

COASTAL CONSERVANCY

Staff Recommendation

January 29, 2015

KLAMATH RIVER WATER QUALITY IMPROVEMENT: PILOT PROJECT

Project No. 11-034-02

Project Manager: Michael Bowen

RECOMMENDED ACTION: Authorization to disburse up to \$200,000 in Conservancy funds and to receive and disburse from the State Water Resources Control Board up to an additional \$200,000 to the Klamath Basin Rangeland Trust to implement and evaluate a series of water quality improvement projects in the Klamath River watershed.

LOCATION: Upper Klamath River Basin, Oregon.

PROGRAM CATEGORY: Integrated Coastal and Marine Resources Protection

EXHIBITS

Exhibit 1: [Project Locations and Graphics](#)

Exhibit 2: [Klamath River Water Quality Workshop Information](#)

Exhibit 3: [Project Letters](#)

RESOLUTION AND FINDINGS:

Staff recommends that the State Coastal Conservancy adopt the following resolution pursuant to Section 31220 of the Public Resources Code:

“The State Coastal Conservancy hereby authorizes the disbursement of up to two hundred thousand dollars (\$200,000) and the acceptance and disbursement of a grant from the State Water Resources Control Board of up to an additional two hundred thousand dollars (\$200,000) to the Klamath Basin Rangeland Trust to implement and evaluate water quality improvement projects in the Klamath River watershed, subject to the following conditions:

1. Prior to the disbursement of funds, Klamath Basin Rangeland Trust shall submit for review and approval by the Executive Officer of the Conservancy:
 - a. A work program including a schedule and budget for the project.
 - b. All contractors to be retained for the project.
 - c. Documentation that all funding required for the project has been secured.
2. Prior to commencement of work, the Klamath Basin Rangeland Trust shall enter into an agreement with the owner of the project site that is sufficient to protect the public interest and that provides for maintenance of the implementation project.”

Staff further recommends that the Conservancy adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with the current Project Selection Criteria and Guidelines.
 2. The proposed authorization is consistent with the purposes and objectives of Chapter 5.5 of Division 21 of the Public Resources Code, regarding resource enhancement.
 3. The Klamath Basin Rangeland Trust is a nonprofit organization existing under section 501(c)(3) of the Internal Revenue Service, and whose purposes are consistent with Division 21 of the Public Resources Code.”
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PROJECT SUMMARY:

Staff recommends the Conservancy authorize the disbursement of up to \$200,000 in Conservancy funds, and the acceptance and disbursement of up to an additional \$200,000 from the State Water Resources Control Board to the Klamath Basin Rangeland Trust in order to implement and document the efficacy of a series of pilot water quality improvement projects on the Wood and Sprague Rivers, Klamath River watershed, Klamath County, Oregon (Exhibit 1).

This proposed project would implement a network of small diffuse source treatment wetlands (DSTWs) designed to decrease external loading of phosphorus and nitrogen in Upper Klamath and Agency Lakes and minimize nuisance algal blooms in these waters, algal blooms that in turn pollute the Klamath River downstream. This approach is expected to provide measurable Klamath River water quality improvements that in turn will provide more salutary conditions for Klamath River salmon populations in California.

As measured at the state line, only 30% of the unimpaired flow of the Klamath River originates in Oregon, but 70% of the water quality impairment originates from there. This is due to the intensive reclamation of the basin described in the Project History section below. Therefore, in order to achieve good water quality in California, it is necessary to start in Oregon. The proposed project will leverage ongoing efforts by the State of Oregon and the federal government to remedy more than a century of habitat degradation in the Klamath Basin. In the last 20 years, the State of Oregon has spent nearly \$16 million in Lottery Funds on riparian restoration projects in Klamath River tributaries. Oregon also helped secure \$200 million in Oregon-based PacifiCorp ratepayer funds to help pay for the Klamath Basin Settlement, a basin-wide agreement that includes provisions for dam removal, water quality improvements, and much more. For their part, federal agencies such as the U.S. Fish and Wildlife Service have launched numerous restoration efforts, such as the “Walking Wetland Program,” wherein portions of the federal refuge are intensively managed to sequester phosphorous and nitrogen in refuge soil through flooding with polluted lake water, and then removing those high pollutant levels by farming those formerly flooded fields intensively, but without addition of artificially produced fertilizers.

