KLAMATH BASIN COORDINATING COUNCIL

Third Annual Report

Klamath Basin Agreements

October 2013

The Klamath Basin Coordinating Council has prepared this Third Annual Report on the accomplishments implementing the Klamath Basin Agreements.

Photograph of Upper Klamath Lake by Edward W. Sheets

Third Annual Report
Implementing the Klamath Basin Settlement Agreements

Prepared by the Klamath Basin Coordinating Council

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Summary

This is the Third Annual Report from the Klamath Basin Coordinating Council on the accomplishments in implementing the Klamath Basin Restoration Agreement (Restoration Agreement or KBRA) and the Klamath Hydroelectric Settlement Agreement (Hydroelectric Settlement or KHSA), known collectively as the Klamath Basin Agreements.

The KBRA and KHSA were signed on February 18, 2010 and amended on December 29, 2012. These agreements provide a comprehensive solution for water, fishery, and power issues in the Klamath Basin. There are 45 Parties to the KHSA and 43 Parties to the KBRA, representing Federal agencies, California and Oregon, three Indian tribes, two counties, irrigators, and conservation and fishing groups[1]. This Third Annual Report was prepared by non-federal parties to the Klamath Basin Agreements.

As this Third Annual Report is being developed, the Klamath Basin is experiencing a severe drought and communities throughout the basin are experiencing serious impacts. Surface water withdrawals above and around Upper Klamath Lake have been regulated off, water supplies to the Klamath Reclamation Project have been reduced, and the Lower Klamath National Wildlife Refuge does not have an allocation of Project water. Fishery resources in Upper Klamath Lake and the Klamath River are experiencing low-water conditions.

The parties to the Klamath Basin Agreements have made good progress on implementing some parts of the agreements. Those accomplishments are described in this report. Implementation of a number of the Klamath Basin Agreement programs has been delayed because certain proposed activities are not currently authorized under existing law and funding has not been available.

Implementation of the Klamath Basin Agreement programs would have helped during this drought year:

- The KBRA Drought Plan would have provided additional resources to reduce water use.

- KBRA On-Project Plan also would have provided further tools to align Project demand with available supplies of water.

[1] The Department of the Interior and National Oceanic and Atmospheric Administration signed the KHSA; the federal agency parties are not signatories to the KBRA. The KBRA includes provisions that these agencies will become parties when Federal authorizing legislation is enacted. PacifiCorp signed the KHSA; it is not a Party to the KBRA.

- Full implementation of the water assurances would have changed winter management and thus provided an allocation of water to the Lower Klamath National Wildlife Refuge.

- The Off-Project Water Use Retirement Program would have provided funding for voluntary water use retirements in the upper basin to free up water for Upper Klamath Lake and its tributaries and the Klamath River.

- KBRA Power for Water Management Program would have provided assistance to lower the electricity costs for pumping, thus allowing for greater efficiency and reuse of water.

- The KBRA overall would have provided more flexibility to manage the available water.

- The fishery programs would have lowered the pressure on listed species in the basin and provide more resilience to address a drought.

The summary below provides an overview of the key activities by the Parties over the past three years. The progress on each activity is described in more detail in later sections. Copies of the KBRA, KHSA, a summary of the agreements, and all the documents described in this report are available at: www.klamathcouncil.org.

Summary of Klamath Basin Restoration Agreement Activities

- The KBCC has reviewed and updated the cost estimates to implement the KBRA in 2011. This process reduced the seven-year cost estimates by 38 percent and the 15-year cost estimates by 18 percent. The parties are working on further modifications related to federal funding as part of the work of the Klamath Basin Task Force.

- The Fishery Managers have agreed on an outline and approach to develop the Klamath Basin Fisheries Restoration and Monitoring Plan. However, funding is not currently available for the development of the Plan.

- Reclamation has completed studies of the potential for additional water storage in the Klamath Basin.

- The Parties completed a review of the KBRA and all parties approved amendments to the agreement.

Summary of Klamath Hydroelectric Settlement Agreement Activities

- The Department of the Interior has issued the Klamath Dam Removal Overview Report.

- The Department of the Interior released a final Environmental Impact Statement for a Secretarial Determination. The California Department of Fish and Wildlife has completed the draft Environmental Impact Report. These environmental reports were developed in coordination under the provisions of the Hydroelectric Settlement.

- The public utility commissions in California and Oregon have approved the collection of funds to pay for decommissioning of the four hydroelectric dams that could be removed under the KHSA. As of June 30, 2013, the combined balance of the Oregon and California dam removal trust accounts was $54.4 million.

- The interim measures to improve environmental conditions within the Klamath Hydroelectric Project to benefit aquatic habitat and listed species, improve water quality, and improve hatchery operations are being implemented on the schedule called for in the Hydroelectric Settlement.

Klamath Basin Task Force

Senators Wyden and Merkley, Congressman Walden, and Governor Kitzhaber have convened the Klamath Basin Task Force to 1) develop a comprehensive settlement of water management issues in the upper Klamath Basin; 2) address outstanding power issues for the Klamath Basin Project and the Upper Basin irrigators; and 3) recommend ways to reduce the federal costs of implementing the KBRA.

The Parties to the Klamath Basin Agreements and other organizations are working to address these issues and make recommendations to the congressional delegation and governors. This work is described later in this report.

Background

The KBRA is intended to result in effective and durable solutions which will: 1) restore and sustain natural fish production and provide for full participation in ocean and river harvest opportunities of fish species throughout the Klamath Basin; 2) establish reliable water and power supplies which sustain agricultural uses, communities, and National Wildlife Refuges; and 3) contribute to the public welfare and the sustainability of all Klamath Basin communities.

The KHSA lays out the process for additional studies, environmental review, and a decision by the Secretary of the Interior regarding whether removal of four dams owned by PacifiCorp: 1) will advance restoration of the salmonid fisheries of the Klamath Basin; and 2) is in the public interest, which includes but is not limited to consideration of potential impacts on affected local communities and tribes. The four dams are Iron Gate, J.C. Boyle, Copco 1 and Copco 2 dams on the Klamath River. The Hydroelectric Settlement includes provisions for the interim operation of the dams and the process to transfer, decommission, and remove the dams.

This annual report describes the accomplishments during the first three years in implementing the agreements. The Parties to the agreements have made good progress on establishing the coordination and oversight organizations called for in the Restoration Agreement and implementing many of the near-term KBRA actions. Some actions have been delayed because of a lack of funding. The Parties have also made good progress on implementing the provisions of the Hydroelectric Settlement. Full implementation of both agreements has been delayed because Congress has not enacted Federal authorizing legislation.

Klamath Basin Restoration Agreement

The actions taken during the past three year to implement the Klamath Basin Restoration Agreement are summarized below.

1. General Provisions

1.1 Formation of the Klamath Basin Coordinating Council

A key feature of the KBRA is a commitment by the parties to cooperate fully in its implementation. The KBRA Parties have established the Klamath Basin Coordinating Council (KBCC) to facilitate coordination, cooperation, collaboration, and accountability by the KBRA Parties and to ensure that the commitments in the KBRA are carried out effectively. However, the KBRA does not create any new governmental entities, nor does it supersede, change or modify any of the existing governments' legal authorities (see KBRA Section 2).

The KBCC provides for general implementation oversight, including activity and program coordination, information sharing, priority setting, fund seeking, and dispute resolution related to implementation of the KBRA. It also serves as the primary forum for informing the public and for public involvement (See KBRA Appendix D).

The KBCC held its first organizational meeting on July 21 and 22, 2010 in Redding California. The KBCC has held nine meeting since the Agreements were signed. These meetings have rotated between Klamath Falls and Ashland/Medford areas of Oregon, the Arcata and Eureka areas in California, and Redding, California. A listing of the meetings and all of the materials from the meetings are posted on the website.

The KBCC has adopted internal operating protocols and a communications plan. All KBCC meetings are open to the public. The KBCC agendas provide public comment periods at each meeting for people to make general comments or to comment on specific issues before the KBCC.

The KBCC has also formed the Interim Klamath Basin Advisory Council and the Interim Technical Advisory Team pursuant to KBRA Appendix D. The Department of the Interior is reviewing charters for these entities under the Federal Advisory Committee Act.

1.2 Amendments to the KBRA

As of December 29, 2012, all Parties to the KBRA approved and signed the First Amendment to the Klamath Basin Restoration Agreement for the Sustainability of Public and Trust Resources and Affected Communities (First Amendment). With the agreement of all the Parties, the KBRA was amended consistent with the First Amendment.

The First Amendment extends the time for passage of federal legislation, addresses tribal funding issues, and cleans up other provisions of the document. First Amendment did not affect the Klamath Hydroelectric Settlement Agreement.

Summary of Amendments

Extend KBRA deadline for federal legislation: The KBRA that was adopted in 2010 was scheduled to terminate on December 31, 2012 if Congress had not enacted the legislation to authorize and implement the agreements. The amendments related to this provision changed that deadline and also included procedures for the Parties to follow if legislation has not been passed by the end of 2014. Within 60 days following that date, any KBRA party may initiate a process to consider termination of the agreement and any amendments would require the approval of all the KBRA parties. If no party initiates the termination process at that time, the revised KBRA also provide an annual opportunity to initiate a process that could terminate the KBRA if the federal legislation has not been enacted.

Tribal Funding: the amendments confirmed that the signatory tribes and the Secretary of the Interior would have to agree to any future changes in funding that might affect the bargained-for-benefits of the agreement affecting tribal resources, the water agreements, or the future relinquishment of tribal claims against the United States in the KBRA. The amendments clarify the tribes' key role in the implementation of the fisheries program. The amendments also provide that the Secretary of the Interior and any of the signatory tribes can renegotiate the terms of the relinquishment and release of tribal claims against the United States if funding for the fishery or tribal programs is not realized in the future.

Clear Lake, Gerber Reservoir, and the Lost River: the amendments clarified that Clear Lake, Gerber Reservoir, and the Lost River above Harpold Dam will not be called to provide water for delivery of the new wildlife refuge allocation in the KBRA.

Klamath Basin Power Alliance: the amendments added the Klamath Basin Power Alliance as a new party to the KBRA.

Clarify and update other KBRA provisions: the amendments clarified various provisions and updated schedules for a number of actions in the KBRA. For example:

- Funding: the amendments updated references to funding to accommodate reductions in the KBRA cost estimates that the parties identified in 2011.

- Drought Plan: the parties have completed the drought plan; the dates for potential future amendments have been updated.

- Habitat Conservation Plans: the KBRA provides a process to develop plans under the Endangered Species Act to address potential impacts of Upper Basin activities to fish including salmon returning to the Upper Klamath Basin if the Klamath River dams are removed. The amendments clarified the applicable processes based on policies of the resources agencies.

- Emergencies: the amendments clarified that Reclamation will continue to address emergencies that affect Klamath Reclamation Project facilities under existing authorities; this could include failures at Klamath Reclamation Project facilities or dikes on Upper Klamath Lake or Lake Ewauna that affects the storage and delivery of water necessary to meet the commitments of the KBRA.

- Eligibility for Power Program: the amendments clarified the eligibility for the KBRA program to provide low-cost power to pump water to irrigators and wildlife refuges and return water to the Klamath River to make it clear that a power user can either own or lease the land and use individual or multiple meters or pumps.

1.3 Federal Legislation and Klamath Basin Task Force

A number of the actions in the KBRA and KHSA can be implemented under existing authorities and the KBRA Parties have made good progress on implementing those measures. The Non-Federal KBRA Parties have identified the actions that require additional Federal authority before the measures can be implemented **(**See KBRA Section 3.1.1.B and Appendix A and KHSA Appendix E**).**

Legislation to implement the Klamath Basin Agreements was introduced in the 112th Congress; however, Congress did not take action on the legislation. Senators Merkley and Boxer introduced Senate Bill 1851. Congressman Thompson introduced House Bill 3398 with the following sixteen cosponsors: Congressman Earl Blumenauer, Congressman Peter DeFazio, Congressman Norm Dicks, Congresswoman Anna Eshoo, Congressman John Garamendi, Congressman Michael Honda, Congresswoman Barbara Lee, Congresswoman Doris Matsui, Congressman Jerry McNerney, Congressman George Miller, Congressman James Moran, Congresswoman Grace Napolitano, Congressman Kurt Schrader, Congresswoman Jackie Speier, Congressman Fortney Pete Stark, and Congresswoman Lynn Woolsey.

