chair both of these Subcommittees, figure out how we can put our heads together and maybe do something out on the West Coast and continue the dialogue, but do it on a constructive basis, do it where we are asking folks not to point fingers at the past, but how we can move forward ahead on constructive solutions that we can all agree upon that will restore the fisheries and, at the same time, not put various groups at odds with one another. Thank you.

Ms. BORDALLO. I thank the gentleman from California, Mr. Costa, and I think the gentleman has made some very good points. I truly believe in sight hearings. I think this is one way you can really learn, and I also thank the gentlelady from California also for being with us here today.

To me, I believe in sight hearings, by the way, and I think possibly taking it on with another committee overseeing would be good. Joint hearings; these are good. So I am going to look very carefully at this, and I want to say, as Chairman of the Sub-

committee, it has been a very informative hearing today, and I thank all of you, as participants.

I have only been the Chair of this Committee since January of this year, so I must say, after listening to all of this, it really makes me wonder why it has taken so many, many years, and so much money has been spent on both management and science, and we still seem to be in the same situation.

To solve these challenges, it seems to me that rebuilding salmon stocks is going to require all sides to take a hit, and hard decisions will have to be made, decisions that I am not sure NOAA has the political backing to be able to make. It is going to be incumbent upon this Committee to continue oversight on the issue and to continue pressing NOAA to lead the way in rebuilding and protecting our salmon.

Before I close, I want to say, salmon happens to be my favorite food, and I want to thank you all again for participating, and the Members of the Subcommittee that may have some additional questions for the witnesses; we will ask you to respond to these in writing. The hearing record will be held open for 10 days for these responses.

It has been asked that the Members have an ability to submit other materials and statements for the record. No objection, so ordered on this.

There is no further business before the Subcommittee. The Chairwoman again thanks the Members of the Subcommittee and our witnesses, and the Subcommittee stands adjourned.

[Whereupon, at 2:28 p.m., the Subcommittee was adjourned.]

[Additional material submitted for the record follows:]

[A statement submitted for the record by The Honorable Anna G. Eshoo, a Representative in Congress from the State of California, follows:]

Statement of The Honorable Anna G. Eshoo, a Representative in Congress from the State of California

Thank you, Chairwoman Bordallo, for holding this important hearing and for inviting me to participate in today's hearing about the collapse of salmon fishing on the West Coast.

The complete salmon fishing ban in California recently announced is the single largest closure of a fishery on record in our country. It is historic and totally unprecedented. We must act now to address this critical situation which is estimated to have an economic impact between $15 million and $25 million per year in my Congressional District alone.

Pillar Point Harbor is the hub of the fishing industry in my District. The parking lots should be full this week for the opening of the salmon season but instead they are practically empty. There is even discussion about other ways to utilize the space since no one will be coming to fish. The losses of docking and mooring fees, launch ramp fees, and sales to the fish buyers and concessionaires are expected to cost the Harbor between $200,000 and $400,000 in direct revenue this year. This is a dire situation with another closure or severely limited season predicted next year. The impacts of this closure stretch far beyond the fishermen, and I'm pleased that the panels today reflect the diverse industries that will absorb the ripple effects of the closure.

I am deeply concerned about the pattern of NOAA's Biological Opinions being thrown out by the courts. It is very disturbing that scientific conservation plans have been invalidated and cast aside by judges. We must develop and implement robust strategies to enable salmon and our other vital natural resources to thrive. Biological Opinions with strong recommendations based on the latest scientific data are an important element of developing sound policy to protect our fisheries, but

now we call into question the reliability of those scientific studies. We must carefully examine what is wrong with the preparation and review process for the Biological Opinions to ensure that NOAA is able to adequately protect and restore the salmon and their habitat.

I look forward to today's hearing and once again I thank Chairwoman Bordallo for extending the legislative courtesy for me to participate in this important hearing.

[A statement submitted for the record by The Honorable Clifford Lyle Marshall, Chairman, Hoopa Valley Indian Tribe, follows:]

Statement submitted for the record by the Hoopa Valley Indian Tribe
Presented by Clifford Lyle Marshall, Chairman

I. Introduction.

Good morning Madam Chairman and members of the Resources Committee. My name is Clifford Lyle Marshall. I am Chairman of the Hoopa Valley Tribe, California. I appreciate the opportunity to submit written testimony on this important issue.

We urge this Committee to look beyond the immediate crisis of the West Coast fishery closure and examine the institutional problems that have produced the crisis. The Klamath/Trinity River Basin is a major factor in ocean harvest management. You will find repeated examples of under funded restoration efforts and politicized decision-making on the actions needed to recover irreplaceable fish runs.

The Hoopa Valley Tribe is deeply involved in efforts to remove old dams, protect stream flows for salmon and other fish, and improve water quality in the Klamath/Trinity River Basin, including fishery and habitat restoration efforts in the Trinity River. The Trinity River is the largest tributary of the Klamath and both rivers flow through our Reservation. The Trinity was devastated by the construction and operation of the Trinity River Division of the Central Valley Project. The Hoopa Valley Tribe also supports the reintroduction of anadromous fish to the Upper Basin of the Klamath River, which has been blocked by dams since 1917 when Copco Dam was built.

Our Hoopa Fisheries Department is charged with carrying out the Tribe's policy to protect and restore the fish runs upon which our survival depends. Our Department employs fisheries scientists and managers who are working closely with other fisheries agencies to use the "best science available" to address fisheries conditions. We urge the Committee to instruct the Commerce and Interior Departments to root out the political bias that has overwhelmed their fisheries and water agencies' activities in the Klamath and Trinity River Basins and instead listen to its scientists and other fisheries agencies such as ours.

The people of the Hoopa Valley Tribe have resided at the confluence of the Trinity and Klamath Rivers for thousands of years. The Trinity River represents the largest tributary to the Klamath and flows through the heart of the Hoopa Valley Indian Reservation. The Hoopa Valley Indian Reservation, established in the Tribe's ancestral homeland in 1864, is the largest Indian reservation in California, comprising approximately 100,000 acres. The fisheries resources of the Klamath and Trinity Rivers have been the mainstay of the life, culture and economy of the Hoopa Valley Indian Tribe. Our fishery is "not much less necessary to the existence of the Indians than the atmosphere they breathe," Blake v. Arnett, 663 F.2d 906, 909 (9th Cir. 1981). Since a stretch of the Klamath River flows through the northern part of the Reservation and since it is the sole waterway by which salmon, steelhead, sturgeon and lamprey migrate to and from the Trinity River, this river plays a vital role in the health of the Tribe's socio-economic and cultural livelihood. The Tribe's adjudicated property rights to take these and other fish to sustain a livelihood are held in trust by the United States pursuant to the Hoopa Yurok Settlement Act (25 U.S.C. § 1300i-1). As explained in a Memorandum from John D. Leshy, Solicitor of the Department of the Interior to the Secretary of the Interior (Oct. 4, 1993), cited with approval, Parravano v. Babbitt, 70 F.3d 27 (9th Cir. 1995), "the tribes are entitled to a sufficient quantity of fish to support a moderate standard of living, or 50% of the Klamath fishery harvest in a given year, whichever is less." Today our members continue to follow exacting cultural practices to protect individual runs of fish and to celebrate the bounty of the rivers that gives life to our people.