Extensive monitoring and research conducted in the Upper Klamath Basin show that Upper Klamath Lake is a major summertime source of dissolved and particulate nitrogen and phosphorus to downstream reaches of the Klamath River. Salmon population declines in the

Klamath River are directly attributable to the poor water quality conditions that result from this nutrient loading. The contributions of phosphorous and nitrogen are both naturally occurring and introduced by agricultural activities, but the conversion of extensive freshwater marshes to agricultural use in the early 20th century eliminated the basin's capacity to filter these inputs and maintain the river system in chemical balance. As a result, water quality throughout the Klamath Basin has deteriorated steadily since the reclamation of wetlands and intensification of agriculture in the 20th century.

The proposed projects seek to reverse this trend by constructing a series of small water treatment marshes. This approach to water quality improvement was specifically recommended as a pilot project at the Conservancy-PacifiCorp hosted Klamath River Water Quality Workshop of 2012, a technical symposium intended to identify means of improving water quality conditions for the entire Klamath River (Exhibit 2). The technical workshop focused on upper basin projects capable of achieving healthier equilibrium condition for basin headwaters, to treat both the symptoms and the causes of elevated phosphorus and nitrogen levels, and, ultimately, to support water quality improvements in Upper Klamath Lake, the downstream reaches of the Klamath River, and Klamath River estuary.

Treatment wetlands of any size offer substantial nutrient reduction benefits, but DSTWs do so at a relatively low cost and are compatible with other techniques and restoration projects being considered in the Klamath Basin. Wetlands treat the source of water quality problems (i.e., excessive phosphorus and nitrogen loading) rather than just the symptoms (i.e., downstream algal blooms, low dissolved oxygen, high pH), provide wildlife habitat for trout and migratory waterfowl, use low amounts of energy, are sustainable in the long term, and offset climate change effects through uptake of carbon dioxide. The Wood and Sprague river valleys are known priority locations for implementing DSTWs given current land use practices and an established capacity for additional wetland rehabilitation.

However, in order to accomplish water quality improvement goals at the scale of the watershed, a sufficient cumulative acreage of DSTWs is needed. In order to achieve the desired 20% decrease in phosphorous inputs on the Wood River, approximately 600 acres of wetlands would be required in the next twenty years. This footprint is feasible, but prior to development at that level it is essential to establish the most effective designs for DSTWs.

Therefore, the successful implementation of a network of DSTWs in the Wood and Sprague River valleys requires pilot projects to test the efficacy of typical design elements and nutrient removal performance under the basin-specific seasonal hydrology and nutrient loading conditions of the Upper Klamath Basin. Pilot projects would also allow for site-specific water balance determinations that would provide transferrable knowledge regarding net consumptive water use associated with DSTWs, and would inform measures being considered under the Water Use Program of the Upper Klamath Basin Comprehensive Agreement. Knowledge gained regarding nutrient removal performance and net consumptive water use of pilot DSTWs would also reduce the need for pre-and post-project monitoring of future DSTW sites.

The Klamath Basin Rangeland Trust, US Fish & Wildlife Services, and the Klamath Tribes have recently partnered to develop multiple DSTW test sites with a particular landowner (Von Schlegell) in the Wood River Valley. The scope of work for activities funded under this grant assumes that the three DSTW sites located on the Von Schlegell property are already sited, permitted, and monitored (for pre-construction or baseline conditions) under a separate funding

source. The proposed project seeks to include additional DSTW sites (3-5 more) to increase replication consistent with the proposed pilot study detailed in the workshop final report (Stillwater Sciences et al. 2013). This scope also incorporates additional technical elements, including a water balance determination and flow path tracer study for each site to improve our understanding of DSTW performance in the unique conditions of the Upper Klamath Basin.