On June 20, 2013, the Senate Energy and Natural Resources Committee held a hearing to receive testimony on water resource issues in the Klamath River Basin. A list of the hearing witnesses, copies of the testimony, and a webcast of the hearing are available at: http://www.energy.senate.gov/public/index.cfm/hearings-and-business-meetings?ID=2140d7f0-ca76-4a7e-99b3-cd053c3ec9ac

On July 3, 2013, Senators Wyden and Merkley, Congressman Walden, and Governor Kitzhaber initiated the formation of the Klamath Basin Task Force "to resolve the water, power and other resource management issues in the Klamath River Basin…" The letter to the Task Force participants states in part:

> The current crises in the Basin require immediate attention, leadership, and constructive efforts of us all. Although the Basin has faced many of these challenges for some time, it is clear that now is the time to move for a comprehensive and lasting solution that protects the vast natural resources of the basin, while also providing the stability and certainty needed for the region's economy to continue to thrive.
>
> It is our expectation that the task for will work to address three tasks:
>
> 1. Develop a settlement of water management issues in the upper Klamath Basin that results in:
>   - At least 30,000 acre feet of increased water inflows into Upper Klamath Lake through a voluntary program to idle water usage;
>   - Permanent resolution and protection of significant riparian areas in the Wood, Sprague, and Williamson basins, as well as other tributaries to Upper Klamath Lake, sufficient to produce the water quality and habitat improvement needed for fisheries; and
>   - Regulatory assurances for water and land uses in the Upper Basin, both in terms of a negotiated settlement of the exercise of state water rights, and federal Endangered Species Act (ESA) and Clean Water Act (CWA) compliance.
>
> 2. Work to address outstanding power issues for the Klamath Basin Project and the Upper Basin irrigators:
>   - It is crucial that an affordable and certain power supply is attained for both on project and off project irrigators.
>
> 3. Work to reduce the Federal Costs:
>   - We want the task force to review specific ideas for reducing the costs to the federal government of the overall package of Klamath Basin measures. This will require input from both Upper and Lower Basin participants.
>
> The outcomes we seek are sustainable fisheries and a sustainable level of farming and ranching in the Upper Basin, as well as power rate arrangements needed to maintain the on-project and off-project farming and ranching operations and support the ranching and farming families that are key to the area's economy.
>
> Your task is to work with the Governor's office and the Department of the Interior on resolving these issues and advise us on the specifics of how to get to these

resolutions and outcomes, particularly the specifics of any necessary federal legislative and regulatory authorizations, as well as the funding required to implement these activities, along with the time frames that likely are needed to achieve these resolutions and outcomes.

Recognizing both that this is an ambitious charge, and the immediacy of very real water management challenges in this year of extreme drought, we ask that the task force report back to us no later than September 10, 2013. This will require focused, concentrated effort over the next two months, along with the good faith of all participants.

We expect the task force to build on the good work that has already been completed, and the agreements that have been reached by many of the parties involved. Your task is to develop recommendations on the remaining set of issues in the Basin.

We expect all parties to approach this effort ready to compromise. And we recognize that compromises have already been made by many. As noted above, advice from the task force on how to reduce substantially the costs to the federal government of the recommended actions will be an important component of implementing a long-term solution.

The task force will be chaired by Governor Kitzhaber's Natural Resources Advisor, Richard Whitman, who will convene regular meetings. John Bezdek will represent the Secretary of the Interior. Members of our staffs will be actively engaged in this effort and will attend the meetings as appropriate. We will also invite staff of Members of the California delegation who represent the Klamath Basin to attend. We expect that the task force will include, at a minimum, two subgroups: one addressing water management in the Upper Basin, and one addressing on and off project power rate issues. Any necessary technical assistance will be provided by a technical advisory team made up of (at a minimum) representatives of the two states, the Bureau of Reclamation, the U.S. Fish and Wildlife Service, and NOAA Fisheries, as well as the affected Tribes. In addition, staff for Members of the Oregon congressional delegation stands ready to assist.

When the task force completes its work and reaches consensus, the Members of the Oregon delegation will use the group's recommendations as a basis for developing legislation to authorize those portions of the agreement that require federal legislation. At that time, we will ask that all stakeholders support these legislative efforts.

The Klamath Basin Task Force members are working to address the charges to them, including recommendations for the congressional delegation and Governor Kitzhaber. For more information on the Task Force please see:
http://www.oregon.gov/gov/GNRO/Pages/index.aspx

1.4 Revised Cost Estimates to Implement the KBRA

As part of the Klamath Basin Task Force work, it is conducting a review to identify additional opportunities to reduce the Federal costs of implementing the KBRA. A workgroup is reviewing all of the KBRA programs. The Parties are also working to identify alternative funding that could reduce the need for new Federal funding. A report is expected in September 2013. This work will build on the prior review conducted two years ago.

In June 2011, the KBRA Non-Federal Parties revised the estimated costs for implementing the activities that were originally set forth in the 2010 KBRA. The revised total cost estimate for implementing the KBRA (2007 dollars) to $799 million for 2012 through 2026; this was an 18 percent reduction from the cost estimates in the 2010 KBRA. The revised estimated costs averaged $53 million per year for Federal funding for the KBRA. The 2011 revised cost estimates also shifted a number of costs to later years; this reduced the cost estimates in the first seven years by 38 percent.

The Non-Federal Parties also identified the non-federal funding for implementing parts of the KBRA and the KHSA. For example, the states of California and Oregon will fund the counties program, the state regulatory activities, and certain of the fisheries activities that would not be funded by Federal agencies. In addition, PacifiCorp is funding the interim measures prior to the potential removal of the four PacifiCorp dams and PacifiCorp customers in California and Oregon and taxpayers in California would fund the removal of the dams under the KHSA. The estimates for non-federal activities totaled $550 million and averaged $61 million per year through 2020. Most of the costs related to the KHSA end in 2020 because the dams would be removed by that year if the Secretary of the Interior makes an affirmative determination under provisions of the KHSA; however, PacifiCorp would continue to fund hatchery production for a period of eight years after the removal of Iron Gate dam. These non-federally funded activities are in addition to the cost estimates for Federal funding of the KBRA.

A description of the 2011 cost estimate review is available on the KBCC website.

Economic Effects of the Klamath Basin Agreements

To provide context for the 2011 cost estimates to implement the Klamath Basin Agreements the Non-Federal Parties developed estimates of the economic activities that would benefit from implementation of the Agreements. For example, the Non-Federal Parties estimate that agricultural production in the Upper Klamath Basin contributes $600 million per year in farm-gate and other commercial revenues. Farming is one of the leading sustainable businesses within this region and is relied upon for household income, property and other taxes, and 4,500 jobs. Salmon fisheries reliant on fish from the Klamath River result in more than $150 million per year in economic benefits in Oregon and California and are important to tribal fisheries. In addition, six National

Wildlife Refuges provide habitat for most of the migratory waterfowl on the Pacific Flyway.

Implementation of The Klamath Agreements would generate significant economic benefits in the four counties in the Basin. The KBRA Non-Federal Parties estimate that these measures would provide an estimated 707 jobs in Oregon, increase business revenues by $40 million per year, and increase personal income by $29 million per year. In California, these measures would provide 465 jobs, increase business revenues by $30 million per year, and increase personal income by $24 million per year. In addition, improved Klamath salmon runs would support an additional 4,300 jobs in the ocean fishing industry and increased tribal and recreational fisheries.

1.5 Monitoring implementation of Klamath Basin Restoration Agreement

The KBCC has developed a process to track implementation of all near-term commitments in the KBRA. The facilitator prepares a status report on all these actions and it is reviewed at each KBCC meeting. Copies of these reports are posted on the website. The status of the implementation of these actions is summarized in this report. The KBCC also reviews the status of the implementation of the KHSA as each meeting.

1.6 Public Information and Involvement Plan

The KBCC was established to "promote continued collaboration, cooperation, coordination, and consultation among Parties and others as elements of the KBRA are implemented. The KBCC will provide for general oversight and administration, including activity and program coordination, information sharing, priority setting, fund seeking, and dispute resolution related to implementation of the Agreement…The KBCC will serve as the primary forum for public involvement in implementation of the Agreement." (KBRA Appendix D-1, page D.3)

The KBCC has independent obligations under the KBRA not only to encourage public involvement in KBRA implementation, but also to keep the public informed about KBRA activities.

Many of the actions contemplated by the KBRA are also actions by federal or state agencies. Additional public input to such actions will be managed by the relevant agencies pursuant to applicable laws which mandate public participation in the decision making process such as the National Environmental Policy Act or California Environmental Quality Act. However, the KBCC serves as an information clearing house so that members of the public have a one-stop access point to what could otherwise be scattered information on these related agency processes.

The KBCC has also established communication objectives, developed tools for meeting these objectives, and defined the scope of its communications responsibilities. That scope, however, relates to official KBCC communications, and does not limit the communications efforts of any of its member Parties.

The KBRA commits the Parties to operate in a publicly transparent manner, actively solicit public input, and consider public input in decision making. To facilitate this, the KBCC provides public notice of upcoming meetings through general notices to local media outlets, emails to individuals requesting information, and on the KBCC website that lists meetings, meeting materials, and official documents. Each KBCC meeting provides an opportunity for general public comment and comment on any agenda item.

2. Fisheries Program

The goals of the Fisheries Program are to: 1) restore and maintain ecological functionality and connectivity of historic fish habitats; 2) re-establish and maintain naturally sustainable and viable populations of fish to the full capacity of restored habitats; and 3) provide for full participation in harvest opportunities for fish species.

The Fisheries Program will: 1) provide for reintroduction of anadromous species above the current site of Iron Gate Dam, including tributaries to Upper Klamath Lake; 2) establish conditions that, combined with effective implementation of the Water Resources Program and the Hydroelectric Settlement will contribute to the natural sustainability of fisheries and full participation in harvest opportunities, as well as the overall ecosystem health of the Klamath River Basin; 3) monitor the status and trends of fish and their habitats; and 4) assess the effectiveness of actions and provides for adaptive management.

2.1 Fisheries Restoration and Monitoring Program

Under Sections 10.1 and 12 of the KBRA, the Klamath Fish Managers are working to prepare a Fisheries Restoration Plan and a Monitoring Plan. This section describes the progress to date.

Fish Managers have been meeting since July 2010 to work on the Fisheries Restoration and Monitoring Plan. The Fish Managers prepared a draft *KBRA Phase I Fisheries Restoration and Monitoring Pan: Proposed Outline and Approach* on November 29, 2010 and made a presentation to the KBCC on December 15, 2010 and sought comments from KBCC members.

The KBRA *Phase I Fisheries Restoration and Monitoring Plan: Proposed Outline and Approach* was finalized on February 4, 2011 and was the culmination of a series of meetings among Fish Managers. The purpose of the document was to outline the initial steps and general approach toward achieving the KBRA directive to develop a monitoring plan and a restoration plan. The document expressed the group's general consensus to integrate the restoration and monitoring plans into a single "Phase I Fisheries Restoration and Monitoring Plan" using a multiple-scale approach and to base restoration and monitoring actions on basin-scale ecological goals. Integrating the plans in this manner ensures that science is connected with decision making, that Fish

Managers make good use of existing knowledge, and that goals and objectives are defined early so as to serve as the basis for prioritization of methods and actions.

As an interim step, Fish Managers developed a budget justification document to provide further explanation of the restoration and monitoring budget presented in KBRA Appendix C-2, which details specific restoration actions and associated costs. Although the budget justification is based on best professional judgment at the time of its development, Fish Managers intend to implement a more goal-driven, comprehensive landscape-based restoration prioritization strategy and associated monitoring approach based on adaptive management and consistent with the collaboratively produced outline. The details within the budget justification are thus subject to evaluation and review as outlined within the document. The fisheries restoration and monitoring plan would likely conform to the initial cost estimates but would also include a process to geographically prioritize roads for decommissioning based on environmental variables (e.g., fish passage or slope stability criteria) that affect the severity of road impacts and thus the ecological benefits of decommissioning.