The Klamath River Basin has been plagued by poor federal decisions on water quality and other fishery habitat conditions that preclude sustainable, robust fish populations. Fishery and habitat improvement projects on the Trinity River have fallen far behind schedule. The resulting depressed fish runs have made it impos-

sible for our people to subsist on fish. The habitat degradations on the Klamath led to the well-known events of the 2002 fish kill and related 2005 and 2006 commercial salmon fishery closures off the coasts of California and Oregon. The Hoopa Valley Tribe is firmly convinced that the bulk of these problematic habitat conditions could have been remedied, and thankfully still can be, but only through water resource management and environmental restoration genuinely based on the best available science. We thank the Committee for holding a hearing on this subject because our rivers and our fisheries have been victimized by the political influence of the George W. Bush Administration that has distorted agency science and decision-making. This testimony provides our perspective on recent subversions and corruption of science and funding decisions on the part of apparently biased federal agencies in the Klamath Basin. We need decisions on diligently pursued, openly shared, and independently reviewed information acquired through best available science.

At present, there are three major federal water management projects in the Klamath River Basin that must be addressed to restore fisheries: the Trinity River Division of the Central Valley Project, the federal Klamath Irrigation Project managed by the Bureau of Reclamation (BOR), and the Klamath Hydroelectric Project regulated by the Federal Energy Regulatory Commission (FERC). I will now discuss specific examples that illustrate how the Administration is failing to manage fisheries:

II. Trinity River and Central Valley Concerns.

Congress linked the Trinity River to the California Central Valley in 1955 with the authorization of the Trinity Division of the Central Valley Project (CVP). Act of August 12, 1955, 69 Stat. 719 (1955 Act). Construction and operation of the Trinity Division, which diverts water from the Trinity River to the Central Valley, devastated the Tribe's fishery. Within a decade of the Trinity Division's completion in 1964, Trinity River fish populations precipitously declined by 80 percent.

The landmark CVPIA in 1992 was intended fundamentally to change federal policy regarding the use of water resources developed by the Central Valley Project. Most significantly, it: (1) established fish and wildlife restoration as a co-equal CVP purpose with irrigation and other uses; (2) required contracts for CVP water to incorporate that policy, and (3) directed that the cost of repairing environmental damage caused by the development of the CVP be the financial responsibility of CVP contractors, particularly and explicitly with respect to Trinity River restoration. Public Law 102-575 § 3406(b)(23) ("Costs associated with implementation of this paragraph shall be reimbursable as operation and maintenance expenditures pursuant to existing law.") Section 3406(b)(23) required restoration of the Trinity River fishery to pre-project levels, but that directive has yet to be achieved.

In 2000, the outgoing Clinton Administration adopted the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement and Record of Decision (2000) (Trinity ROD). CVP contractors immediately sued to block implementation, hoping that the Bush Administration would withdraw its support for restoration. Sure enough, in 2003, the Department of the Interior and the Department of Justice (Interior and Justice) abandoned the defense of the Trinity ROD. Interior and Justice made that decision knowing that tribal fishery resources held in trust by the United States risked being lost. The Tribe was left to defend the ROD by itself.

Also in 2003, Interior and Justice sided with CVP contractors in attempting to set aside decades of peer-reviewed scientific conclusions about the scope and detail of Trinity River fishery restoration, especially water supply needs, by reopening the decision making process to consider providing less water than was minimally determined to be necessary for restoration.

In 2004, the Tribe defeated the CVP contractors' challenge to the Trinity ROD largely on its own: the 9th Circuit Court of Appeals ruled in the Tribe's favor and stated:

> The number and length of the studies on the Trinity River, including the EIS, are staggering, and bear evidence of the years of thorough scrutiny given by the federal agencies to the question of how best to rehabilitate the Trinity River fishery without unduly compromising the interests of others who have claim on Trinity River water. We acknowledge, as the district court highlighted, concerns that the federal agencies actively subverted the NEPA process, but our review of the EIS shows that the public had adequate opportunity to demand full discussion of issues of concern.
>
> Twenty years have passed since Congress passed the first major Act calling for restoration of the Trinity River and rehabilitation of its fish populations, and almost another decade has elapsed since Congress set a minimum flow level for the River to force rehabilitative action. Flow increases to the River have been under study by the Department of the Interior since 1981.

> "[R]estoration of the Trinity River fishery, and the ESA-listed species that inhabit it...are unlawfully long overdue."
>
> As we have disposed of all of the issues ordered to be considered in the SEIS, nothing remains to prevent the full implementation of the ROD, including its complete flow plan for the Trinity River. We remand to the district court for further proceedings not inconsistent with this opinion.

Westlands Water Dist. v. U.S. Dep't of Int., 376 F. 3d 853, 878 (9th Cir. 2004).

Notwithstanding the Court's recognition that restoration is long overdue, the BOR has persisted in under funding CVPIA restoration activities, which is causing significant delays in implementing the restoration program and exacerbating degraded fishery conditions. BOR could apply the CVPIA Restoration Fund to fully carry out Trinity ROD activities, but it chooses not to do so. BOR has disregarded the Interior Department's own budgeting documents, which were part of the formal Record of Decision on restoration issued in 2000, in refusing to seek or provide these funds. Just last week, BOR again proposed to depart from the Trinity ROD and reduce water flows in the Trinity for 2008. Only our Tribe's threats to sue got the Department back on track.

The Bureau of Reclamation has repeatedly refused to implement Section 3404(c)(2) of the Central Valley Project Improvement Act that requires long-term water service contracts to include environmental restoration provisions, particularly the obligation of contractors to pay for environmental restoration needed to remedy the damage caused by construction and operation of the CVP. In 2004, the Tribe filed an administrative appeal of that refusal, but Reclamation has never acted on the appeal. That same year NOAA issued a Biological Opinion that seemed to bless the long-term water service contracts. It was soundly rejected by the U.S. District Court in PCFFA v. Gutierrez, E.D. Cal. No. 06-cv-00245-OWW-GSA (May 2, 2008).