This project proposal includes a substantial monitoring component. The majority of the monitoring will be covered by the North Coast Regional Water Quality Control Board portion of the funds for this project (\$200K), with a much lesser amount (~\$28K) covered by the Conservancy funds. All monitoring will be coordinated by the Klamath Basin Rangeland Trust (KBRT). With the exception of approximately \$3,000 of Conservancy funding, maintenance and daily management of each DSTW will be the responsibility of the landowner. Following KBRT's standard procedure, KBRT will require an agreement with the landowner of any implementation site to ensure the access, maintenance and monitoring requirements are met. It will also provide guidance and advice to landowners as needed. An adaptive management review of interim data will be conducted on a semi-annual basis and changes to the study plan will be made as needed. The projects are anticipated to function for at least 15 years, though the pilot project effort will more firmly establish project lifespan.

Site Description:

The Upper Klamath Basin is a place of great beauty and profound ecological dysfunction. As described under Project History, below, agricultural development of the early twentieth century converted thousands of acres of marsh habitat to fields and pastures. The water quality in the Klamath Basin subsequently and rapidly deteriorated.

The net effect of the conversion of freshwater marsh to agricultural use is that an astoundingly high proportion of water quality impairment for the entire Klamath Basin originates in Oregon near Upper Klamath Lake. Approximately 70% of the nutrient load contributed to the Klamath River originates north of California's border with Oregon, although only 30% of the Klamath River flow originates above the state line. While some of this nutrient loading occurs naturally, most is a byproduct of the intensive agriculture practiced near Upper Klamath Lake.

The Wood River Valley, which drains into Upper Klamath Lake from the north, has been identified by Walker et al. (2012) as a significant source of phosphorus to the lake, contributing approximately 40% of the external load of Upper Klamath Lake. Historically, the valley was primarily floodplain and wetlands, but it has been converted almost entirely to flood-irrigated cattle pasture. Phosphorus-laden water that once filtered through wetlands and riparian areas is now conveyed directly into extensive ditch networks that feed the lake.

The ditch network and low gradient topography of the landscape provide an excellent opportunity for the implementation of DSTWs, providing a sufficient number of willing landowners are willing to dedicate a portion of their pasture to the effort. It is estimated that approximately 600 acres of appropriately placed DSTWs in the Wood River Valley could reduce the phosphorus loading by 20% (Stillwater Sciences et al. 2013). Although a 20% reduction will not reach complete water quality in the basin, it will serve as a significant incremental improvement that will amplify other related efforts such as large, Klamath Lake-based wetlands restoration efforts. In combination, it is feasible that water quality degradation in the basin could be reversed within 10-20 years.

The Klamath Basin Rangeland Trust (KBRT) was founded in 2002 after the irrigation water shut-offs and massive fish kills of 2001 and 2002. KBRT's goal is to use the best available science to guide restoration actions and to adhere to priorities outlined by Oregon Watershed Enhancement Board, the National Fish and Wildlife Foundation, US Fish and Wildlife Service and the U.S. Geological Survey. KBRT is also an active participant in a local restoration partnership, the Upper Klamath Conservation Action Network, which envisions a Klamath Basin that supports native species and vital rural communities for future generations. In the last fourteen years project activities have included instream water transfers, water quality monitoring, and restoration actions (e.g., fish screening, instream habitat improvement, riparian fencing) on tributaries to Upper Klamath Lake and the Klamath River. KBRT has demonstrated the technical and procedural competence necessary to manage and complete the proposed work. They have also identified a significant number of willing landowners to engage in this effort cooperatively. KBRT has spent the last few years actively building the support of a diverse group of stakeholders, forging consensus and broad commitment to the realization of these important water quality improvement efforts.