The next steps necessary to achieve progress toward the development of a Phase I Fisheries Restoration and Monitoring Plan would include the following:

1. Develop a scope of work to develop detailed costs for preparing the draft Phase I Fisheries Restoration and Monitoring Plan and continue to work on funding.

2. Develop a synthesis of existing scientific studies, restoration planning efforts, and monitoring activities to inform the process and to reduce duplication of effort. This activity would also serve as the basis for the introduction and background sections of the Phase I Restoration and Monitoring Plan and potentially populate a metadata library for use by program partners.

3. Collectively, define goals and objectives consistent with KBRA associated with restoration and monitoring (instream, riparian and upland) so as to directly benefit existing fish resources and significantly contribute to protecting and preparing habitats for use by anadromous fish.

4. Identify and develop an initial prioritization of restoration actions based on defined goals so as to directly benefit existing fish resources and significantly contribute to protecting and preparing habitats for use by anadromous fish. Develop government cost estimates for tasks based on this prioritization that can be used to refine initial cost estimates provided in KBRA Appendix C-2.

5. Develop adaptive monitoring processes to evaluate restoration effectiveness, fish population status and trends, and environmental water quality/quantity as described in the KBRA.

These steps are proposed to allow for objective prioritization of tasks using a process-driven approach that can then be compared and used to modify the tasks listed in the budget justification details, where appropriate. It should be noted that each of the

activities listed above will draw from existing information and incorporate existing programs, where practical, to avoid redundancy and improve cost effectiveness.

On February 8, 2011, Fish Managers agreed to move forward with the outline and approach document and begin to work towards achieving the next steps. Because dedicated funds have not yet become available, agencies are currently working together to identify funds to address items 1 and 2 above.

When funding is available, completion of these tasks would assist in the prioritization process and provides a strong foundation for the development of the full Phase I Fisheries Restoration and Monitoring Plan. The Fish Managers understand that items 1 and 2 must be completed in a collaborative manner that incorporates the participation of stakeholders and partners.

On February 14, 2011, the Fishery Managers requested an extension for the draft until 18 months after the Fish Managers receive funding necessary to develop the draft plan.

The Klamath Fish Managers are comprised of: the California Department of Fish and Wildlife, the Karuk Tribe, the Klamath Tribes, the Yurok Tribe, the National Marine Fisheries Service, the Oregon Department of Fish and Wildlife, the U.S. Bureau of Land Management, the U.S. Fish and Wildlife Service, and the U.S. Forest Service.

2.2 Fisheries Reintroduction Plan

Oregon Plan

The Oregon Fish and Wildlife Commission adopted an amendment to the Klamath River Basin Fish Management Plan on July 18, 2008. The 2008 Amendment (OAR 635-500-3890 *et seq*.) provides policy direction for the Oregon Department of Fish and Wildlife's (ODFW) participation in the implementation of this section of the KBRA. (See KBRA Section 11.3)

General Policy: Oregon's Wildlife Policy (ORS 496.012) recognizes that the Oregon Fish and Wildlife Commission represents "the public interest of the State of Oregon" and further will implement the goal "to develop and manage the lands and waters of the state in a manner that will enhance the production and public enjoyment of wildlife." By statutory definition, wildlife includes fish. Nothing in the KBRA modifies or abrogates the Oregon Fish and Wildlife Commission's statutory responsibilities.

Amended Klamath Policy: Oregon's goal is to re-establish in Oregon self-sustaining, naturally-produced populations of chinook, steelhead, coho, and lamprey that were historically present in the Upper Klamath Basin, into historic habitats currently vacant of anadromy.

The 2008 Amendment to the Klamath River Basin Fish Management Plan (1997) directs ODFW to develop a Reintroduction Implementation Plan and an Anadromous Fish

Conservation Plan for the Oregon portions of the Klamath River Basin. The Reintroduction Implementation Plan corresponds with the Phase I Plan described in KBRA Section 11.2 and 11.3.1. The Anadromous Fish Conservation Plan corresponds with the Phase II Plan described in KBRA Section 11.3.2.

The 2008 Amendment to the Klamath River Basin Fish Management Plan (1997) provides policies that direct ODFW to: develop a Reintroduction Implementation Plan prior to release of any chinook above Upper Klamath Lake; monitor the volitional re-colonization of the Oregon portion of the Klamath River and tributaries by chinook salmon, steelhead, coho salmon, and Pacific lamprey, and not release anadromous fish into the Oregon portion of the Klamath River and tributaries below Upper Klamath Lake unless re-colonization is proceeding too slowly according to criteria developed in the Reintroduction Plan; and develop a Reintroduction Implementation Plan prior to release of any chinook above Upper Klamath Lake.

Under KBRA Section 11.3, ODFW and Klamath Tribes, in collaboration with other tribes and Fish Managers will initiate plan development when funding is available, but no later than State Concurrence of an Affirmative Declaration by the Secretary of the Interior under KHSA Section 3.3. In preparing the plan, these agencies will seek input from interested KBRA Parties and others with technical expertise. The schedule calls for completing the Phase I Plan within 12 months.

California Plan

The California Department of Fish and Wildlife (CDFW), in collaboration with other Fish Managers will initiate the California Reintroduction Plan when State Concurrence of an Affirmative Declaration by Secretary of Interior under KHSA Section 3.3 is complete. CDFW will seek input from other Parties and public and complete the plan within 24 months. (See KBRA Section 11.4)

3. Water Resources

The KBRA contains a number of measures to provide water supply reliability. The KBRA also includes a number of actions to increase the amount of water to improve instream flows in the Klamath River and tributaries, maintain the elevation of Upper Klamath Lake, and provide specific allocations and delivery obligations for water for the Lower Klamath and Tule Lake National Wildlife Refuges.

3.1 File validation actions

The KBRA contains a number of measures to improve water supply reliability. The KBRA also includes a number of actions to increase the amount of water to improve instream flows in the Klamath River, its tributaries and Upper Klamath Lake, and provide specific allocations and delivery obligations for water for the Lower Klamath and Tule Lake National Wildlife Refuges.

3.2 Collaboration to Benefit Agriculture and Wildlife Refuges.

The U.S. Fish and Wildlife Service (FWS) and Klamath Project Water Users are working on interim actions under KBRA Section 15.1.2.J to resolve outstanding issues related to water rights for the Refuges. Other provisions will be implemented on a schedule that will allow implementation when the diversion limits in Appendix E-1 become effective in 2020 or 2021. (See KBRA Section 15.1.2.C)

3.3 On-Project Plan

The KBRA established limitations on the quantity of water diverted from Upper Klamath Lake and the Klamath River for use in the Klamath Reclamation Project; based on historical records, the difference between the amount of such water available for irrigation in the Project and the demand for such water is approximately 100,000 acre-feet in the driest years, with irrigation water availability increasing on a sliding scale with increasingly wet conditions. The KBRA calls for Klamath Water and Power Agency (KWAPA)—a joint powers entity comprised of irrigation districts—to develop a long-term plan which will include measures to operate within the KBRA diversion limits. KWAPA has completed considerable work toward preparing a proposed On-Project Plan (see Section 15.2.2.B.i). The projected completion date is December 31, 2013. The parties understand that federal approval and funding of plan implementation requires the enactment of federal legislation approving the Klamath Basin Agreements.

3.4 Groundwater Technical Investigations

USGS, in cooperation with OWRD, has initiated groundwater studies pursuant to the workplan in Appendix E-2. (See KBRA Section 15.2.4.B).

KWAPA has met with OWRD and other interested Parties regarding the development of On-Project Plan and groundwater use under the Plan, and will meet again at least 30 days prior to completion of the On-Project Plan (Section 15.2.4.B.iv.a).

3.5 D Pumping Plant Costs

Reclamation, TID, and LKNWR have reviewed cost allocation in KBRA Section 15.4.2.A. These parties agreed to maintain the allocation stated in this section.

3.6 Klamath Reclamation Project operations

The Secretary of the Interior is working with Project contractors to establish a process to analyze the Klamath Reclamation Project costs (KBRA Section 15.4.7).

3.7 Klamath Basin Adjudication Process

On March 7, 2013, the Oregon Water Resources Department (OWRD) delivered a Final Order of Determination to the Klamath County Circuit Court. With this delivery, OWRD has completed the administrative phase of the Klamath River Basin Adjudication.

The Final Order of Determination in the Klamath River Basin Adjudication represents the culmination of 38 years of work to determine the validity of 730 claims to the use of surface water in the Klamath River Basin. Since 1975, the OWRD systematically reviewed and determined these claims. It also received and resolved 5,660 contests to these claims.

During this phase, administrative law judges from Oregon's Office of Administrative Hearings issued proposed orders for certain contested claims, making recommendations about the validity of these claims. With the OWRD's issuance of the Final Order of Determination, the administrative phase of the Klamath River Basin Adjudication is now complete.

The most senior determined claims in the Klamath River Basin Adjudication are claims held by the United States in trust for the Klamath Tribes. These claims carry a priority date of "time immemorial." The tribal claims were recognized for certain reaches of the major tributaries to Upper Klamath Lake, and for Upper Klamath Lake itself.

During the second phase of the Klamath River Basin Adjudication claimants or contestants who dispute the OWRD's determinations will have an opportunity to file exceptions with the Klamath County Circuit Court. The Court will review those exceptions, and issue a water rights decree, either affirming or modifying the Final Order of Determination.

Oregon follows the "prior appropriation" doctrine of water use, like most western states. When there is not enough water to satisfy all the water rights, water users with senior priority dates will receive water, while water users with relatively junior rights will not. Simply stated, water users who are "first in time" are "first in right."

The completion of the Final Order of Determination means that the recognized claims are provisionally a part of Oregon's "first in time, first in right" prior appropriation system. Water users with recognized claims may now make calls for regulation of junior water users if doing so will result in additional water being available to the senior user.

One practical effect of the Adjudication is that some water users who have regularly been able to make use of the full amount of water under their claims, water right certificates, or water use permits may no longer be able to in certain years, while some water users who have not always been able to make use of the full amount water under their claims may now be able to. Regulation of water rights is normal practice in other basins in Oregon. Water management in the Klamath River Basin will now operate in the same manner as other parts of the state.

Given the low-water year in the Klamath Basin, there have been requests for regulation by water right holders, and OWRD has regulated most water right holders in the Upper Klamath Basin in order to meet those rights.

3.8 Off-Project Water Settlement Negotiations

The purposes of the Off-Project Water Program are to: (i) develop an Off-Project Water Settlement (OPWAS) if possible that, upon approval, resolves water rights disputes between the Off-Project Irrigators, Klamath Tribes, and BIA; and (ii) through the OPWAS, or the Water Use Retirement Program (WURP) described in KBRA Section 16.2.2, provide for increased stream flow and inflow into Upper Klamath Lake through voluntary retirement of water rights or water uses, or other means as agreed to by the OPWAS Parties, or the Upper Basin Team (UBT) consistent with KBRA Section 16.2.2, to improve Fisheries habitat and also to provide for stability of irrigation water deliveries in the Off-Project Water Program.

The area for the Off-Project Water Program (Off-Project Area) includes the following sub-basins: the Wood River, Sprague River, Sycan River, and Williamson River sub-basins. The "OPWAS Parties," are the Klamath Tribes, Upper Klamath Water Users Association (UKWUA), and the BIA.

Congress has not passed the authorizing legislation for the KBRA; therefore, funding has not been available for these settlement efforts or the programs contained in the KBRA and BIA has not become a Party under KBRA Section 1.1.2. Nevertheless, settlement efforts are ongoing as part of the Klamath Basin Task Force, as described below

Klamath Basin Task Force Activities

The Klamath Basin Task Force convened by Senators Wyden and Merkley, Congressman Walden, and Governor Kitzhaber has been asked to develop a settlement of water management issues in the upper Klamath Basin that results in:

- At least 30,000 acre feet of increased water inflows into Upper Klamath Lake through a voluntary program to idle water usage;

- Permanent resolution and protection of significant riparian areas in the Wood, Sprague, and Williamson basins, as well as other tributaries to Upper Klamath Lake, sufficient to produce the water quality and habitat improvement needed for fisheries; and

- Regulatory assurances for water and land uses in the Upper Basin, both in terms of a negotiated settlement of the exercise of state water rights, and federal Endangered Species Act (ESA) and Clean Water Act (CWA) compliance.