In response to requests from CVP water contractors to reduce charges being assessed to generate the Restoration Fund pursuant to Section 3407 of the CVPIA, in December 2006, the BOR and FWS established the CVPIA Program Activity Review (CPAR). The agencies established a workgroup as a forum for more detailed discussions of program assessment and performance measures with tribes, agencies, and stakeholders. Although an initial review was to be completed in 2006, the issuance of the final report continues to be delayed. In the meantime, the Agencies continue to conduct private negotiations with water contractors and other selected parties to allocate funding and water supplies to specific projects without having formal criteria for determining impacts on other CVPIA legal mandates. Some of these private agreements have put the Agencies in conflict with other CVPIA legal mandates and tribal trust obligations.

Section 3404(c)(2) of the CVPIA provides that, with regard to renewed water contracts, "the Secretary [of the Interior] shall incorporate all requirements imposed by existing law, including provisions of this title, within such renewed contracts." Section 3404(c)(1) provides similarly for interim renewal contracts pending completion of environmental reviews required by the CVPIA. The Secretary has consistently refused to include in interim or long-term contract renewals provisions consistent with the requirements in the CVPIA affecting the restoration of the Trinity River fishery resources that the United States holds in trust for the Hoopa Valley Tribe. The Bureau of Reclamation's interim renewal contracts and long term contracts do not include the cost of Trinity River restoration as a reimbursable operation and maintenance (O&M) costs. Nor do the Bureau's rate setting policies include this payment obligation as a component of the O&M rate.

The standard definition of O&M in CVP long-term renewal contracts, for example section 1.q of the draft contract with the Westlands Water District (No. 14-06-200-495A-LTR1), states: "Operation and Maintenance or "O&M" shall mean normal and reasonable care, control, operation, repair, replacement (other than Capital replacement), and maintenance of project facilities." Section 7(k) of that contract states further, in part, that "Rates under the respective rate-setting policies will be established to recover only reimbursable "operation and maintenance" (including any deficits) and capital costs of the Project, as those terms are used in the then-current Project rate setting policies...." Since enactment in 1992, the Bureau of Reclamation has failed or refused to incorporate the costs of Trinity River restoration in the CVP O&M and cost of service rate setting despite the express language of Sec. 3406(b)(23). By the same token, the Bureau has failed or refused explicitly to include general environmental restoration obligations established by the CVPIA.

The Trinity River Division of the CVP made possible the irrigation of lands of the San Luis Unit on the west side of the San Joaquin Valley. Of that land, 400,000 acres are poorly drained and underlain with salts and selenium that have been concentrated in irrigation drainage water. The result has been a toxic pollution that

accumulated in drainage reservoirs, named, ironically, the Kesterson National Wildlife Refuge, which became deadly attractions to wildlife. This double jeopardy to Trinity River fish and Central Valley wildlife remains a devastating impact of the Central Valley Project.

The CVPIA requires CVP contractors to acknowledge and accept in their interim and renewed contracts their environmental restoration obligations as a condition to future receipt of CVP water. However, the CVP beneficiaries have actively resisted their obligations and attempted to short circuit them. By letter of December 6, 2005, for example, the Northern California Power Agency and the Central Valley Project Water Association (CVPWA) submitted to the Assistant Secretary—Water and Science an "assessment" of the restoration activities under Section 3406 of the CVPIA and represented that progress on restoration had proceeded to the extent that a reduction in their financial obligation to pay for environmental restoration under section 3407 of the CVPIA was justified. They made this request just three years after the 2002 fish kill and, as it turned out, just months before the Secretary of Commerce declared the fishery resource disaster referred to above. The Department of the Interior rejected the request but undertook a process to determine how to establish when environmental restoration has been completed. The Hoopa Valley Tribe intervened in that process and insisted that, consistent with criteria established by the Office of Management and Budget (OMB) to evaluate the outcome of the CVPIA's environmental restoration programs, the review criteria include a quantification of the fish available for harvest upon completion of the Trinity River restoration effort. The prospect of clear, quantifiable outcomes and measures of restoration program accomplishment was not what the contractors had in mind and the CVPIA Program Assessment Review (CPAR) remains stalled, two years after its inception.

In the meantime, the Bureau has under-funded Trinity River restoration and sought to thwart the use of appropriations supplied by Congress above the President's budget requests to advance Trinity restoration. When legislation (H.R. 2733) to ensure Trinity River restoration funding was considered by this Committee on September 18, 2007, the Administration testified it would not support it.

In addition, the Administration continues to undermine the scientific standards for fishery restoration established by the Trinity ROD. The effects on habitat restoration have proven to be detrimental. The Hoopa Valley Tribal Council commissioned a scientific review of one of the most recently completed restoration sites and declared it a failure. The Tribe adopted resolutions (Nos. 08-02 and 08-03, January 7, 2008) adopting site design criteria, and rejecting the Vitzhum Gulch channel rehabilitation site in the accounting for progress towards the channel rehabilitation goals identified in the ROD. We urge the Subcommittee to advise the Administration to adopt and adhere to protocols for design and implementation of restoration activities that will be science-based, fully-funded, and cost-effective.

The CVPWA, which has a long, unbroken record of hostility toward Trinity River restoration, also testified against H.R. 2733. It took the position that, even though the Trinity River fishery has a senior priority to water that has been violated by diversions for the CVPWA's benefit, the CVPWA should not be required to subordinate its access to federal appropriations to repair the damage to the senior rights to fish and water that the United States holds in trust for the Hoopa Valley Tribe. The CVPWA's refusal to recognize its obligation to pay its fair share and pay it for so long as water is diverted from the Trinity River Basin is unjustifiable. This is particularly so with respect to including the cost of fishery restoration, propagation and maintenance as required by current federal law. The San Luis Unit water districts have the resources to meet this obligation. They just do not want to pay it.

In response to a request from Chairwoman Napolitano, among others, the United States General Accountability Office (GAO) reviewed the costs of repairing the environmental damage from west side irrigation and the outstanding accounts for irrigation development that water contractors still owed to the United States Treasury. "Bureau of Reclamation: Reimbursement of California's Central Valley Project Capital Construction Costs by San Luis Unit Irrigation Water Districts" (December 18, 2007). The GAO report states:

> According to Reclamation officials, San Luis Unit irrigation water districts have never received ability-to-pay irrigation assistance to reduce their capital repayment obligations. Such assistance can be provided to irrigation water districts when Reclamation determines that they do not have the ability to repay their share of capital costs.