Project History: Agricultural diversions initiated by late 19th century ranchers in the Klamath Basin culminated in the early 20th century with the development of the Klamath Irrigation Project. That project drained more than 250,000 acres of wetlands and diverted twenty-five percent of the main flow from the Klamath River. Isolating and draining wetlands exposed peat soils to air and oxygenated water. As the peat soils undergo aerobic decomposition, nitrogen, phosphorous and nutrients are released and travel back into the hydrologic system. Agricultural activities also introduced additional nutrients via manure and fertilizers. Consequently, all of the major rivers and tributaries in the Klamath River Basin are now listed by the states of Oregon and California as impaired under section 303(d) of the Federal Clean Water Act. All of the lakes, rivers and tributaries in the Upper Basin are generally impaired by abnormally increased water temperature, high nitrogenous nutrients from fertilizer run off and peat exposure, lower dissolved oxygen content from turbidity and algal bloom cycles, and altered pH balance. Since listing, the states of Oregon and California have worked closely to develop a cooperative effort to reverse this trend. As mentioned, above, the State of Oregon has invested more than \$16 million over twenty years to try and improve water quality and habitat conditions in the upper Klamath River watershed.

For many years a spirited debate revolved around whether or not it was in the public interest to remove four dams on the Klamath River in order to provide full volitional fish passage to more than 300 miles of blocked and polluted habitat in the Klamath River system. The Coastal Conservancy funded many studies pertaining to the feasibility and cost associated with this concept. Between 2003 and 2007 the Conservancy disbursed approximately \$1 million in order to inform the settlement process. Ultimately, the information provided by the Conservancy demonstrated the feasibility and affordability of removal, influencing both the hydroelectric facility relicensing proceeding and an ensuing settlement process.

On February 18, 2010, the United States, the States of California and Oregon, PacifiCorp, Indian tribes, and a number of other stakeholder groups signed the Klamath Hydroelectric Settlement Agreement ("Settlement"). The Settlement laid out the process for additional studies, environmental review, and a determination in 2013 by the Secretary of the Interior regarding the public interest of dam removal.

The Settlement includes provisions and detailed actions for the interim operation of the dams and mitigation activities prior to removal of the dams, or the termination of Klamath Hydropower Settlement Agreement (KHSAs). One of the measures - Interim Measure 10 - stated that PacifiCorp would provide one-time funding of \$100,000 to convene a basin-wide technical workshop within one year from the Effective Date of this Settlement. The workshop would inform participants on water quality conditions in the Klamath River basin and inform decision-making for Interim Measure 11 (Interim Water Quality Improvements), with a focus on nutrient reduction in the basin, including constructed wetlands, other treatment technologies, and water quality accounting. It was the intent of the interested parties that the workshop report would describe a cohesive network of pollutant reduction projects capable of serving as a long-term guide for water quality improvements that will benefit the entire Klamath basin.

The Coastal Conservancy was approached by PacifiCorp and the Northcoast Regional Water Quality Control Board in 2011 about the possibility of administering PacifiCorp's funds and hosting and co-funding the workshop. The Conservancy agreed, and contributed \$100,000 towards the effort. PacifiCorp provided \$100,000 in match, and subsequently provided an additional \$50,000 for the workshop. The Klamath River Water Quality Workshop was held on September 10-13, 2012 in Sacramento, California, to evaluate large-scale techniques for improving water quality in Upper Klamath Lake and its primary tributaries in order to inform decision-making on optimum nutrient reduction approaches for the benefit of water quality and salmon habitat in the Klamath River watershed.

From the Conservancy's perspective, the most important findings of the workshop were threefold: 1) Upper Klamath Lake has shifted to a hypereutrophic (excessively high productivity) state in which excessively high levels of phosphorous and nitrogen ensure that nuisance algal blooms are the norm and dissolved oxygen levels decline to levels nearly incapable of supporting aquatic life; 2) drastically impaired water feeds into the Klamath River in California establishing threatening conditions for coastal salmon populations throughout the basin, and; 3) immediate measures could be taken to improve Klamath River water quality. In particular, it was recognized, a system of DSTWs could provide immediate benefits to both Oregon and California. A pilot study of the DSTWs would also address key uncertainties identified by workshop breakout groups and the project steering committee, notably assumptions about how many acres of wetland would be required to improve measurably water quality in the upper basin.