A workgroup of Upper Basin parties is meeting to develop a settlement that will meet these goals.

3.9 Power for Water Management Program

Two workgroups under the Klamath Basin Task Force are working to address outstanding power issues for the Klamath Basin Project and the Upper Basin irrigators and to make recommendations to Senators Wyden and Merkley, Congressman Walden, and Governor Kitzhaber.

Upper Klamath Basin irrigators are experiencing significantly higher power costs. Prior to 2006, costs for pumping were established in 1956 contracts entered into in connection with the original Federal license for the four Klamath River dams owned by PacifiCorp; the rates were approximately 0.4 to 0.7 cents per kilowatt-hour, depending on the type and location of pumping. The license and contract expired in 2006; under Federal law, the license automatically renews for one-year terms until FERC acts on a new license; the contracts did not. Since the expiration of the contract, electricity rates have increased to approximately 10 cents per kilowatt hour. These higher rates have a significant effect on irrigators and the management of water and realization of the goals and purposes of the KBRA.

To address this problem, the KBRA includes a Power for Water Management Program to ensure affordable electricity for eligible On-Project and Off-Project irrigators to: (i) allow efficient use, distribution, and management of water within the Klamath Reclamation Project and the National Wildlife Refuges, and facilitate the return of water to the Klamath River; (ii) implement the WURP and OPWAS; (iii) realize objectives of the Fisheries Restoration Program; and (iv) provide power cost security to assist in maintaining sustainable agricultural communities in the Upper Klamath Basin.

The program includes a number of actions that are designed to achieve a delivered power cost target level at or below the average cost of similarly situated Reclamation irrigation and drainage projects in the surrounding area. The actual realization of the delivered power cost target depends on several factors and variables, and is not guaranteed by the KBRA.

There are three elements to the Power for Water Management Program. An Interim Power Program to provide funding to assist with power costs while the long-term program is being developed. Implementation of this program requires federal legislation. Second, a long-term Renewable Resources and Conservation program to develop renewable resources that would provide revenue to assist with power costs. Implementation of this program requires federal legislation. The third element is a Federal Power Program to provide lower-cost federal power to On-Project and Off-Project irrigators. Reclamation currently has authority to purchase federal power and deliver it to On-Project loads. Service to Off-Project irrigators will require federal legislation.

One of the Task Force workgroups is working to implement parts of the Federal Power Program. (See KBRA Section 17.6). Representatives from the Bonneville Power Administration (BPA), Bureau of Reclamation, PacifiCorp, Klamath Water and Power Authority, Klamath Basin Power Alliance, and Klamath Water Users are working on all the steps necessary for Reclamation to purchase BPA power and deliver it to the Oregon irrigators on the Klamath Reclamation Project. These parties are working to get the BPA power sales contract in place by June 2014 so the lower-cost BPA power can be delivered by October 2015. Reclamation and the local irrigator groups are also working with the Western Area Power Administration (Western) so Reclamation can purchase power from Western to serve the California irrigations on the Project. These efforts are designed to provide a model for serving off-Project irrigators if Congress passes legislation authorizing Reclamation to serve them.

A second Task Force workgroup, comprised of Upper Basin irrigators, is reviewing the eligibility criteria for the program.

There has been other progress in the Power for Water Management Program. The Klamath Water and Power Agency (KWAPA) and the Upper Klamath Water Users Association (UKWUA) have formed the Management Entity known as the Klamath Basin Power Alliance or KBPA and developed operating protocols and guidelines. KBPA has also developed a communications plan. Other guidelines are pending completion of the power sales contract between Reclamation and BPA. (See KBRA Sections 17.4.1 and 17.4.3). KBPA will be working on a financial and engineering plan pending funding. (See KBRA Section 17.7.2).

3.10 Williamson River Delta

The Nature Conservancy (TNC) completed the breaching of the levies in November 2007 to restore approximately 28,800 acre-feet (gross) of lake storage capacity when Upper Klamath Lake elevations are between 4143.3 and 4136.0 feet. Funding was provided by Reclamation, PacifiCorp, Natural Resource Conservation Service and the U.S. Fish and Wildlife Service (FWS). The KBRA Parties have agreed to support efforts to monitor the effects on fish populations and water quality associated with this restoration project. (See KBRA Section 18.2.1)

3.11 Agency Lake and Barnes Ranch

To achieve water management outcomes consistent with this Agreement, the diked and drained areas of Agency Lake and Barnes Ranches that once were part of Agency Lake may be operated as pumped storage within existing dikes subject to KBRA Section 18.2.2.D, with the goal of reconnecting to Agency Lake by breaching existing dikes.

Reclamation and FWS completed a transfer of the lands, including the related data and documentation. (See KBRA Section 18.2.2.B).

FWS provided a status report to the KBCC at the September 2011 meeting. It is working to complete a study on options identified in KBRA Section 18.2.2.C.

3.12 Wood River Wetland

To achieve water management outcomes consistent with the KBRA, the Parties' ultimate goal is to reconnect Wood River Wetland to Agency Lake when physical and biotic conditions are sufficient to provide the wetland restoration benefits for which the property was acquired.

BLM currently manages the Wood River Wetland to restore wetlands adjacent to Agency Lake. In furtherance of the KBRA and the ultimate goal, BLM, in collaboration with the KBAC and TAT is preparing a study that evaluates options for enhancing water management flexibility in providing benefits for water storage, fish, wildlife, and wetlands habitat. This study will consider options including, among others, whether diked and drained areas of Wood River Wetland that once comprised Agency Lake should be operated as pumped storage within existing dikes, or fully reconnected to Agency Lake by breaching dikes. Either option would result in a total water volume of approximately 16,000 acre-feet of gross storage between elevations 4143.3 and 4136.0 feet.

3.13 Future Storage

Reclamation has conducted studies on potential sites that could provide more storage in the Upper Klamath Basin (See KBRA Section 18.3.1). Reclamation has provided reports to the KBCC. A copy of the Upper Klamath Basin Off-Stream Storage report is available at: http://www.usbr.gov/mp/kbao/special_projects.html.

3.14 Develop Drought Plan

The KBRA includes a number of programs related to water diversion and use, and improvements for fish habitat and passage. The Parties to the Agreement recognized that additional measures would be needed in certain low-water years and committed to developing a Drought Plan under Section 19.2 of the Agreement. The Drought Plan's purpose and use is limited exclusively to implementation of the applicable terms of the KBRA.

In the instances of Drought and Extreme Drought, the Parties intended that water and resource management actions be taken such that no Klamath Basin interest would bear an unreasonable portion of burdens imposed or the risk of loss or injury.

The Klamath Basin experienced extremely low-water conditions this year. Full implementation of the water resource measures in the KBRA, including the Drought Plan would have provided coordinated and effective plans and operations that would have

made more water available for fishery resources and wildlife refuges and providing greater certainty for irrigators.

The Drought Plan was developed by the Drought Plan Lead Entity identified in the KBRA. The Lead Entity is comprised of: Klamath Tribes, Karuk Tribe, Yurok Tribe, Upper Klamath Water Users Association, the Klamath Water and Power Agency, the Klamath Basin National Wildlife Refuges, Oregon Water Resources Department, California Department of Fish and Wildlife, and Trout Unlimited, as the representative of the conservation and non-tribal fishing Parties to the KBRA.

The Drought Plan Lead Entity completed a final plan on July 11, 2011. That plan is currently being reviewed by the Department of the Interior for approval and funding; this review will also include environmental and any other procedures required by law. No funding is available to implement the Drought Plan. A summary and copy of the Drought Plan are available on the KBCC website.

3.16 Climate Change Assessment

The KBRA Parties will determine how long-term climate change may affect the fisheries and communities of the Klamath Basin. The parties would then re-convene to negotiate any supplemental terms to the KBRA which may be necessary to address changes in the climate in order to achieve the parties' goal of maintaining sustainable fisheries and communities.

The Oregon Water Resources Department (OWRD) and California Department of Fish and Wildlife (CDFW), in coordination with Water Managers and Fish Managers are co-lead parties for this assessment. These agencies initiated the assessment process in February, 2012. OWRD and CDFW are currently reviewing existing and planned climate change studies to determine whether they will be adequate for the assessment called for in KBRA Section 19.4. OWRD and CDFW then plan to develop a process and schedule for the assessment and meet with the KBCC to seek comments. OWRD and CDFW expect to coordinate the assessment with the work being conducted by Reclamation under the Secure Water Act.

Since Congress passed the Secure Water Act, Reclamation has been working toward completing two phases of the Act. The first phase is the West Wide Climate Risk Assessment which broadly looks at the risks to water supplies, power and the ecosystem throughout Reclamations facilities in the west but with emphasis on eight critical basins including the Klamath. The second phase is being referred to as the Basin Studies, which will look at the entire Klamath River water shed from the headwaters to Upper Klamath Lake to the estuary.

3.17 Interim Flow and Lake Level Program

Under this program, the Secretary of the Interior would plan and implement, or provide for, a water leasing and purchase program under KBRA Section 20.4 to provide additional flows and maintain lake levels for fish species until the other water programs are fully implemented. The Parties understand that Reclamation must have new or additional authority in order to fully administer the Interim Flow and Lake Level program provided in the KBRA.

4. Regulatory Assurances

The KBRA includes commitments by the parties to take every reasonable and legally-permissible step consistent with environmental laws and regulations to avoid or minimize any adverse impact, in the form of new regulation or other legal or funding obligation, that might occur to users of water or land upstream of Iron Gate Dam from introduction or reintroduction of aquatic species to currently unoccupied habitats or areas.

The KBRA also establishes steps designed to comply with the Endangered Species Act, including the preparation of biological opinions on specific federal actions called for in the agreement. The agreement also establishes a process to develop general conservation plans or habitat conservation plans that would be designed to assist non-federal parties to comply with the ESA. Participation in these plans would be voluntary.

4.1 Fish Entrainment Alleviation

Reclamation will evaluate methods, locations, and potential need to construct facilities to prevent fish entrainment at key upper basin water diversion points (KBRA Section 21.1.3.A). Reclamation will work with its Denver engineering office to develop strategies. This program would be implemented prior to the removal of PacifiCorp's hydroelectric dams, if there is an affirmative Secretarial Determination under the KHSA, so reintroduced salmon and other aquatic species are not entrained in Klamath Reclamation Project diversions.

4.2 California Laws

CDFW will evaluate the necessity for incidental take coverage following concurrence with an affirmative Secretarial Determination, by the Governor of California. Within 90 days of such concurrence, CDFW will advise the Parties of its determination and recommend specific procedures for obtaining any necessary coverage.

CDFW will also evaluate the necessity for revisions to existing Fish and Game Code sections 5515(b) and 3511(b). Within sixty days following concurrence by the Governor

of California with an affirmative Secretarial Determination, CDFW will provide the parties with draft legislation proposing any necessary modifications to these referenced statutes. (See KBRA Section 24)

4.3 Oregon Laws

ODFW will determine schedules for any environmental reviews in coordination with potential facilities removal. (See KBRA Section 25)

5. Counties Program

Klamath County requested an extension of the schedule to develop and adopt a Klamath County Program on May 8, 2012. (See KBRA Section 27.2). The KBRA Non-Federal Parties will seek funding for this program. (See KBRA Section 27.3). The KBRA Non-Federal Parties will support funding for mitigation for property tax impacts to be dispersed by July 1, 2016. On March 12, 2013 the Klamath County Board of Commissioners passed a resolution to withdraw from participation in the KBRA and KHSA.

6. Tribal Program

6.1 Tribal Participation in Fisheries and Other Programs

The Non-Federal Parties support funding for the KBRA signatory tribes to build the capability to participate in the implementation of the fisheries and conservation management programs (See KBRA Section 32). Funding is not yet available for these activities.