Notwithstanding the well-documented, favorable financial status of the San Luis Unit contractors, the Bureau of Reclamation has refused to assess them or any other CVP contractors the full costs—as O&M expenses pursuant to CVPIA Section

3406(b)(23) or otherwise—of Trinity River restoration, an obligation they have irrespective of their financial status.

The GAO report included an investigation of CVP costs and the Bureau of Reclamation's accounting of them. The Hoopa Valley Tribe has attempted to do the same. On October 31, 2006, the Tribe forwarded a series of questions relating to the Bureau of Reclamation's Mid-Pacific Region regarding CVPIA restoration cost accounting. The Bureau has refused the Tribe's repeated requests for a response to those questions. We believe the responses are necessary to informed decision making on remedies to California's salmon fishery crisis, as well as the integrity of the Trinity River Restoration Program.

The Trinity River Restoration Program is based upon the 2000 Trinity River ROD and represents the best available science; it has been peer-reviewed and withstood aggressive challenges to disqualify it or substitute alternative programs that could not pass scientific muster. Today, all that stands between it and successful implementation are a commitment from the Administration and Congress to implement it and provide adequate funding for it. If the Trinity River program is not permitted to succeed, there is little hope for any serious solution to the broader fisheries and associated environmental issues facing California. The Trinity River program is like the miner's canary, which marks the shift from fresh air to poison gas in the political atmosphere of California water policy. Whatever solutions are designed for California water service, they should be constructed on the legal foundation of the CVPIA and with fidelity to the tribal trust responsibilities Congress has established in that law.

III. A Distorted Biological Opinion Helped Produce the Biggest Die-Off of Adult Salmon in Recorded History.

Recent tragic events on the Klamath River have seriously injured and continue to pose a substantial threat to the Tribe's federally protected interest in the Klamath and Trinity fishery. Between September 19 through 30, 2002, approximately 70,000 fish, over 95% of which were adult fall Chinook salmon, died as they began their fall spawning migration run up the Klamath River to the Trinity River and the Upper Klamath tributaries. See California Department Fish & Game, Sept. 2002 Klamath River Fish Kill: Preliminary Analysis of Contributing Factors (Jan. 21, 2003). A significant portion of the fish that died were previously allocated to fulfill the United States' trust obligations to the Tribe. Our Tribe's biologists and the California Department of Fish & Game have determined that the salmon mortality was primarily caused by low river flows, which provoked a disease outbreak. Those flows, in turn, were permitted by a biological opinion of the National Marine Fisheries Service which had been distorted through political pressure from the Administration.

The biological opinion at issue, the National Marine Fisheries Service's (NMFS) Biological Opinion regarding the Bureau of Reclamation's Klamath Project operations from June 1, 2002 through March 31, 2012 on Southern Oregon/ Northern California Coasts Coho Salmon, was issued May 31, 2002. The 2002 Biological Opinion was not the first and its flaws are best understood in context. In 1995, more than 20 years after enactment of the Endangered Species Act (ESA), the Bureau of Reclamation (BOR) started developing a biological assessment of the impact on fish resulting from its water diversions for irrigation purposes. In 2000, BOR issued an operating plan for the irrigation project, but it failed to seek formal consultation with NMFS as required by the ESA. The Pacific Coast Federation of Fishermen's Associations (PCFFA) sued to challenge BOR's action, and a federal court enjoined further BOR water diversions in violation of the ESA.

On April 6, 2001, immediately after the court's order in the first PCFFA case, NMFS issued the 2001 Biological Opinion concluding that the low flows proposed by BOR would jeopardize the continued existence of Coho salmon that would otherwise pass through our Reservation. The revised 2001 operating plan issued by BOR on the basis of that biological opinion was upheld by a federal court in Kandra v. United States, 145 F.Supp.2d 1192 (D. Or. 2001). However, at the instigation of Vice President Richard Cheney and other members of the Administration, the Interior Department sought review of the 2001 NMFS Biological Opinion by the National Research Council (NRC), an arm of the National Academy of Sciences. The NRC took up the matter with alacrity and in early 2002 issued a report saying that the reduction in stocks of native Coho salmon resulted from multiple interactive factors. The NRC concluded that analysis of recent year water flows alone would not support the proposed flows in the 2001 NMFS Biological Opinion. While only being narrowly correct, the NMFS relied on this representation as one of the factors in formulating a revised biological opinion.

In light of the public protests in southern Oregon surrounding the low irrigation water deliveries of 2001 and the narrowly framed NRC report criticizing the NMFS 2001 Biological Opinion that had called for such low water diversions, BOR initiated another formal consultation with NMFS to produce a new biological opinion. PCFFA and other environmental groups filed a new suit to challenge BOR's 2002 Interim Operating Plan, and the Hoopa Valley Tribe joined as a plaintiff.

As a result of Administration officials' support of BOR's objectives, BOR was able to overrule NMFS federal scientists such as Mr. Michael Kelly, former lead biologist on Klamath River coho, and dominate the agency process leading up to the NMFS 2002 Biological Opinion. Specifically, in April 2002, NMFS and BOR regional managers met concerning Mr. Kelly's draft biological opinion, which had again proposed specific river flow rates higher than those desired by BOR. BOR's manager persuaded NMFS that BOR should be responsible for providing only 57% of the flows proposed in the biological opinion under the theory that some irrigation in the Upper Klamath Basin is outside BOR's project. BOR claimed that a "working group" would develop the other 43% of the water flows needed by the fish. Moreover, BOR persuaded NMFS to divide the biological opinion into three phases so that BOR water diversions could continue at a high rate; thus achieving even 57% of the river flows needed by fish was postponed until years 2010-2011.

The U.S. District Court struck down NMFS' 2002 Biological Opinion as in violation of the ESA. The district court found that NMFS relied upon private actions that were not reasonably certain to occur. (Not coincidentally, that was the same flaw the courts had found in the biological opinion for the Federal Columbia River Power System. See National Wildlife Fed. v. National Marine Fisheries Serv., 9th Cir. No. 06-35011 (April 24, 2008).) On appeal in the Klamath case, the Ninth Circuit Court of Appeals upheld the finding of an ESA violation, PCFFA v. BOR and NMFS, 426 F.3d 1082 (9th Cir. 2005), and the Court remanded the matter to the District Court to issue an injunction.