Poor water quality in the lower river (e.g., algal blooms, low dissolved oxygen, and high pH) is one important reason for the decline of fisheries in the basin as a whole (U.S. Department of the Interior, 2012). Given the linkages between water quality conditions in the upper and lower basins, the Oregon Department of Environmental Quality and the California North Coast Regional Water Quality Control Board (NCRWQCB) have worked cooperatively to set long-term strategies capable of achieving meaningful and measurable water quality improvements throughout the basin. The proposed projects represent an important starting point for these capital improvements, hence the NCRWQCB's significant investment in Oregon projects; over time, long-term water quality improvements in Upper Klamath Lake are expected to result in improved conditions in the Lower Klamath River, including habitat for special status fish species.

PROJECT FINANCING

Coastal Conservancy	\$200,000
State Water Resources Control Board	\$200,000
U.S. Fish and Wildlife Service	\$57,120
Klamath Tribes	\$900
Natural Resources Conservation Service	\$1,980
Project Total	\$460,000

The anticipated source of the Conservancy's funds will be the fiscal year 2014/15 appropriation from Proposition 50. Proposition 50 authorizes the Conservancy's use of these funds for the purpose of protecting coastal watersheds through projects undertaken pursuant to the Conservancy's enabling legislation (Division 21 of the Public Resources Code) to acquire, restore or protect water and land resources. (Water Code §79570). Funds may also be used for planning and permitting associated with projects of this type. The development of diffuse source treatment wetlands achieves just these objectives and is consistent with Division 21, as discussed in detail below, under the heading "Consistency with Conservancy's Enabling Legislation". As required by Proposition 50, the proposed project is consistent with local and regional watershed plans developed by the North Coast Regional Water Quality Control Board as well as the Oregon Department of Environmental Quality, as discussed in detail below under "Consistency with Local Watershed Management Plan/State Water Quality Control Plan." (Water Code §79507).

CONSISTENCY WITH CONSERVANCY'S ENABLING LEGISLATION:

The authorization is proposed under Chapters 5.5 (coastal and marine resource protection, §31220).

Within Chapter 5.5, Section 31220(a) allows the Conservancy to "undertake watershed restoration projects or award grants" consistent with Section 31220(b), to improve coastal water quality and habitats.

Consistent with Section 31220(b), the proposed authorization would help to reduce threats to coastal and marine fish and wildlife and watershed lands draining to sensitive coastal or marine areas by providing demonstration pollutant treatment methods which are tested and monitored in order to ensure that water quality will not imperil existing fishery resources in the Klamath River watershed.

As Section 31220(c) requires, the proposed project is consistent with local and state watershed plans. This is discussed in detail below under "Consistency with Local Watershed Management Plan/State Water Quality Control Plan." Section 31220(c) and the NCRWQCB agreement require that the project include a monitoring and evaluation component. Extensive monitoring and evaluation are integrated into the design of the project.

CONSISTENCY WITH LOCAL WATERSHED MANAGEMENT PLAN/STATE WATER QUALITY CONTROL PLANS:

The North Coast Regional Water Quality Control Board and Oregon Department of Environmental Quality have identified this project as an implementation activity in the Total Maximum Daily Load (TMDL) plans and water quality targets for both the Klamath and Lost Rivers. The North Coast Regional Water Quality Control Board adopted that TMDL Report in March 2010, and the State Water Resources Control Board followed suit that September. This project is consistent with both the Oregon and California plans which call for improving water quality in the region by controlling point and nonpoint source pollution in general, and reducing phosphorous and nitrogen inputs particularly. In order to help achieve these goals, many water quality control studies have been developed.