6.2 Economic Revitalization

The Non-Federal Parties support acquisition of funding by the Klamath Tribes to implement the Mazama Forest Project. (See KBRA Section 33.2) Support of this component is consistent with KBRA goals to provide economic stability of Klamath Basin communities. The Parties recognize that restoration of Treaty fisheries, important to the Klamath Tribes' economic stability and culture, will take decades to achieve. Implementation of the Mazama Forest Project will help provide economic stability to the Klamath Tribes and Klamath Basin residents in the interim, and into the future, while fisheries restoration occurs.

The Non-Federal Parties also support funding for the Klamath Tribes, Karuk Tribe, and Yurok Tribe to develop plans to promote economic development. Each tribe will develop plans to promote long-term, sustainable growth and development. These plans will enable the Tribes to establish long term, sustainable economic growth and development

within their communities, and to plan long term economic revitalization projects and strategies advancing efforts to provide a sustainable and achievable approach to lifting tribal communities out of generational poverty. Funding is not yet available for these activities.

6.3 Klamath Tribes' Interim Fishing Site

CDFW, the Klamath Tribes and relevant agencies of U.S. have developed a process for joint petition to California Fish and Wildlife Commission for the interim fishing site. CDFW and the Klamath Tribes have agreed to defer the submittal of a joint petition. (See KBRA Section 34).

Klamath Hydroelectric Settlement Agreement

7. Studies, Environmental Review, and Secretarial Determination

Under the Hydroelectric Settlement, the Secretary of the Interior, in cooperation with the Secretary of Commerce and other Federal agencies, will determine whether the conditions of the Hydroelectric Settlement have been satisfied, and whether facilities removal: 1) will advance restoration of the salmonid fisheries of the Klamath Basin; and 2) is in the public interest, which includes but is not limited to consideration of potential effects on affected local communities and tribes. The KHSA calls on the Secretary to use best efforts to complete this determination by March 31, 2012.

On February 27, 2012, the former Secretary of the Interior Ken Salazar announced that he would not make a decision by March 31, 2012 on potential removal of the dams because Congress had not yet enacted legislation necessary to authorize a Secretarial Determination under the terms of the KHSA. Interior also provided notice under Sections 3.2.5.D and 3.3.4 of the KHSA that the schedule for the environmental reviews and Secretarial Determination would be delayed.

In a press release, Secretary Salazar said: "The Department of the Interior, working with our partners at NOAA and the U.S. Forest Service, has upheld our commitments in these agreements that are so important to strengthening the health and prosperity of those that depend on the Klamath River for their way of life. I am proud of the work of our team of experts who have completed more than 50 new studies and reports that are providing significant new information on the potential effects of Klamath River dam removal as part of a transparent, science-based process."

These studies were conducted in coordination with the parties to the Hydroelectric Settlement and the public. The California Department of Fish and Wildlife and the State of Oregon will address applicable state laws prior to deciding whether to concur with any affirmative determination by the Secretary of the Interior.

7.1 Studies and Environmental Review

Federal agencies have finalized all the studies described in this section. Many of these studies were peer reviewed. Public meetings were held throughout the Klamath Basin to describe the studies and take public comment. The Federal Management Team has also sought comment from the Klamath Hydroelectric Settlement Agreement Parties.

The KHSA called for the Secretary of the Interior, in cooperation with the Secretary of Commerce and other Federal agencies to:

- Use existing studies and other appropriate data, including those in the FERC record for this project;
- Conduct further appropriate studies, including but not limited to an analysis of sediment content and quantity;
- Undertake related environmental compliance actions, including environmental review under NEPA; and
- Take other appropriate actions as necessary to determine whether to proceed with facilities removal.

Facilities removal is defined in the KHSA as the physical removal of all or part of each of the four PacifiCorp dams to achieve at a minimum a free-flowing condition and volitional fish passage, site remediation and restoration, including previously inundated lands, measures to avoid or minimize adverse downstream impacts, and all associated permitting.

Scientific, Engineering, and Economic Studies

The purpose of these studies was to fill in data gaps to ensure that the Secretary will be able to make a fully informed Secretarial Determination.

The Secretary of the Interior is committed to utilizing the best available science and the highest standards of scientific integrity to determine whether removal of four dams on the Klamath River will help restore salmonid fisheries and whether dam removal is in the public interest.

The Federal Team, in assembling new and existing studies to help make this decision, followed the guidance from the White House Office of Management and Budget on scientific peer review to analyze the potential costs and benefits of dam removal.

The following topical studies/reports were finalized and provided to the Secretary. In addition, the Klamath Dam Removal Overview Report (Overview Report) was finalized and provided to the Secretary; the Overview Report summarizes the major findings in these new topical reports along with major findings in other existing reports. The studies and reports are available on www.KlamathRestoration.gov.

List of Studies and Reports Developed or Reviewed for the Secretarial Determination Overview Report (Table 3-1 from the Overview Report)

Document Name
Biological Sub-team
Compilation of Information Relating to Myxozoan Disease Effects to Inform the Klamath Basin Restoration Agreement. (Bartholomew and Foott 2010)
Compilation of Information to Inform USFWS Principals on the Potential Effects of the Proposed Klamath Basin Restoration Agreement (Draft 11) on Fish and Fish Habitat Conditions in the Klamath Basin, with Emphasis on Fall Chinook Salmon. (Hetrick et al. 2009)
Effects of the Klamath Basin Restoration Agreement to Lower Klamath, Tule Lake and Upper Klamath National Wildlife Refuges. (Mauser and Mayer 2011)
Forecasting the response of Klamath Basin Chinook populations to dam removal and restoration of anadromy versus no action. (Hendrix 2011)
Klamath Dam Removal Drawdown Scenario 8: Potential Impacts of Suspended Sediments on Focal Fish Species with and without Mechanical Sediment Removal. (Stillwater Sciences 2011a)
Scientific Assessment of Two Dam Removal Alternatives on Chinook Salmon. Final Report from the Expert Panel. Addendum to Final Report, July 20, 2011. (Goodman et al. 2011)
Scientific Assessment of Two Dam Removal Alternatives on Coho Salmon and Steelhead. Final Report from the Expert Panel. (Dunne et al. 2011)
Scientific Assessment of Two Dam Removal Alternatives on Lamprey. Final Report from the Expert Panel. (Close et al. 2010)
Scientific Assessment of Two Dam Removal Alternatives on Resident Fish. Final Report from the Expert Panel. (Buchanan et al. 2011)
Synthesis of Effects to Fish Species of Two Management Scenarios for the Secretarial Determination on Removal of the Lower Four Dams on the Klamath River. (Hamilton et al. 2011)
Using Model Selection and Model Averaging to Predict the Response of Chinook Salmon to Dam Removal. (Lindley and Davis 2011)
Tribal / Cultural Sub-team
Current Effects of PacifiCorp Dams on Indian Trust Resources and Cultural Values in the Klamath River Basin. (DOI 2012a)
Potential Effects of Implementing the KHSA and KBRA on Trust Resources and Cultural Values. (DOI 2011b)
Economics Sub-team
Benefit Cost and Regional Economic Development Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2012a)
Commercial Fishing Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012a)
Economics and Tribal Summary Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2012b)
Hoopa Valley Tribe Fishery Socioeconomics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012b)
Hoopa Valley Tribe Sociocultural/ Socioeconomic Effects Analysis Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2011b)
Hydropower Benefits Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. EC-2011-02. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2012c)
In-River Sport Fishing Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012c)
Irrigated Agriculture Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2012d)
Karuk Tribe Fishery Socioeconomics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012d)
Karuk Tribe Sociocultural/ Socioeconomic Effects Analysis Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2011d)
Klamath Tribes Fishery Socioeconomics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012e)

List of Studies and Reports Developed or Reviewed for the Secretarial Determination Overview Report (Table 3-1 from the Overview Report)

Document Name
Klamath Tribes Sociocultural/Socioeconomics Effects Analysis Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2011e)
Ocean Sport Fishing Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012f)
Refuge Recreation Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (Reclamation 2011f)
Reservoir Recreation Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (Reclamation 2012g)
Resighini Rancheria Fishery Socioeconomics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012g)
Resighini Rancheria Tribe Sociocultural/Socioeconomics Effects Analysis Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (Reclamation 2011h)
Whitewater Boating Recreation Economics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (DOI 2012b)
Yurok Tribe Fishery Socioeconomics Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (NOAA Fisheries Service 2012h)
Yurok Tribe Sociocultural/ Socioeconomic Effects Analysis Technical Report for the Secretarial Determination on Whether to Remove Four Dams on the Klamath River in California and Oregon. (Reclamation 2011k)
Klamath River Basin Restoration Nonuse Value Survey Final Report. (RTI International 2011)
Engineering/ Geomorphology/ Constructability Sub-team
Detailed Plan for Dam Removal– Klamath River Dams. Klamath Hydroelectric Project FERC License No. 2082, Oregon-California. Public Review Draft. (Reclamation 2012e)
Feasibility, Risk, and Uncertainty of Mechanical Sediment Removal with the Proposed Action (Full Facility Removal) (River Design Group 2011)
Hydrology, Hydraulics and Sediment Transport Studies for the Secretary's Determination on Klamath River Dam Removal and Basin Restoration. Technical Report No. SRH-2011-02. Bureau of Reclamation Technical Services Center, Denver, CO. (Reclamation 2012g)
Klamath Settlement Process: Sediment Management in the Reservoirs. (CDM 2011c)
Klamath River Sediment Sampling Program: Phase 1 Geologic Investigations (Volumes 1 and 2). (Reclamation 2011a)
Reservoir Area Management Plan for the Secretary's Determination on Dam Removal and Basin Restoration. Technical Report No. SRH -2011-19, Bureau of Reclamation Technical Services Center, Denver CO. (Reclamation 2011g)
Real Estate Sub-team
Iron Gate and Copco Dams Removal, Real Estate Evaluation Report, Siskiyou County, California. (BRI 2011)
Dam Removal Real Estate Evaluation Update Report, December 2004 & 2006, Siskiyou County, California. (BRI 2012)
Assessment of Potential Changes to Real Estate Resulting from Dam Removal: Klamath Secretarial Determination Regarding Potential Removal of the Lower Four Dams on the Klamath River. (DOI 2012c)
Water Quality Sub-team
Assessment of Long Term Water Quality Changes for the Klamath River Basin Resulting from KHSA, KBRA, and TMDL and NPS Reduction Programs. (Water Quality Sub-team 2011)
Model Development and Estimation of Short-term Impacts of Dam Removal on Dissolved Oxygen in the Klamath River. (Stillwater Sciences 2011b)
Quality Assurance Project Plan, Sediment Contaminant Study, Klamath River Sediment Sampling Program. (Reclamation 2010a)
Screening-Level Evaluation of Contaminants in Sediments from Three Reservoirs and the Estuary of the Klamath River, 2009–2011. (CDM 2011e)
Sediment Chemistry Investigation: Sampling, Analysis, and Quality Assurance Findings for Klamath River Reservoirs and Estuary, October 2009 – January 2010. (Reclamation 2011j)
Simulating Water Temperature of the Klamath River under Dam Removal and Climate Change Scenarios. (Perry et al. 2011)

7.2 Draft Klamath Dam Removal Overview Report

On February 1, 2013, the Department of the Interior released the final *Klamath Dam Removal Overview Report for the Secretary of the Interior: An Assessment of Science and Technical Information* (Overview Report). Excerpts from the report are summarized below; a copy of the Executive Summary is available at www.klamathrestoration.gov.

Purpose of the Report

The Overview Report presents a synthesis of new scientific studies conducted by a multi-agency Technical Management Team (TMT), as well as other relevant existing reports. The Overview Report addressed the following four questions:

1. Will dam removal and KBRA implementation advance salmonid and other fisheries of the Klamath Basin over a 50-year time frame?

2. What would dam removal entail, what mitigation measures may be needed, and what would these actions cost?

3. What are the major potential risks and uncertainties associated with dam removal?

4. Is dam removal in the public interest, which includes, but is not limited to, consideration of potential effects on local communities and tribes?