After the District Court granted injunctive relief as directed, the federal agencies and irrigation interests again appealed, but the Court of Appeals upheld the injunction, PCFFA v. BOR, 9th Cir. No. 06-16296 (unpub. Mar. 26, 2007). The Court of Appeals rulings forced BOR to release the long-term flows to the Klamath River required by the 2002 BiOp. However, they also reinitiated consultation under the ESA with an eye to creating a new Biological Opinion with less rigorous measures to protect threatened salmon runs. As a result, the parties wait with apprehension for release of a new biological opinion, one which may not demand recovery for damaged fish stocks.

In summary, as the Washington Post writers showed in 2007, this Administration's politically-motivated support for southern Oregon irrigation interests and the BOR has distorted the scientific analysis of NMFS, created the biggest adult fish kill in recorded history, and ignored the United States' fundamental tribal trust obligations to our Tribe by depriving fish runs essential to our livelihood of needed water throughout the lengthy litigation battles necessary to prove the violations of the ESA. Unfortunately, distorted science similar to what led to the 2002 fish kill has since continued to affect the Klamath Basin.

The Interior Department has persisted in siding with Oregon irrigation interests and against tribal trust responsibilities in the FERC proceedings regarding Klamath River fisheries. The Department even employed promises of restoration and economic development funds to induce some of the affected tribes (but not the Hoopa Valley Tribe) to offer water rights concessions. Only by agreeing to embark upon years of expensive and thus far inconclusive negotiations with the Upper Klamath Basin irrigation interests, were the tribes able to obtain the support of the Interior Department and NOAA for fish passage conditions and prescriptions in the Klamath Hydroelectric dam relicensing proceeding.

In 2006, agency scientists and attorneys, assisted by the tribes, defended those conditions and prescriptions successfully against a challenge brought by PacifiCorp in The Matter of Klamath Hydroelectric Project, Dkt. No. 2006-NMFS 0001 (ruling of Honorable Parlen L. McKenna, Administrative Law Judge). After Judge McKenna upheld the science underlying the conditions and prescriptions in September 2006, Interior Department managers again threatened to withhold filing the final documents unless the tribes agreed to a specific allowable allocation of water to be diverted to farming interests in the upper Klamath River Basin. The tribes reached the outlines of an agreement on January 20, 2007, and four days later the Interior and Commerce Departments filed their final modified terms, conditions and prescriptions with FERC. However, the Department representatives continue to warn the tribes that they may withdraw or weaken those fish protection measures.

The Hoopa Valley Tribe entered the related PacifiCorp Klamath Settlement Negotiations optimistic to achieve three critical goals: to support dam removal for water

quality improvement and reintroduction of anadromous fish to historic spawning habitat; to effect firm, science-based assurance that future Klamath River stream flows will be sufficient to support thriving salmon populations; and to ensure vital fisheries habitat restoration, including ample stream flows, balanced against non-tribal social needs such as power consumption and irrigation. The Tribe maintains that best available science should continuously inform us and enable the responsible resource agencies, including the tribe, to protect the water necessary to support thriving fish populations to make meaningful the tribal and public trust fishery resources.

IV. Continuing Agency Bias in Scientific Matters of Fisheries Protection and Restoration

The United States is responsible for protecting the Hoopa Valley Tribe's property rights. As a trustee, the Interior and Commerce Departments have a duty to make these rights productive. The Departments also owe a trust duty to the public to protect threatened and endangered species. Unfortunately, in the tribe's role as co-manager with these agencies in the Klamath Basin, we are frequently faced with a lack of funding, a lack of necessary scientific information, or a steering away from or distortion of existing information. For example, the federal Klamath Irrigation Project (KIP) at present diverts roughly 300,000 acre feet of water annually from the Klamath River. The Project also blocks springtime runoff and pumps water away from historical marshes that would otherwise naturally improve water quality. At other locations, chemically affected irrigation return flows are pumped into the river. To this day, very little, if any, information exists on the impacts of these KIP activities on Klamath River water quality and fisheries production.

Since 2002, a water bank has provided millions of federal dollars to KIP irrigators who reduced their surface (river) water use. Much of the water "savings," however, have actually been "created" by intensive groundwater pumping that began years prior to the completion of an ongoing USGS/Oregon Water Resources Department study on the impacts of groundwater pumping to down river stream flows. The information thus far tells us that there is a significant connection between river flows and groundwater. While a water bank could make good sense for Klamath River restoration, the study preliminarily indicates that the "bank" should not rely so heavily on groundwater. Nonetheless, hundreds of thousands of acre-feet of water have already been pumped from the ground in the Upper Basin at taxpayer's cost.

The BOR has, ironically, nonetheless been responsible for administering the lion's share of fisheries and environmental restoration funding on both the Trinity and Klamath Rivers that are appropriated by Congress to restore fish populations and habitat that has been devastated by its water projects. This dynamic has resulted in an inherent conflict of interest that has failed to produce the restored fishery populations that both federal and tribal scientists anticipated. As noted above, in the Trinity River Restoration Program, scientists from the FWS, NMFS and tribes are typically controlled by BOR's funding, policies and personnel priorities. The usual results are frustration among scientists because of incomplete designs, breakdowns in communications and coordination, and a lack of monitoring and evaluations of fish restoration and performance without any means of recourse or correction.

In 2006, the Evaluation of Instream Flow Needs in the Lower Klamath River Phase II Final Report, prepared for the U.S. Department of the Interior by Dr. Thomas B. Hardy and others, determined flow requirements for the River. FWS policy officials have characterized the Report's recommended flows as "unreasonable" or "unrealistic." Recently and without any scientific rationale, FWS regional managers have expressed to tribes that they expect the upcoming Klamath River Biological Opinion flows to be lower than the current mandatory river flows needed to protect endangered Coho salmon. The Tribe views the Hardy Flow Report as representing the best available science for preserving and restoring fish populations. No scientific evidence has yet been provided to support the reduced flows that are apparently being supported by DOI. The BOR has contracted with the National Academy of Science to review the Hardy II Report and another report that is generally described as the "Undepleted Flow Study". The Tribe may seek the Committee's intervention in this effort if it becomes apparent that the Administration is attempting to use the outcome of NAS' analysis for political purposes.

It is clear to us that the Klamath and Trinity problems can be fixed—as long as they are approached in an honest, truthful and scientifically-based manner. We respectfully suggest the following options for consideration:

- We urge the Committee to take whatever actions in its power to break, or root out, the DOC's and DOI's non-fishery agency (i.e. BOR) bias in the implementation of environmental restoration and related science.

