[attachment 1]

Klamath Secretarial Determination Process

Summary of Key Conclusions
Draft EIS/EIR and Related Scientific/Technical Reports
September 21, 2011

Fish and Fisheries and Recreation

- Chinook salmon: Removal of the dams, combined with restoration of aquatic habitats as anticipated in the KBRA, is expected to increase the median annual production of adult Chinook salmon by 81.4 percent. The median Chinook salmon ocean commercial and sport harvests is also forecasted to increase by 46.5 percent, while the median tribal harvest would increase by 54.8 percent and the in-river recreational fishery would increase by 9 percent.

- Steelhead/Redband Rainbow trout: Steelhead trout would also be able to migrate to historical habitat. Distribution in the watershed is expected to expand to a greater degree than that of any other anadromous salmonid species under dam removal. Access to approximately 420 miles of historical habitat is estimated to again be available for steelhead upstream of the lowest dam. Steelhead are the most prized game fish in the Klamath River; providing recreational fishing opportunities would expand well into the Upper Basin in Oregon. Dam removal would also expand the total distribution of trophy redband rainbow trout in the fishery throughout the current hydroelectric reach –including areas into Northern California – and would provide a more natural flow and temperature regime for trout and reintroduced salmon and steelhead.

- Coho salmon: Coho salmon from the Upper Klamath River population would be expected to reclaim 68 miles of habitat, including approximately 45 miles in the mainstem Klamath River and tributaries as well as an additional 23 miles currently inundated by the reservoirs. Increased access to historical habitat, combined with the restoration actions of KBRA, are expected to advance the recovery of federally listed coho salmon.

- Salmon disease: Dam removal would likely alleviate many of the conditions conducive to disease outbreaks that currently occur downstream of Iron Gate Dam.

- Reservoir recreation: The non-native bass and yellow perch fishery, as well as recreational flat-water boating in the Klamath River reservoirs, would no longer exist under the proposed action. *There would be a loss of flat-water fishing and boating opportunities on the reservoirs, and there would be fewer whitewater opportunities in the Hell's Corner reach of the Klamath River, especially in the summer months. There would be little or no impact to whitewater rafting downstream of Iron Gate Dam, which would benefit from improved water quality if the four dams were removed.*

- Refuge recreation: Under the proposed action, Klamath Basin National Wildlife Refuges would receive additional water. This water supply could improve hunting and wildlife viewing, which could attract more visitors to the refuges along the Oregon-California border. There would be an estimated additional 193,830 fall waterfowl and 3,634 hunting trips per year over the 50-year period of analysis used in the study.

Project Costs – Cost Cap

- *The most probable*[1]*estimate of the cost of full dam removal, and associated mitigation actions, is $291.6 million (in 2020 dollars since this is when the dams would be removed). This is significantly less than the $450 million state cost cap identified in the KHSA.*

- If some structures are left in place, but still allow a free-flowing river at all four dam sites, the most probable[2] estimate for dam removal and associated mitigations is $247 million (in 2020 dollars). Examples of structures that could be left in place include powerhouses and selected abutment structures.

Regional Economics and Jobs

- Dam removal and ecosystem restoration would create a number of jobs. Jobs are defined as full time, part time, and temporary employment.

    - The one-year dam removal project is estimated to result in 1,400 jobs during the year of construction.

    - Implementation of restoration programs of the KBRA is estimated to result in 4,600 jobs over its 15 years of implementation.

    - Commercial fishing jobs were estimated in five Management Zones.
        - 11 average annual jobs in the KMZ-OR Management Area
        - 19 average annual jobs in the KMZ-CA Management Area
        - 69 average annual jobs in the Fort Bragg Management Area
        - 136 average annual jobs in the Central Oregon Management Area
        - 218 average annual jobs in the San Francisco Management Area

    - Employment stemming from increased gross farm income during the modeled drought years is estimated to range from 70 to 695 average annual jobs.

- *Some jobs would also be lost:*
    - *49 average annual jobs related to operations and maintenance of the PacifiCorps facilities are estimated to be lost*
    - *Four average annual jobs related to reservoir recreation and 14 average annual jobs related to white-water rafting are estimated to be lost.*

- Dam removal would affect property values in varying ways over the short and long-term. The overall effect of these changes is difficult to forecast. Upstream of Iron Gate Dam, the Real Estate Evaluation report identified 668 parcels near Copco and Iron Gate Dam which either had reservoir frontage, access or views of reservoirs. Of these 668 parcels, 127 include single family homes. Land that currently has reservoir views could decline in value due to the loss of reservoir access and view. Land values of parcels downstream of Iron Gate Dam with river views and river access could increase because of restoration of

[1] Project managers performed several estimates - including low, most probable and high estimates - based on a number of factors. It is common practice at this stage of project development to identify and assess all features of the project, contingencies, risks, and associated impacts to the project and to portray these potential impacts as a range of costs. The low estimate is about $238M and the high estimate is about $493M.