The Overview Report focuses on addressing these four KHSA-derived questions and thus is not a comprehensive synthesis of all the literature available on the Klamath Basin. Findings and conclusions addressing the first three questions are contained in this report; the fourth question, as to whether dam removal and KBRA implementation is in the public interest, is not directly answered because that determination will be made by the Secretary of the Interior. The Overview Report, however, does summarize findings in subject areas relevant to a public interest determination, including the potential effects of dam removal and KBRA implementation on:

- National and regional economic development,
- Tribal communities,
- PacifiCorp customers,
- Cultural resources,
- Real estate values,
- National Wildlife Refuges,
- Wild and Scenic River values,
- Recreational opportunities,
- Water quality, and
- Greenhouse gas emissions, among other subject areas.

The report also provides some indicators of individuals' and households' views regarding declining fisheries and fish populations in the Klamath Basin and whether the KHSA and KBRA should be implemented. These views were obtained with surveys collected at a national level, a two-state area (Oregon and California), and in a 12-county region in

northern California and southern Oregon, as well as advisory votes in Siskiyou County, California, and Klamath County, Oregon, regarding dam removal and KBRA, respectively.

The Overview Report Executive Summary addresses each of the questions; the sections below summarize key findings.

Will Dam Removal and KBRA Advance Restoration of Salmonid and Other Fisheries of the Klamath Basin?

The TMT concluded that dam removal and KBRA implementation would improve salmon, steelhead, and redband trout populations and associated fisheries primarily by increasing access to historical habitat and thermal refuge areas in the upper basin, restoring mainstem and tributary habitat, and improving key biological and physical factors influencing the health and survival of these fish populations (e.g. hydrology, sediment transport, water temperature, and water quality).

Improvements to the resiliency of the Klamath Basin ecosystem would likely occur from the combined benefits of: (1) increased habitat area related to the reconnection of over 420 stream miles upstream of the Four Facilities; (2) coordinated basin-wide improvements to aquatic habitat through active restoration; (3) a real-time water management program that incorporates key elements of the natural hydrograph; (4) an active salmon reintroduction program; and (5) a fisheries monitoring and evaluation program that supports adaptive management. Dam removal and KBRA implementation are anticipated to improve the quality of currently accessible fish habitat, provide access to historical interior habitats that are currently unavailable due to the dams, and improve the viability of native fish populations by increasing their abundance, health, life history diversity, productivity, and spatial distribution.

Fish modeling results show that dam removal, combined with restoration of aquatic habitats as anticipated in the KBRA, is expected to increase the annual production of adult Chinook salmon by about 80 percent beginning in 2021 after dam removal. The median increase ranged from about 40 to 160 percent for the years modeled. The median ocean commercial and sport harvests of Chinook salmon are forecasted to increase by about 50 percent, the in-river tribal harvest would increase by about 60 percent, and the in-river recreational fishery would increase by about 10 percent after dam removal. A fisheries expert panel convened to independently assess whether dam removal would advance Klamath Basin Chinook fisheries concluded that dam removal and KBRA implementation would better address the core factors that affect fish populations and would have a much higher likelihood of success than progressing under current conditions with the dams remaining in place.

With dam removal, coho salmon would be expected to rapidly recolonize habitat upstream of Iron Gate Dam. Assuming coho salmon distribution would extend up to Spencer Creek after dam removal, coho salmon from the upper Klamath River population would reclaim 76 miles of habitat: approximately 53 miles in the mainstem Klamath

River and tributaries and 23 miles currently inundated by the reservoirs. Dam removal and KBRA implementation are also expected to result in significant improvements to mainstem Klamath River hydrology, instream habitat, water quality, and decrease the incidence of disease downstream of Iron Gate Dam thereby improving coho populations throughout the Klamath Basin. Populations currently in the vicinity of Iron Gate Dam are most affected by dam-related factors, and these populations would receive the most benefits from dam removal. The benefits of dam removal and KBRA implementation for coho salmon go beyond increased abundance. Colonization of the Klamath River between Keno and Iron Gate dams by the upper Klamath coho salmon population would likely improve the viability of the Southern Oregon/Northern California Coast Evolutionary Significant Unit (ESU) by increasing its diversity, productivity, and spatial distribution. In general, as habitat availability, quality, and diversity increase for an ESU, so does the resilience of the population, reducing the risk of extinction and increasing chances for recovery.

Dam removal would reestablish steelhead upstream of Iron Gate Dam and increase habitat available to this species by over 420 stream miles. Because of their ability to navigate steeper gradient channels and spawn in smaller, intermittent streams, and their ability to withstand a wide range of water temperatures, steelhead distribution in the basin would be expected to expand to a greater degree than that of any other anadromous salmonid species, thereby increasing steelhead abundance in the Klamath Basin. This conclusion is based on the likelihood of steelhead having access to substantial new habitat that will undergo restoration, the fact that other similar species (resident redband trout) are doing well in the upstream habitat, and that steelhead are currently at lower abundances than historical values but not yet rare. In general, removing dams and implementing KBRA would likely support a greater number of spawning areas, increase genetic diversity, and allow for a wider variety of life history patterns, which could increase the population's resilience.

Dam removal would increase free-flowing redband/rainbow trout habitat downstream of Keno Dam by restoring river channel habitat inundated by reservoirs, eliminating extreme daily flow and water temperature fluctuations in the J.C. Boyle Peaking Reach, and increasing flows in the J.C. Boyle Bypass Reach. This would expand the total distribution of a resident trophy-trout fishery by approximately seven times in this area. Benefits to redband/rainbow trout in tributaries to Upper Klamath Lake would be realized by habitat improvements stemming from implementation of the KBRA, and are expected to increase trout productivity upstream of Upper Klamath Lake.

Overall, dam removal and KBRA implementation would be a major step forward to restoring anadromous fish and in the conservation of native fish populations in the Klamath Basin. When estimates of mortality and sublethal effects in the short-term from sediment discharge are considered in conjunction with potential increases in habitat area and improvements in water quality, it is expected that populations would fully recover from any adverse effects from sediments within one to two years following dam removal. Dam removal and implementation of the KBRA would have substantial and important benefits for other fish species in the Klamath Basin.

What Would Dam Removal Entail, What Mitigation Measures May be Needed, and What Would These Actions Cost?

The TMT developed a detailed deconstruction plan, titled *Detailed Plan for Dam Removal – Klamath River Dams* (See www.klamathrestoration.gov). This plan integrated requirements in the KHSA for hydroelectric operations through 2019; considered the full range of flow conditions that could be encountered during dam removal; considered the unique features of each dam and each reservoir; and, considered reservoir drawdown rates that minimize bank slumping and addressed the need to minimize impacts on the ecosystem.

Reservoir drawdown and facilities removal was designed to minimize impacts on fish species and to protect threatened coho salmon. These goals resulted in the formation of a plan that calls for drawdown of the three larger reservoirs in the winter of a single year (2020). The plan ensures that the majority of reservoir sediments are transported downstream in January through March 15 when coho salmon, along with several other native fish species, are not present in large numbers in the Klamath River mainstem. This time period also corresponds to higher river flows needed to erode and transport the fine-grained reservoir sediments to the Pacific Ocean

Several mitigation measures were identified to help reduce the effects of dam removal. Additional mitigation actions may be identified at a later date in a "Definite Plan" for dam removal if there is an Affirmative Secretarial Determination. Moreover, a Record of Decision (ROD) on removal of the Four Facilities could include additional mitigation actions.

The TMT developed cost estimates for removal of the four dams. The most probable cost for removing all of the structures related to the four dams was $291.6 million (in 2020 dollars). The most probable cost for partial removal of the four dams (where some structures might be left in place) was $234.6 million with additional operation and maintenance costs of $12.4 million (in 2020 dollars). The TMT also developed a range of costs that are described in the Executive Summary.

What are the Major Potential Risks and Uncertainties Associated with Dam Removal?

Large dam removals involve inherent risks and uncertainties. Through the Detailed Plan and other studies, the TMT identified four primary risks that could result in changes to the expected effects of dam removal or anticipated construction activities.

Extended Downstream Sediment Transport: Downstream sediment transport could result in risks to aquatic resources beyond those already anticipated if mitigation, engineering and/or technical difficulties during dam removal extend the reservoir drawdown period. If the planned timeline for reservoir drawdown (January 1 through February 1) is not achieved, aquatic species would be exposed to high suspended sediment concentrations (SSCs) potentially extending into critical fish migratory periods.

To minimize this risk, the Definite Plan for dam removal (to be developed if there is an Affirmative Secretarial Determination) would place an emphasis on extensive preparations and studies to ensure old diversion tunnels and bypasses required for reservoir drawdown could be successfully reopened by January 1, 2020.

Cost Exceedence: The large and complex construction activities associated with removal of the four dams have the potential to include unexpected changes or unforeseen events, which could result in project costs greater than those originally estimated. Also, project challenges could impede the dam removal process or extend the project timeline, and could result in the accrual of additional project costs.

Risk to a Federal Dam Removal Entity (DRE) would occur during facilities removal if the DRE anticipated exceeding the state cost cap for dam removal but was unable to stop a portion of facilities removal due to safety considerations. Under these conditions, the Federal DRE could be incurring dam-removal expenses without a known source of funding. As stated in the KHSA, the Federal government is not responsible for any dam removal costs. To reduce this potential risk, the DRE construction management team would utilize construction cost forecasting continuously during facilities removal to determine early whether cost overruns were likely and to give the Parties to the KHSA time to address funding issues in a timely manner.

Short-term Flooding: Small flooding risks during dam removal are associated with initial reservoir drawdown and dam excavation at either Iron Gate or J.C. Boyle dams stemming from (1) an overly rapid drawdown rate resulting in embankment instability and failure, or slumping of the exposed dam face; or (2) the possibility of flows from a large event exceeding the available water bypass capacity and overtopping the earthen dam embankment during dam removal.

To address this risk, the *Detailed Plan for Dam Removal - Klamath River Dams* specifies that the embankment sections at Iron Gate and J.C. Boyle dams be removed beginning June 1, 2020, with the full removal completed by September 15, 2020. This period corresponds to the lowest river flows and would allow for the construction of coffer diversion dams to route flows around the earthen embankments greatly reducing the risk of overtopping. The Plan also specifies the maximum reservoir drawdown rates to reduce the chance of embankment failure.

Cultural and Historic Resources: Dam removal and reservoir drawdown could affect known historic and prehistoric properties and cultural resource and human burial sites listed or potentially eligible for listing on the National Register for Historic Places in the area of the construction footprint around the Four Facilities and reservoir drawdown zones, and along the edges of the Klamath River between J.C. Boyle Dam downstream to the confluence with Shasta River. Anticipated impacts include damage from construction activities; erosion and exposure from reservoir drawdown; damage from river erosion; and potential vandalism and theft of exposed cultural and historic resources. Numerous prehistoric sites and historic properties have been identified beneath the reservoirs or within the footprint of the dam removal activities. Dam removal and reservoir drawdown could affect these sites as well as other unknown sites. Additional identification efforts, effects assessments, and potential mitigation measures would be addressed through

additional NHPA Section 106 consultations if there was an Affirmative Secretarial Determination.

Encountering human remains, cultural resources, or historic resources could affect the timeline and cost of dam removal and should be fully considered when developing a Definite Plan.

Is Facilities Removal in the Public Interest?

The KHSA calls on the Secretary of the Interior to determine whether Facilities Removal is in the public interest, which includes but is not limited to consideration of potential impacts on affected local communities and Tribes (see KHSA Section 3.3.1).

The TMT concluded that dam removal and KBRA implementation would provide substantial social and economic benefits to the Klamath Basin and the region. However, dam removal would also alter or change the availability or quality of some resources and would negatively affect specific recreational resources, jobs, and real estate values closely associated with the dams and reservoirs. The Executive Summary provides a summary of the potential effects of dam removal and KBRA implementation on national, regional, tribal, and local communities, including economic and non-economic effects. Portions of the summary are excerpted below.

National Economic Impacts: The National Economic Development (NED) analysis evaluated the net economic benefits of dam removal with implementation of the programs in KBRA over the 50 year period from 2012 through 2061. All costs and benefits were discounted to 2012 dollars.

The NED benefit cost analysis indicates that the net economic benefits of Dam Removal and Implementation of the KBRA are strongly positive. This implies that dam removal and KBRA implementation (including the partial facilities removal option) is justified from an economic perspective.

The impacts on specific activities are summarized below.