- The Trinity River Restoration Program must be fully funded in accordance with the Trinity ROD and consistent with Section 3406 (b)(23) of the CVPIA. The administrative structure must also be re-designed to function more consistent with a scientifically-based program with coordination and cooperation between program partners.
- The requirements contained in Section 3404(c)(2) must be incorporated into all CVP water service contracts. Furthermore, negotiations between private water contractors and federal agencies must directly include all parties that may be impacted by such agreements, especially Indian tribes. CVPIA environmental and fishery protections measures contained in the CVPIA, as well as federal tribal trust obligations, should never be set aside in favor of convenience when trying to secure agreements with water contractors.
- Funding for environmental and fishery restoration programs should not be administered by agencies who also administer activities that caused the problems in the first place.
- We urge the Committee to facilitate the establishment of a comprehensive basin-wide management program for the Klamath Basin governed by federal, state and tribal agencies. We support the general structure of the most recent draft of the Conservation Implementation Program, but any BOR-funded fishery restoration program must be accompanied with proper checks and balances in both the decision making and program implementation arenas.

The Tribe feels our testimony clearly describes what abuses of authority can occur when adequate checks and balances are not integrated into ongoing activities when water, money and politics are involved. The unique relationships between Indian tribes and the United States is supposed to be based on the most fundamental applications of trust and honor—and which have been clearly lacking in the management of Klamath and Trinity River fishery and water resources. Defending against the onslaught of politics and abuse of discretion by federal officials has cost the Hoopa Valley Tribe hundreds of thousands of dollars each year, which has not stopped the actions that have led to now seriously damaged, if not endangered, fish populations. Perhaps it would be more acceptable if these situations were the result of misunderstandings and misinterpretations between federal agencies and tribes, but all evidence points toward them being deliberate and planned actions by federal officials. Without our Tribe having to spend thousands of dollars of our limited funds in probably endless litigation trying to hold the Executive Branch accountable, only Congress has the power to intervene and help us fix these problems. Again, I appreciate the opportunity to submit testimony on these important matters. If you have any questions, please contact me at the Hoopa Tribal Office (530) 625-4211.

[A statement submitted for the record by The Honorable Jim McDermott, a Representative in Congress from the State of Washington, follows:]

Statement of The Honorable Jim McDermott, a Representative in Congress from the State of Washington

Madam Chairwoman Madeleine Bordallo (D-GU), let me first thank you for holding today's hearing. Let me also thank you for the opportunity to join the subcommittee on the dais and represent my constituents in Washington's 7th Congressional District on this important issue.

I believe that unless we act quickly and responsibly, and rely on science and not fiction, we will witness and share in the responsibility for what will become an extinction event for native, wild salmon. That would be a needless and senseless travesty.

The preservation and restoration of wild salmon is one of the most important environmental and economic issues facing the Pacific Northwest and California. Yet, for all the science; for all the damage already done to the salmon runs, commercial fishermen, and hundreds of local economies and thousands of jobs; for all the court decisions over decades, our government is paralyzed to act.

There are those in the current Administration who deny there is a crisis, deny objective data that has been collected for decades, and deny federal court orders to produce a plan. The Administration's preferred alternative is what I call the politics of extinction—to postpone action long enough until there is nothing left to do.

The facts support this assertion: A federal court has already thrown out three biological opinions submitted by the Administration, and it appears all but certain that the latest plan released earlier this month is destined for the trash. Time and again,

the Administration has produced plans of neglect, inadequate in scope, ineffective in action, insufficient in outcome, and indifferent by design.

Just as we are beginning to do in addressing global warming, I believe that we must demand and apply scientific rigor to the preservation and restoration of salmon runs. The truth is, without a coherent, scientifically-defensible federal plan for protecting salmon in-river, we run a much greater risk of having to take drastic actions like closing ocean fisheries, which would have drastic economic consequences.

We need look no further than the recent closures and disaster declarations covering commercial fishing off our western coastlines to see inaction lead to a $300 million economic calamity. Real people have been hurt badly and it will happen again so long as indifference continues to eradicate the resource.

Along the Columbia and Snake River basins, there have been sharp declines in harvest, including Native Americans with federally-recognized treaty rights to fish.

Instead of faithfully analyzing the data, federal agencies under the current Administration cooked the books to arrive at a foregone conclusion, and this has been the Administration's policy to address the crisis.

While the facts tell us that the hydro system kills over 90% of some stock of young salmon migrating to the ocean, and 25% returning to spawn, Administration surrogates offer proposals like reducing spill and river flows that will only make matters worse. Yet, any serious scientific study of the impact of the numerous dams in the Pacific Northwest gets about as much attention from this Administration as global warming—and will produce the same outcome unless we intercede.

That is why today's hearing is so important. A journey of 1,000 miles begins with a first step, the proverb says. Let us hope and work to make today the first step in saving and restoring salmon runs.

Thank you.

[A statement submitted for the record by Peter B. Moyle, Center for Watershed Sciences and Department of Wildlife, Fish & Conservation Biology, University of California, Davis, California, follows:]

Statement submitted for the record by Peter B. Moyle, Center for Watershed Sciences and Department of Wildlife, Fish and Conservation Biology, University of California, Davis, California (pbmoyle@ucdavis.edu)

Ever since Gold Rush hit the Central Valley, Chinook salmon populations have been in decline. Historic populations probably averaged 1.5-2.0 million (or more) adult fish per year. The high populations resulted from four distinct runs of Chinook salmon (fall, late-fall, winter, and spring runs) that took advantage of the diverse and productive freshwater habitats created by the cold rivers flowing from the Sierra Nevada. When the juveniles moved seaward, they found abundant food and good growing conditions in the wide valley floodplains and complex San Francisco Estuary, including the Sacramento-San Joaquin Delta. The sleek salmon smolts then reached the ocean, where the southward flowing, cold, California Current and coastal upwelling together create one of the richest marine ecosystems in the world, full of the small shrimp and fish that salmon require to grow rapidly to large size. In the past, salmon populations no doubt varied as droughts reduced stream habitats and as the ocean varied in its productivity, but it is highly unlikely the numbers ever even approached the low numbers we are seeing now.