CONSISTENCY WITH CONSERVANCY'S 2013 STRATEGIC PLAN GOAL(S) & OBJECTIVE(S):

Consistent with **Goal 5, Objective C** of the Conservancy's 2013-2018 Strategic Plan, the proposed project will develop plans to preserve and enhance coastal watersheds and floodplains.

Consistent with **Goal 5, Objective G** of the Conservancy's 2013-2018 Strategic Plan, the proposed project will implement three to five projects to improve water quality to benefit coastal and ocean resources by constructing treatment wetlands in the highly impaired Klamath River watershed.

CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA & GUIDELINES:

The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines, last updated on October 2, 2014, in the following respects:

Required Criteria

1. **Promotion of the Conservancy's statutory programs and purposes:** See the "Consistency with Conservancy's Enabling Legislation" section above.
2. **Promotion and implementation of state plans and policies:** The proposed project is consistent with at least two state plans and policies concerning the improvement of water quality in the Klamath River watershed, and the natural production of coastal salmon resources that depend on good water quality in that basin. First, The North Coast Regional Water Quality Control Board adopted the Klamath River TMDL in March 2010, and this action was approved by the State Water Resources Control board in September 2010. This TMDL Plan specifically recommends the type of water quality improvement projects recommended under this proposed grant.

The proposed project is consistent with restoration strategies identified as part of the ongoing Upper Klamath Conservation Area Network basin planning effort, including reduction of tailwater nutrient loading to Upper Klamath Lake and its primary tributaries. While that

inter-state plan is not yet released, it is in draft and is expected to be completed within one year.

According to the Recovery Plan for Southern Oregon Northern California Coho (SONCC), the upper Klamath River population of Coho is at high risk of extinction. The primary cause for the decline is “Altered Hydraulic Function,” which is NOAA-NMFS shorthand for dam construction and the agricultural problems described elsewhere in this staff recommendation. Thus, two of the six highest priority recovery actions necessary to enhance remaining Coho populations are: 1) reduce warm water inputs by reducing tailwater from irrigation; and 2) reconnect the channel to off-channel ponds, wetlands, and side channels, precisely what is recommended by this project proposal. (See 2014 SONCC Recovery Plan, Section 34.1)

Finally, the 2004 Recovery Strategy for California Coho Salmon includes as a highest priority for Coho restoration the recommendation to “(i)mprove water quality coming into the Klamath River mainstem from the Upper Klamath Basin through ongoing efforts”. By assigning that task level recommendation the highest priority “(E)”, the authors intended to communicate that “these tasks must be implemented rapidly or early in the Coho salmon recovery process because they are critical to Coho salmon recovery or they must precede tasks included in levels D and C.” (State Coho Plan, KR-HU—08)

In order to help achieve this, the North Coast Regional Water Quality Control Board and Oregon Department of Environmental Quality have identified this project as an implementation activity in the TMDLs for the Klamath and Lost Rivers. The North Coast Regional Water Quality Control Board adopted that TMDL Report in March 2010, and the State Water Resources Control Board followed suit that September.

3. **Consistency with purposes of the funding source:** See the “Project Financing” section above.
4. **Support of the public:** The proposed project enjoys the support of the landowners, U.S. Congressmen Jared Huffman (D-California) and Greg Walden (R-Oregon), the Klamath Tribe, Oregon Watershed Enhancement Board, U.S. Fish and Wildlife Service, Natural Resources Conservation Service and more. (See Exhibit 3).
5. **Location:** The project site lies outside the coastal zone and outside the State of California. However, implementation will benefit numerous coastal resources by improving water quality in the Klamath River Basin.
6. **Need:** If Conservancy funds were not available in 2015, only three pilot sites would be implemented in the near future. If Conservancy funds are available to implement an additional 3-5 sites, a total of six to eight sites would be implemented with funding from the regional water board to conduct monitoring of those sites. This scale of pilot project initiation would provide sufficient variability and replication to create a strong dataset for transferring design and treatment performance information to the basin-scale. To reduce phosphorous by 20% in the Wood River Valley as a whole, it is anticipated that DSTWs would be installed throughout the basin; the monitoring and evaluation included in the proposed project would support design adaptations that will increase the effectiveness of future projects. Thus, it is important that the partnership be able to install three to five additional DSTWs in 2015 and to

monitor their performance to provide transferrable design criteria for support of future installations.