Tribal Interests: Dam removal and implementation of the KBRA would help protect tribal trust resources and address various social, economic, cultural, and health problems identified by the six Federally recognized Indian tribes in the basin (Klamath, Karuk, Yurok, Resighini Rancheria, Quartz Valley, and Hoopa Valley). In particular, the Klamath Tribes of the upper basin have experienced their 92nd year (period starting with initial dam construction) without access to salmon and have continued to limit their harvest of suckers to only ceremonial use for the 25th consecutive year because of exceptionally low numbers and ESA protection.

Indian tribes of the Klamath Basin self-characterize themselves around a “Salmon Culture,” with ways of life and an economy intricately tied to the historical runs of salmon, and other fish and natural resources of the Klamath Basin. Klamath Basin tribes have social, cultural, and economic ties to each other due, in large part, to their shared reliance on Klamath River natural resources and its fisheries. Their social fabric and

culture is tied to the Klamath River as evidenced by their traditional ceremonial and spiritual practices that focus on the river, its fish, wildlife, and plants. Salmon far exceed other resources in its importance to the diet and culture of the Klamath Basin Indian tribes.

The Four Facilities have contributed to reduced fish stocks and poor river water quality that have directly affected tribal cultural practices. Reduced fish stocks have diminished Klamath Basin tribes' salmon based economy and in the case of the Klamath Tribes have completely elliminated their access to salmon and steelhead. These factors have contributed to high levels of poverty and diet based health problems among the Klamath Basin Indian tribes. Poor river water quality and reduced fish stocks have also disrupted river and fish based spiritual ceremonies and other traditional cultural practices, which has fragmented cultural identity.

Dam removal and the KBRA would have beneficial effects on water quality, fisheries, terrestrial resources, and traditional cultural practices. Primary among these are greater anadromous fish harvests for some tribes in the lower basin, a return of salmon and steelhead to the upper basin for the Klamath Tribes, and restoration efforts of Klamath Tribes sucker fisheries in Upper Klamath Lake and its tributaries. In addition, dam removal would enhance downstream water quality and the ability of Klamath Basin Indian tribes to conduct traditional ceremonies and other cultural practices. Implementation of the KBRA would provide funds to the signatory tribes (Klamath, Yurok, and Karuk) for restoration and monitoring projects that would create jobs for tribal members helping to alleviate tribal poverty rates. Table ES-13 lists the benefits of dam removal and KBRA implementation common to all tribes.

Commercial fishing: The four dams affect stocks of SONCC coho salmon ESU and Klamath River fall- and spring-run Chinook salmon. Under dam removal, coho retention would likely continue to be prohibited in the California and Oregon troll fisheries south of Cape Falcon. Troll harvest of Klamath Chinook salmon is expected to increase by an average 43 percent (2012 to 2061 time period)[2] with dam removal. Annual net revenue associated with total Chinook salmon harvest (all stocks) would increase under dam removal. The difference in annual net revenue between the dams remain and dam removal scenarios would be an increase of $7.296 million (2012 dollars) or a total of $134.5 million for the 50-year period of analysis.

In-river sport fishing: The four dams affect stocks for in-river recreational fisheries, including salmon, steelhead and redband trout, and the recreational sucker fishery, which has been closed since 1987. Dam removal would result in increased fish harvests, which would increase net economic values of in-river sport fishing. In-river recreational harvest of Klamath Chinook salmon is expected to increase by 8 percent (2012 to 2061 time period)[2]. The resulting average annual net economic value would increase $126,000 per year (2012 dollars). The incremental river sport fishery benefits for dam removal equates

[2] These values include on average the improvement to the fisheries that would occur from 2012 to 2020 prior to dam removal with the implementation of the KBRA measures. These averages would have been larger, as reflected in the Executive Summary Section ES.2.2, if the 42-year period following dam removal was used.

to a discounted present value of $1.75 million (2012 dollars) for the 50-year period of analysis. The prospects for restoration of the recreational sucker fishery appear limited for either a dams remain or dam removal scenario. The in-river sport fishing economic value does not include likely increases in steelhead and redband/rainbow trout fisheries, which was not quantified. Consequently, the total in-river sport fisheries economic value with dam removal is likely underestimated.

Ocean sport fishing: The ocean recreational harvest of Klamath Chinook salmon is expected to increase by 43 percent (2012 to 2061 time period)[2] under dam removal. Increased Klamath Chinook salmon availability would result in increased annual net economic values related to ocean sport fishing. Existing regulations for the recreational coho salmon fishery in California and Oregon are expected to continue in the future under both the dams remain and dam removal scenarios. The average annual increase in net economic value (for all areas combined) under a dam removal scenario is $2.744 million (2012 dollars). The incremental ocean sport fishery benefits for dam removal equates to a discounted present value of $50.5 million (2012 dollars) for the 50-year period of analysis.

Irrigated agriculture: Increased water supplies during dry and drought years under the dam removal and KBRA implementation would increase gross farm revenues from irrigated agriculture, which would result in economic benefits in about one out of every 10 years, for a total of about $30 million (2012 dollars) over the 50-year period of analysis.

Refuge recreation: Dam removal and KBRA implementation are estimated to increase waterfowl abundance at refuges and hunting trips to the refuges. Increased hunting trips would result in increased economic value related to waterfowl hunting activities. The difference in net revenue between the dams remain and dam removal scenarios would be an increase of $4.3 million (2012 dollars) over the 50-year period of analysis. Refuge wildlife viewing was not quantified but is projected to increase. Consequently, the total economic value of refuge recreation with dam removal and KBRA are underestimated.

Dam removal would also result in some foregone economic benefits; these foregone benefits occur in the following categories:

Hydropower: The four dams would generate an average of 895,847megawatt hours of electricity annually over the period 2012-2061 if the existing dams were left in place and planned efficiency upgrades were completed. Under the dam removal scenario, the four dams would operate normally during 2012–2019 (8 years). After this time period, the production of electrical energy and capacity at the four dams would be zero from January 1, 2020 through the end of 2061 (42-years). Under a dam removal scenario, the estimated mean present value of hydropower economic benefits was approximately $289.2 million (2012 dollars), over the 50-year period of analysis. Relative to the dams remain scenario, this represents a mean reduction in economic benefits of approximately $1.32 billion (2012 dollars).

Whitewater boating: With dam removal, whitewater boating activity on the upper Klamath River would decrease beginning in 2020 because of the dependence of water releases from the J.C. Boyle Dam to provide sufficient and predictable flows, primarily for whitewater boating in the heavily used Hell's Corner Reach. The average number of days with acceptable flows for whitewater boating on the Hell's Corner Reach would decline by 43 percent during the five month period from May through September. The total discounted loss in economic value associated with whitewater boating recreation with dam removal is estimated at $6 million for the 50-year period of analysis.

Reservoir recreation: With dam removal, the use of reservoirs for flat-water boating, fishing and other uses would be lost. The dam removal scenario results in a loss of 2.03 million total recreation days. The total discounted loss in economic value associated reservoir recreation is $35.4 million for the 50-year period of analysis.

Regional Economic Impacts: Dam removal actions have short-term and long-term positive and negative effects on jobs in the regional economy. Construction activities associated with dam removal, mitigation actions, and implementation of KBRA programs would add jobs, labor income, and economic output to the region in the short-term (2012 -2026). For example, jobs associated with KBRA implementation spending would span 15 years, jobs associated with dam removal would likely span just a single year, and jobs associated with mitigation measures would span about 8 years. Over the longer term, dam removal and KBRA programs would result in the addition of jobs in the region related to irrigated agriculture, commercial fishing, in-river sport fishing, ocean sport-fishing, and refuge recreation. Added jobs in these areas would increase regional labor income and economic output; producing a long-term positive effect on regional economic development.

Dam removal would eliminate long-term jobs related to annual operation and maintenance (O&M) expenditures associated with the four dams. In addition, changes to whitewater boating opportunities and loss of open-water and flat-water recreation activities at the Klamath Hydroelectric Project reservoirs would also result in lost regional jobs.

Implementation of the KHSA and KBRA would add regional short-term and long-term jobs and would increase labor income and regional economic output. Added jobs include full time, part time, and temporary positions. The regional economic analysis compares two scenarios: dam removal and implementation of the KBRA, and leaving the dams in place without implementation of the KBRA. It is important to note that regional impacts were analyzed by scenario specific definitions, periods of occurrence, and other factors; therefore, the potential impacts (such as jobs) should not be summed across a category or region.

The largest decrease in annual average jobs (estimated at 49) and average annual decrease in regional output ($5 million) associated with dam removal would occur because of reduced spending on operation and maintenance of the four dams between 2020 and 2061.

The largest increases in jobs and regional output would be associated with dam decommissioning, implementation of mitigation actions associated with dam decommissioning, implementing the KBRA programs, and the resultant improvements in agricultural (during drought years) and commercial fishing.

Dam decommissioning would result in an estimated 1,400 regional jobs and a regional output of $163 million; these would occur during the single year of dam decommissioning in 2020.

Implementing mitigation measures would result in an estimated 217 short-term jobs and regional output of $30.86 million between 2018 and 2025; annual jobs and annual regional output would vary year by year proportionate to actual regional spending.

Implementation of KBRA programs would result in about 300 annual jobs (4,600 jobs over 15 years) and $29.6 million in average annual regional output from 2012 through 2026. Jobs and regional output estimates would also vary year by year proportionate to actual KBRA regional spending. Through the KBRA Water Program, agriculture would not decrease as markedly during drought years (which occur about once every 10 years) and would result in an estimated 70 to 695 more jobs (depending on the severity of the drought) than would occur without KBRA. The corresponding range of the estimated increase in regional output would be $9 to $84 million. Implementation of the two agreements would improve commercial fishing in five management areas along the Oregon and California coastlines. The three largest average annual increases would be in the San Francisco Management Area (219 jobs and $6.6 million), Central Oregon Management Area (136 jobs and $4.07 million), and Fort Bragg Management Area (69 jobs and $2.41 million).

Impact to Real Estate Values: Loss of reservoir amenities (views, frontage, and access) would negatively affect private parcel values around Iron Gate and Copco 1 reservoirs. Affected lands include 668 parcels that have frontage, proximity, or view of the reservoirs. Of these parcels, about 19 percent (127 parcels) have been developed as single-family residences. About 518 parcels are currently vacant residential land. Based upon a limited data set covering 3 years (2004, 2006, and 2008) of land sales data for reservoir and non-reservoir parcel data, a discount in land value was found based on a potential change from reservoir view to no view, or reservoir frontage to river view, ranging from 25 to 45 percent, and averaging about 30 percent. The after dam removal condition values assume the river and land under the reservoirs are restored to their native condition; however, there would be a period after dam removal and before this restoration process is complete when it is anticipated that land values would be even lower. It is unknown how long this restoration would take and what the property value impacts would be during this interim period. The aggregate decrease in value for the 668 potentially affected land parcels would be about $2.2 to 2.7 million dollars.

Parcels downstream of Iron Gate Dam that experience river water quality improvements and/or improved fisheries from dam removal and implementation of the KBRA may experience positive changes in value in the long-term. However, data was not available

on the timing, magnitude, and spatial extent of these changes to quantify effect to parcel values.

Impact on PacifiCorp Customers: A prerequisite to the $200 million (2020 dollars) customer surcharges necessary for KHSA implementation was concurrence from the California Public Utility Commission (CPUC) and the Oregon Public Utility Commission (OPUC) with PacifiCorp's conclusion that implementing the KHSA would be in the best interest of their customers and that the incremental increases were fair and reasonable. PacifiCorp's records and testimony before both commissions compared two scenarios: (1) customers' cost and risks under the KHSA dam removal, and (2) customers' cost and risks from relicensing the Four Facilities. It is important to note that the TMT did not evaluate the potential costs or risks to PacifiCorp customers for relicensing the dams. PacifiCorp reported that relicensing would require implementing new mandatory flow conditions for the project (decreasing power generation by 20 percent and reducing peaking-power opportunities), constructing and operating fish passage at the dams, and addressing water-quality issues in and below the reservoirs. PacifiCorp estimated these actions would cost in excess of $460 million (2010 dollars) in capital and operating expenses. PacifiCorp also reported that these are uncertain and uncapped costs and thus represent a substantial financial risk to its customers. For example, if the fish passage measures the company installed at the four dams proved unsuccessful, upgraded facilities, altered operations, and/or dam decommissioning may be required, and these additional uncapped expenses would likely be borne by PacifiCorp customers.