Unregulated fisheries, hydraulic mining, logging, levees, dams, and other factors caused precipitous population declines in the 19th century, to the point where the salmon canneries were forced to shut down (all were gone by 1919). Minimal regulation of fisheries and the end of hydraulic mining allowed some recovery to occur in the early 20th century but the numbers of harvested salmon steadily declined through the 1930s. There was a brief resurgence in the 1940s but then the effects of the large rim dams on major tributaries began to be severely felt. The dams cut off access to 70% or more of historic spawning areas and basically drove the spring and winter runs to near-extinction. In the late 20th century, thanks to hatcheries, special flow releases from dams, and other improvements, salmon numbers (mainly fall-run Chinook) averaged over 400,000 fish per year, with wide fluctuations from year to year, around 10-25% of historic abundance (Figure 1). In 2006, numbers of spawners dropped to about 200,000, despite closure of the fishery. In 2007, the number of spawners fell further to about 90,000 fish, among the lowest numbers experienced in the past 60 years, with expectations of even lower numbers in fall 2008

(probably <64,000 fish). The evidence suggests that these runs are largely supported by hatchery production, so numbers of fish from natural spawning are much lower.

So, what caused this precipitous decline in salmon? Unfortunately, the causes are not easy to understand because they are historic, multiple and interacting. The first thing to recognize is that Chinook salmon are beautifully adapted for living in a region where conditions in both fresh water and salt water can alternate between being highly favorable for growth and survival and being comparatively unfavorable. Usually, conditions in both environments are not overwhelmingly bad together, so when survival of juveniles in fresh water is low, those that make it to salt water do exceptionally well, and vice versa. This ability of the two environments to compensate for one another's failings, combined with the ability of adult salmon to swim long distances and disperse widely to find suitable ocean habitat, historically meant salmon populations fluctuated around some high number. Unfortunately, when conditions are bad in both environments, populations crash, especially when the heavy hand of humans is involved.

The recent crash has been blamed largely on "ocean conditions." Generally what this means is that the upwelling of cold, nutrient-rich water has slowed or ceased, so less food is available, causing the salmon to starve or move away. Upwelling is the result of strong steady alongshore winds which cause surface waters to move off shore, allowing cold, nutrient-rich, deep waters to rise to the surface. The winds rise and fall in response to movements of the Jet Stream and other factors, with both seasonal and longer-term variation. El Nino events can affect local productivity as well, as can other "anomalies" in weather patterns. And Chinook salmon populations fluctuate accordingly.

The 2006 and 2007 year classes of returning salmon mostly entered the ocean in the spring of 2004 and 2005, respectively (most spawn at age 3). Although upwelling should have been steady in this period, conditions unexpectedly changed and ocean upwelling declined in the spring months, so there were fewer shrimp and small fish for salmon to feed on. According to an analysis by an interdisciplinary group of scientists, conditions were particularly bad for a few weeks in spring of 2005 in the ocean off Central California, resulting in abnormally warm water and low concentrations of zooplankton, which form the basis for the food webs which include salmon. All this could have caused wide scale starvation of the salmon. Note the emphasis on could. While the negative impact of ocean anomalies is likely, monitoring programs in ocean are too limited to make direct links between salmon and local ocean conditions.

"Ocean conditions" can also refer to other factors which can be directly affected by human actions, especially fisheries. For example, fisheries for rockfish and anchovies can directly or indirectly affect salmon food supplies (salmon eat small fish). Likewise, fisheries for sharks and large predators may have allowed Humboldt squid (which grow to 1-2m long) to become extremely abundant and move north into cool water, where they could conceivably prey on salmon. These kinds of effects, however, are largely unstudied.

Meanwhile, what has been going on in fresh water, in the Sacramento and San Joaquin rivers? On the plus side, dozens of stream and flow improvement projects have increased habitat for spawning and rearing salmon. Removal of small dams on Butte Creek and Clear Creek, for example, has increased upstream run sizes dramatically. Salmon hatcheries also continue to produce millions of fry and smolts to go to the ocean. On the contrary side:

- The giant pumps in the South Delta have diverted increasingly large amounts of water in the past decades, altering hydraulic and temperature patterns in the Delta as well as capturing fish directly.
- The Delta continues to be an unfavorable habitat for salmon, especially on the San Joaquin side where the inflowing river water is warm and polluted with salt and toxic materials. Most of the rest of the Delta lacks the edge habitat juvenile salmon need for refuge from predators and foraging.
- Hatchery fry and smolts are released in large numbers but their survivorship is poor, compared to wild fish, although they contribute significantly to the fishery. Nevertheless, they are competitors with better-adapted wild fish that can survive better in both fresh water and the ocean. Most hatchery-raised juvenile salmon are planted below the Delta, to avoid the heavy mortality there.
- Numbers of salmon produced by tributaries to the San Joaquin River (Merced, Tuolumne, Stanislaus) continue to be exceptionally low, in the hundreds, and the promised restoration of the San Joaquin River has been stalled for lack of federal funds.
- The ESA-listed winter and spring runs continue to barely scrape by in small numbers.

Thus reduced survival of wild fish in fresh water, especially in the Delta, combined with the naturally low survival rates of hatchery fish, could make for plummeting numbers of adult spawners. This is especially likely to happen if young salmon also hit adverse conditions in the ocean, particularly as they enter the Gulf of the Farrallons. The growing salmon can also hit periods when food is scarce in the ocean, along with abundant predators and stressful temperatures, at any time in the ocean phase of their life cycle.

The overall message here is that indeed "ocean conditions" have had a lot to do with the recent crash of salmon populations in the Central Valley. However, they are superimposed on populations that have been declining in the long run (with hatchery-supported increases in recent decades). The salmon still face severe problems before they reach the ocean, especially in the Delta. In the short run, there are only a few "levers" we can pull to improve things for salmon which include shutting down the commercial and recreational fisheries, reducing the impact of the big pumps in the South Delta, and perhaps changing the operation of dams (increasing outflows at critical times), and altering hatchery operations. For example, all hatchery fish could be marked with both adipose fin clips and coded-wire tags; this would allow experimentation with mark-selective fisheries, where all unmarked fish are released.

In the longer run (10-20 years) we need to be engaged in improving the Delta and San Francisco Estuary as habitat for salmon, reducing inputs into the estuary of toxic materials, continuing with improvements of upstream habitats, managing floodplain areas such as the Yolo Bypass for salmon, restoring the San Joaquin River, and generally addressing the multiplicity of factors that affect salmon populations. There is also a huge need to improve monitoring of salmon in the ocean as well as the coastal ocean ecosystem off California. Right now, our understanding of how ocean conditions affect salmon is largely educated guesswork with guesses made long (sometimes years) after an event affecting the fish has happened. An investment in better knowledge should have large pay-offs for better salmon management.