[2] The low estimate is about $194M and the high estimate is about $430M.

the river, including improved water quality and more robust anadromous fish runs. Estimating the overall net magnitude of the combined effects to all properties potentially affected is particularly difficult given the numerous factors affecting local real estate markets.

Water Quality and Sediment

- With dam removal, important Klamath River water-quality goals, such as elimination of the reservoir's toxic algal blooms and restoration of a more natural thermal regime in the river, would be achieved immediately. Other water quality improvement goals, such as nutrient reductions, would be accelerated but could still require decades to achieve. Without dam removal or restoration actions as proposed in KBRA, continued progress will be made towards meeting these water quality goals, but they are less likely to be met during the 50-year period of analysis for the study.

- Dam removal could mobilize between one-third and two-thirds of the 13.1 million cubic yards of sediment currently stored within the reservoirs and transport it downstream to the Pacific Ocean. The majority of material behind the dams is fine grained and would not be deposited in the river channel or estuary. Chemical testing of reservoir bottom sediments indicate human health is not at risk due to contact with the sediment.

- Sediment transport modeling indicates that high concentrations of suspended sediments would occur immediately downstream of Iron Gate Dam for two-to-three months following reservoir drawdown under the proposed action. *Sediment concentrations* could result in lethal and sub lethal effects on some of the coho salmon smolts and steelhead in the river. However, coho salmon, steelhead, and other fish populations would quickly return to 2012 population numbers, and increase in abundance and viability after dam removal. *The plan for reservoir drawdown in a winter of a single year (2020) was designed to minimize negative effects on sensitive fish species, particularly federally listed coho salmon.*

Cultural Impacts

- All of the native people residing in the Klamath River environment have spiritual beliefs and traditional practices that are inseparable from the River and surrounding homeland environments. Dam removal and implementation of the KBRA would help address tribal trust and social issues identified by the Klamath River Basin Tribes as detrimental to their traditional way of life. Dam removal would have beneficial effects on water quality, fisheries, terrestrial resources, and traditional cultural practices. Dam removal would enhance the ability of Indian tribes in the Klamath River Basin to conduct traditional ceremonies and other traditional practices.

- Dam removal and reservoir drawdown could affect Native American cultural resources sites reported to be currently submerged beneath the reservoirs. Human remains may be associated with these sites. Plans to identify cultural resources and to avoid, minimize, or mitigate impacts to those resources would be developed in consultations with the appropriate State Historic Preservation Office, tribes, and other Native American organizations. The removal of the dams and associated facilities, all part of the Klamath Hydroelectric Project, would result in effects to those historic properties. Plans to avoid, minimize, or mitigate effects to historic era properties would be developed in consultation with the appropriate State Historic Preservation Office and other historic preservation entities.

Flows and Flooding

- The differences in monthly average flows between dams remaining in place and dam removal alternatives are relatively small; however, without the dams, pulse flows and other seasonal fluctuations would occur more often. The absolute minimum flow target under the KBRA at the location of Iron Gate Dam will be approximately 800 cfs. In most months and years, however, the flow targets will be much greater. When the flow drops below the minimum value, additional water is released from Upper Klamath Lake and

Keno Reservoirs. There may be extreme drought years where the flow drops slightly below this value, but hydrologic simulations using the last 50 years of data indicate that the flow would never drop below 700 cfs at the location of Iron Gate Dam after dam removal. As a comparison, the flows in 1992 were about 400 cfs in July and August because there was very little water released from Upper Klamath Lake during this period. Current regulatory requirements and the KBRA will ensure the flow will be higher than this in the future because these regulations and agreements ensure that adequate water will be released from Upper Klamath Lake to the Klamath River.

- Flooding risks related to reservoir drawdown and dam removal will be minimized or mitigated and these measures are described in the Detailed Plan for Dam Removal, published at KlamathRestoration.gov.

- Short-term risks during dam removal will be reduced to acceptable levels by (1) limiting the drawdown rate so that reservoir side slopes and earthen embankments do not fail or slump and (2) creating a water bypass with sufficient capacity so that Iron Gate and JC Boyle dams can be removed during the summer months when the probability of high flows is very low.

- Long-term flood risks would occur due to changes in the 100-year floodplain downstream of Iron Gate following dam removal as well as changes to the operation of the flood warning system. Analysis conducted for this study estimates that less than six additional residences would be located in the modeled 100-year floodplain following dam removal; however, further field investigation is required to determine the actual risk for structures downstream of Iron Gate Dam. Proposed mitigation measures reduce effects to properties from changes in the 100-year floodplain. For example, the Dam Removal Entity would work with willing landowners to reduce or eliminate flood risk so that habitable structures meet established permitting requirements before and after dam removal.

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Science studies and technical reports, as well as the Draft EIS/EIR, is available online at: KlamathRestoration.gov