In PacifiCorp's analysis of the financial impacts of dam removal, they assumed that customer costs associated with dam removal would be capped at $172 million in 2010 dollars (or $200 million in 2020 dollars). Implementing Interim Measures (as defined in KHSA Appendix C and D) would cost about $79 million (2010 dollars); these costs would be largely capped and would carry only a small financial risk for its customers. In addition, PacifiCorp customers would also have to pay for replacement power after removal of the Four Facilities in 2020.

PacifiCorp's analysis submitted to the CPUC and OPUC demonstrated that the KHSA resulted in less cost and less risk for its customers as compared to FERC relicensing, even with the inclusion of costs associated with replacement power. The CPUC concluded that if "the KHSA surcharge is not instituted….ratepayers would be exposed to an uncertain amount of costs" associated with relicensing. The OPUC concluded that the KHSA "mitigates the risks associated with decommissioning and removal of the [four] facilities for PacifiCorp, and is therefore the least risky alternative for customers compared to relicensing". Based on PacifiCorp's analysis and testimony, both PUCs agreed with the company's analysis and approved collection of the customer surcharges necessary to fund the removal of the four dams in 2020, as described in KHSA.

Survey Results on Improving Fisheries in the Klamath River Basin

Responses to the nonuse value survey questions indicate a majority of respondents place a relatively high level of importance on improving the fisheries in the Klamath River Basin. This importance was indicated at the 12-county Klamath area level, statewide for Oregon and California, and for the rest of the nation.

In response to a question inquiring about the level of concern with declines in the number of Chinook salmon and steelhead trout that return to the Klamath River each year, the majority of respondents expressed concern.

- From the 12-county Klamath area, 73.8% expressed concern.
- For the rest of Oregon and California, 82.5% expressed concern.
- For the rest of the United States, 78.8% expressed concern.

Respondents surveyed indicated that an action plan to remove the dams and restore the basin was preferred to no-action. No-action was defined as not implementing an agreement that includes dam removal, fish restoration, and a water sharing agreement.

- From the 12 county Klamath area, 54.7% favored an action plan
- For the rest of Oregon and California, 71.3% favored an action plan
- For the rest of the United States, 66.3% favored an action plan

7.3 Peer Review of the Overview Report

The Department of the Interior convened an independent peer review panel to evaluate the accuracy, clarity, thoroughness, and objectivity of the scientific findings in the draft Overview Report. Facilitated by Atkins North America (Atkins), an independent consulting firm specializing in peer reviews, a panel of six independent subject-matter experts from across the nation conducted the peer review of the draft Overview Report

The peer review panel found generally that the report "connects to the sound science that underlies its conclusions, provides a depth of coverage suitable for the anticipated audience, and provides clearly stated concepts and conclusions," and further found that the "science appears to be reliable for a Secretarial Determination." The panel also made about 60 separate recommendations and comments for how the final report could be edited and expanded in key areas to improve its effectiveness.

The TMT responded in writing, in a separate report, to each written peer review comment and recommendation, and made changes as appropriate in preparing the final Overview Report. Reasoning was fully disclosed when a recommended change to the Overview Report was not made or if the authors differed with the peer reviewers' comments and recommendations.

Atkins also served as "referee" for the peer review process. The peer review referee verified that all peer review comments and recommendations were responded to in writing, that peer review comments and recommendations accepted by the TMT resulted in satisfactory changes to the Overview Report, and that comments and recommendations not accepted by the TMT were justifiable and adequately explained.

Documents regarding the panel peer review process of the Overview Report are posted on www.KlamathRestoration.gov, including: (1) Charge to the Peer Review Panel, (2) the draft Overview Report provided to the peer review panel, (3) *Peer Review Panel Report on Draft Klamath Dam Removal Overview Report for the Secretary of the Interior (2012),* (4) TMT responses to the peer reviewer comments and recommendations, (5) a letter from the independent peer review "referee" verifying the successful completion of the peer review process, and (6) the final Overview Report.

7.4 Environmental Review Process

Environmental review under the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), and other applicable laws has been coordinated by the federal agencies and California to prepare a single, joint environmental document.

The NEPA and CEQA processes were led by the U.S. Department of the Interior (DOI) and the California Department of Fish and Wildlife (CDFW), respectively. The Bureau of Reclamation managed environmental compliance on behalf of the U.S. Department of Interior. Reclamation awarded a contract to CDM Federal Programs for preparation of both NEPA and CEQA environmental compliance documents, in addition to participating in the scientific studies track.

The State of Oregon, and more specifically the "Klamath Team" consisting of Oregon Water Resources, Oregon Department of Fish and Wildlife, and Oregon Department of Environmental Quality, will follow a distinct process for determining concurrence with an Affirmative Determination by the Secretary of the Interior (as defined pursuant to Executive Order No. 10-10 by the Governor of Oregon) should such a determination be made.

Both NEPA and CEQA require public involvement opportunities. The DOI and the CDFW conducted seven public scoping meeting in July of 2010. In addition, many state, local and tribal governments, as well as federal agencies, were invited to participate as cooperating agencies under NEPA. Cooperating agencies had opportunities to provide input on the Environmental Impact Statement/Environmental Impact Report prior to public review of these documents.

On September 21, 2011, the Department of the Interior and California Department of Fish and Wildlife released a draft Environmental Impact Statement/Environmental Impact Report for public comment. This draft analyzed in detail five alternatives, including the proposed action of full dam removal and implementation of KBRA. Over 4,000 individual public comments were received on the draft EIS/EIR, either in writing or during a series of six public hearings throughout the Basin in October 2011. These public comments, and responses to these public comments, are contained in Volume III of the final EIS. Many of the public comments resulted in clarifying or expanded language in the final EIS/EIR.

The final EIS was publicly released in April 2013 and is available at www.KlamathRestoration.gov; the final EIR has not been officially released. The final EIS identified the preferred alternative as full dam removal (as defined in KHSA) and implementation of the KBRA. Full dam removal was preferred over partial dam removal because by leaving no structures along the shore of the Klamath River, full dam removal leads to positive permanent changes in the human environment such as improvements to scenic quality, less long-term maintenance by land-management agencies, and it is more protective of public safety.

Both full and partial dam removal and implementation of KBRA more fully meet the Purpose and Need statement identified in the EIS than the other three alternatives analyzed in detail. Some key benefits provided by dam removal and implementation of KBRA include: (1) largely eliminates in 2020 elevated late summer/fall water temperatures in and below the Hydroelectric Reach by removing the largest reservoirs; (2) largely eliminates in 2020 dissolved oxygen and pH problems produced in reservoirs in the Hydroelectric Reach and transported downstream; (3) largely eliminates in 2020 algal toxins produced in the Hydroelectric Reach and transported downstream; (4) anadromous fish would access low gradient historical habitat of critical importance to spawning and rearing under Copco 1 and Iron Gate Reservoirs; (5) provides for natural recruitment of spawning gravel and river processes within and below the Hydroelectric Reach through dam removal; (6) provides optimal efficiency beginning in 2020 of upstream and downstream salmonid migration through the Hydroelectric Reach by creating a free-flowing river; (7) reduces concentration of myxospores associated with adult carcasses accumulating below hatchery facilities, thus reducing salmon disease; and (8) dam removal and implementation of KBRA are important components of a durable, long-term solution for local communities and tribes regarding the development, administration, allocation, and advancement of water and native fishery resources of the Klamath Basins.

8. Implementation of Other KHSA Provisions

The Hydroelectric Settlement includes detailed actions for the operation of the dams and mitigation activities prior to removal of the dams. The KBCC has reviewed the status of these actions at each of its meetings. PacifiCorp has prepared annual reports on the progress of implementing these measures; a copy of the 2013 Implementation Report is available at www.klamathcouncil.org.

PacifiCorp and the KHSA Parties have made good progress in implementing the interim measures called for in the KHSA. Progress includes:

- PacifiCorp has provided over $2.5 million in funding for the Coho Enhancement Fund; the projects that are being implemented are described in the Implementation Report.
- In February 2012, the National Marine Fisheries Service approved PacifiCorp's Habitat Conservation Plan for Coho Salmon.

- PacifiCorp is operating a new turbine venting blower resulting in increased dissolved oxygen below Iron Gate Dam.
- California Department of Fish and Wildlife and PacifiCorp developed a Hatchery and Genetic Management Plan in September 2010.
- PacifiCorp completed variable flow releases in the winter of 2011/2012.
- PacifiCorp is funding fish disease studies.
- PacifiCorp is funding gravel placement and habitat enhancement below J.C. Boyle Dam.
- KHSA Parties and water quality agencies have worked to convene a water quality conference.
- PacifiCorp in consultation with the Interim Measures Implementation Committee (IMIC) selected a series of water quality studies and pilot projects.
- PacifiCorp installed gages for Spencer Creek and J.C. Boyle bypass reach.
- PacifiCorp is funding water quality monitoring.
- PacifiCorp is continuing to fund the Iron Gate Hatchery at higher levels than under the FERC license.
- BLM provided PacifiCorp a final work plan for cultural resources, road maintenance, and invasive weed management.

Dam Removal Surcharge Approval

On March 18, 2010, PacifiCorp filed applications with the California and Oregon public utility commissions requesting authorization to begin collecting dam removal surcharges from customers in those states. Regulatory orders from both the California and Oregon public utility commissions approving the collection of dam removal surcharges have since been issued, consistent with the framework for the Customer Contribution towards dam removal costs established in Section 4.1.1 of the Klamath Hydroelectric Settlement Agreement (KHSA).

The Oregon customer surcharges, with accrued interest, are designed to provide approximately $184 million in funding for dam removal in 2020. The California customer surcharges, with accrued interest, are designed to provide approximately $16 million in funding for dam removal in 2020. The surcharges on Oregon customers have been collected since March 18, 2010 while the surcharges on California customers began in January 2012. As of June 30, 2013, the combined balance of the Oregon and California dam removal trust accounts was $54.4 million.

A copy of the June, 2013 annual implementation report for measures in the KHSA is at: www.klamathcouncil.org.

Habitat Conservation Plan

On February 23, 2012, the National Marine Fisheries Service (“NMFS”) issued a federal Endangered Species Act Incidental Take Permit to PacifiCorp Energy for the Company’s ongoing operations of its Klamath Hydroelectric Project (“Project”) under a Habitat Conservation Plan.

The Habitat Conservation Plan and associated Incidental Take Permit ("Permit") were under development for over two years and were subject to environmental review and public comment. Issuance of the Permit by NMFS authorizes potential incidental take of listed coho salmon that may occur as a result of ongoing Project operations on the basis that implementation of the Habitat Conservation Plan will meet applicable statutory and regulatory criteria, including that PacifiCorp will minimize and mitigate to the maximum extent practicable effects of such incidental take of listed coho salmon during the Permit term. The Permit issued by NMFS authorizes the incidental take for a 10-year period until establishment of anadromous fish passage is expected either through transfer and removal of Klamath Hydroelectric Project facilities under the terms of the Klamath Hydroelectric Settlement Agreement or through construction of volitional fish passage facilities required if transfer and removal of Project facilities do not occur.

Under the terms of the Permit, PacifiCorp will fund projects to enhance coho conservation in the Klamath River below Iron Gate dam – the lowermost dam on the mainstem Klamath River, consistent with an interim conservation plan developed by PacifiCorp, in coordination with NMFS. PacifiCorp will work with NMFS, the California Department of Fish and Wildlife, and the National Fish and Wildlife Foundation to identify, select, and implement conservation projects that will benefit coho salmon in the Klamath River.

In addition to funding and implementing habitat conservation actions, PacifiCorp will work closely with the U.S. Bureau of Reclamation, NMFS, and other stakeholders to implement flow regimes in the Klamath River to benefit listed species. PacifiCorp will also implement turbine venting at Iron Gate Dam to enhance dissolved oxygen concentrations, fund fish disease studies, and retrieve large woody debris trapped at Project dams and release it to the river channel downstream of Iron Gate Dam.