Overall, blaming "ocean conditions" for salmon declines is a lot like blaming Hurricane Katrina for flooding New Orleans, while ignoring the long accumulation human errors that made the disaster inevitable, such as poor construction of levees or destruction of protective salt marshes. Californians have optimistically assumed that salmon populations were well managed, needing only occasional policy modifications such as hatcheries or removal of small dams, to continue to go upward. The listings of the winter and spring runs of Central Valley Chinook as endangered species were warnings of likely declines on an even larger scale. "Ocean conditions" may seem like a destructive hurricane to those wanting to avoid responsibility but salmon populations are in fact being regulated by us humans, directly or indirectly. Continuing on our present course will result in the permanent loss of a valuable and iconic fishery unless we start taking corrective action soon.

On a final somewhat more optimistic note, there is a reasonably good chance that fall run Chinook salmon populations will once again return to higher levels as they have in the past. However, the lower the population goes and the more the environment changes in unfavorable ways, the more difficult recovery becomes. A poor environment for salmon also increases the likelihood of extinction of the already endangered winter and spring runs.

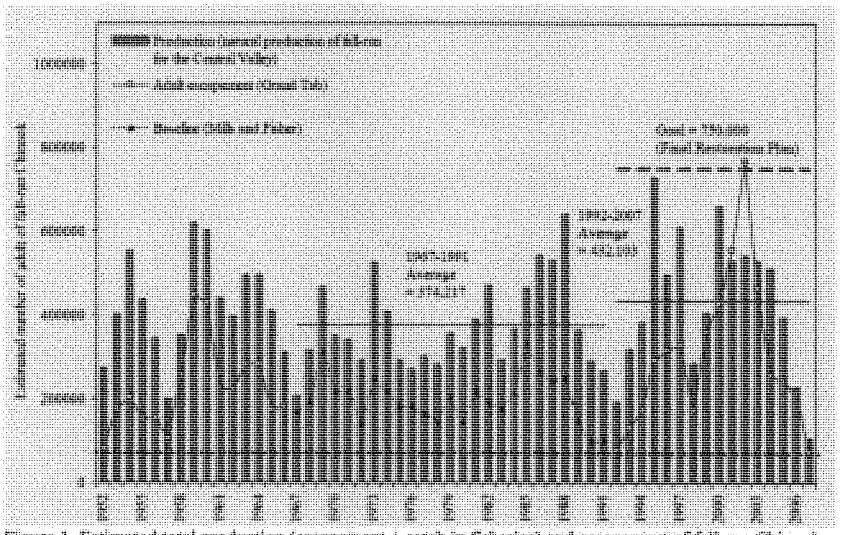

Figure 1. Estimated total production (escapement + catch in fisheries) and escapement of fall run Chinook salmon in the Central Valley, 1952-2007. Fall run constitute over 90% of Central Valley Chinook salmon. The lower dotted line shows 2007 escapement for comparison with other years. Source: Anadromous Fish Restoration Program http://www.delta.dfg.ca.gov/afrp

Note: Recovery of Central Valley Chinook salmon is officially defined by goals set by the Anadromous Fish Restoration Program under the Central Valley Project Improvement Act of 1992. The AFRP has pledged to use "all reasonable efforts to at least double natural production of anadromous fish in California's Central Valley streams on a long-term, sustainable basis". The final doubling goal is 990,000 fish for all four runs combined.

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[A statement submitted for the record by The Honorable Thomas E. Petri, a Representative in Congress from the State of Wisconsin, follows:]

Statement submitted for the record by The Honorable Thomas E. Petri, a Representative in Congress from the State of Wisconsin

Chairwoman Bordallo and Ranking Member Brown,

I would like to thank you for holding this important hearing today. I'm particularly pleased that you included the Snake River and Columbia Basin salmon in the scope of your hearing.

In the 1970s, four dams were added to the lower Snake River in Eastern Washington. Since that time, the population of wild salmon in this river system has dropped nearly 90 percent. Today, most of the Columbia River salmon stocks and all the Snake River stocks are either already extinct or listed as threatened and endangered.

Since the 1990s, the federal government has attempted to address this situation through a series of biological opinions to guide the management of the river system. However, these opinions have continually been ruled illegal and the failed recovery efforts have cost taxpayers nearly $6 billion dollars.

Furthermore, the most recent recovery plan that was just released earlier this month will require a $7 billion dollar expenditure over the next decade, and it fails

to even consider the one option that scientists believe will restore the salmon population—dam removal.

This is truly an environmental and economic crisis. It is time for Congress to ensure that sound science and fiscal responsibility are guiding the salmon recovery process.

That is why this Congress, Congressman McDermott and I once again introduced the Salmon Economic Analysis and Planning Act (SEAPA). The legislation requires the Government Accountability Office (GAO) and the National Academy of Sciences to review all options for salmon recovery and provide needed information on what should be done to restore salmon runs in a fiscally responsible manner.

By undertaking the economic and scientific studies called for in SEAPA, the federal government will be better prepared to determine the best way to meet its treaty obligations to Native Americans tribes and its legal obligations under the Endangered Species Act and the Clean Water Act.

I hope this hearing is the first step this Congress will take to address this longstanding crisis.

[A statement submitted for the record by The Honorable David Wu, a Representative in Congress from the State of Oregon, follows:]

Statement of The Honorable David Wu, a Representative in Congress from the State of Oregon

Thank you Madam Chairwoman for offering those of us who represent the Pacific Coast who have been most affected by this most recent fishery collapse the opportunity to weigh in. The effort to restore Columbia Basin salmon and steelhead is one of the most urgent endangered species challenges of our time. Preserving this resource as an economic and environmental asset is a national responsibility.

I am concerned about the most recent biological opinion for the Federal Columbia River Power System. It was my hope that this biological opinion would reflect the best science and economic analysis available. Unfortunately, the opinion released May 5, 2008 has met with a great deal of scrutiny by officials, stakeholders and concerned citizens from every arena.

Further, I am troubled by the politicization of science in this administration in general and specifically with regard to this issue. The Pacific Northwest has witnessed a rotating series of failures on the Columbia, Klamath and Sacramento rivers. Explanations given by federal agencies charged with management of these river systems have not made adequate use of the best science available. Moreover, I have heard from several sources that federal fish and wildlife experts have been shut out of the biological opinion process entirely. If true, the validity of this biological opinion must be questioned, and I appreciate the opportunity to address some of these issues at this hearing.

Our nation has made a commitment to its citizens, the native peoples of the Northwest and to the government of Canada to ensure the protection and restoration of these species. I look forward to working with my colleagues in Congress, and the responsible federal agencies, to develop a scientifically based plan for restoring this essential environmental and economic asset.

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