7. **Greater-than-local interest:** As indicated by the interest and financial support of the Regional Water Quality Control Board, discrete actions taken in southeastern Oregon have a profound influence on habitat quality and quantity in California's second largest coastal river. Hence the broad concern for and support of this proposed approach and pilot project.
8. **Sea level rise vulnerability:** The proposed project site is unlikely to ever experience the threat of sea level rise.

Additional Criteria

9. **Urgency:** Because Klamath water quality improvement is likely to take decades, it is urgent to begin evaluation methods of ameliorating water quality conditions in the Klamath before dam removal occurs. Doing so will help ensure that when the dams are removed, the migrating salmon will find hospitable conditions in the upper basin. The project requires Conservancy funding to move forward.
10. **Resolution of more than one issue:** Improving water quality by modifying agricultural operations will help coastal salmon populations, but it will also restore some of the extensive wetland habitat lost through reclamation of the Upper Klamath Basin. Doing so will boost migratory waterfowl populations, many of which migrate south to marine, coastal and inland California.
11. **Leverage:** See the "Project Financing" section above.
12. **Conflict resolution:** As indicated under Project History, above, KBRT originated in the highly charged and nearly violent conflicts over water use in the upper basin during . The KBRT was founded in 2002 after the irrigation water shut-offs and massive fish kills of 2001 and 2002. The project will allow KBRT to engage cooperative and willing landowners in the Basin to work toward a common solution to the Basin's problems.
13. **Readiness:** The project is ready to be implemented alongside existing DSTWs planned for the region. KBRT will apply for removal/fill permits from the Oregon Department of State Lands. The permitting process will begin early 2015 and will be completed by spring 2015. The local US Fish and Wildlife office will complete cultural resource, endangered species, and NEPA compliance through their internal processes. There is no Oregon equivalent to CEQA.
14. **Realization of prior Conservancy goals:** "See "Project History" above."
15. **Cooperation:** Active engagement with agency personnel and local technical and experiential knowledge will guide the integration of the design elements towards implementation.
16. **Vulnerability from climate change impacts other than sea level rise:** DSTWs rely on a continuous supply of water to provide water quality improvements. The primary risk to these projects due to climate change is from prolonged drought. Each project will treat irrigation water, so droughts that are severe enough to affect irrigation water availability could pose a threat to the function of the projects. To mitigate for this risk, KBRT will secure water right transfers for each treatment wetland, and we will target properties that have senior water

rights (i.e., prior to 1890), ensuring that the irrigation water will not be shut off in the event of a drought.

Further, increasing the extent of wetlands in the Klamath Basin is a recommended strategy for increasing resiliency to climate change in the built environment, the economy, and human systems (Barr et al. 2010).

17. **Minimization of greenhouse gas emissions:** Although wetlands can naturally produce small amounts of greenhouse gases, including methane and nitrous oxide, they also sequester carbon dioxide through build-up of peat. In general, wetlands tend to represent net carbon sinks. It is therefore anticipated that there will be a net decrease in greenhouse gas emissions from this project.

Due to brief construction needs and existing plans for minimizing the idling of heavy equipment, the primary greenhouse gas emissions from this project will be caused by travel to and from the site for construction and monitoring. KBRT will work with local contractors who will not have to travel far to the project site, and meetings with partners (especially California partners) will be held over the phone whenever possible to reduce travel. Although wetlands can naturally produce small amounts of greenhouse gases, including methane and nitrous oxide, they also sequester carbon dioxide through the build-up of peat.

CONSISTENCY WITH LOCAL COASTAL PROGRAM POLICIES:

The proposed authorization will include sites located outside of the coastal zone, but will directly affect resources in at least five northern California counties, two of which have certified Local Coastal Programs (LCPs), and three of which are outside of the coastal zone.

It is anticipated that these projects will enhance water quality and potentially lead to further enhancement of water quality in the Klamath River basin. The aquatic resources and habitat quality of stream channels within and outside of the coastal zone boundaries are inextricably linked. For example, the anadromous fish populations that spend part of their life history within the coastal zone reside for extended periods outside of the coastal zone, and therefore depend upon clean fresh water to survive and propagate upstream.

The proposed authorization is consistent with the two certified LCPs as follows:

Del Norte County

The authorization is consistent with the relevant portions of the Del Norte County Local Coastal Program (LCP), which was certified by the Coastal Commission on October 12, 1983.

It is due to the diversity in life history patterns of anadromous fish species that the Del Norte LCP acknowledges the importance of coastal streams and riparian vegetation systems as Sensitive Coastal Habitat, necessary to both the aquatic life and the quality of water courses. Under the LCP, Chapter VI, the following provisions are made:

“The County shall maintain all existing species of fish, wildlife, and vegetation for their economic, intrinsic and ecological values as well as providing adequate protection of rare and endangered species.” (App., p. 55)

“The County should establish riparian corridors along local streams, creeks, and sloughs to maintain their aesthetic appeal, wildlife habitat, control of erosion. . . .” (App., p. 56)

“The County encourages programs (*e.g.*, fish hatcheries, habitat rehabilitation) designed to improve the quality of coastal fisheries and other marine resources.”

(App., p. 57)

“All surface and subsurface waters shall be maintained at the highest level of quality to insure the safety of public health and the biological productivity of coastal waters.”

(App., p. 58)

Therefore, this recommendation’s goal of improving anadromous fish habitat by improving water quality in the Klamath River, and ultimately providing access to historic habitat, thereby maintaining and enhancing the aquatic resources of the county, is consistent with the LCP.

Humboldt County

The authorization is consistent with the relevant portions of the Humboldt County General Plan Volume II, North Coast Area Plan of the Humboldt County Local Coastal Program (LCP), which was partially certified by the Coastal Commission on January 12, 1982, and amended thereafter on various occasions, and which states:

“Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.” (LCP, 3-40 (a))

“Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.” (LCP, 3-40(b))

“Marine resources shall be maintained, enhanced, and, where feasible, restored. Special consideration shall be given to areas and species of special biological or economic significance.” (LCP, Chap. 3, p. 27, Section G)

“The biological productivity and the quality of coastal waters, streams, and wetlands...appropriate to maintain optimum populations of marine organisms...shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff...and minimizing alteration of natural streams.”

(LCP, Chap. 3, p. 27, Section G)

Because the proposed authorization will help prepare for projects designed to restore natural geomorphologic processes and open up previously unavailable habitat, the proposed authorization is entirely consistent with the LCP policies stated above.

COMPLIANCE WITH CEQA:

As this project will be partially implemented in Oregon, staff examined whether the project will be reviewed under a program equivalent to the California Environmental Quality Act (CEQA) consistent with Public Resources Code § 21080(b)(14), which provides that no environmental review is required for out-of-state projects that have been reviewed under National Environmental Policy Act or the other state’s environmental statutes. Oregon does not have a CEQA equivalent and no other environmental review of the projects will occur prior to board action. Accordingly staff evaluated the project under CEQA to ensure compliance with California law.¹

After review staff have concluded the project is exempt pursuant to the CEQA Guidelines, Title 14 of the California Code of Regulations, Section 15333 regarding construction of small habitat restoration projects no larger the 5 acres in size. The cumulative acreage of the project sites under this funding do not exceed five acres in size and are designed to assure the maintenance, restoration, enhancement, or protection of habitat for fish, plants, or wildlife. The project meets the additional conditions of this categorical exemption in that there would be no significant adverse impact on endangered, rare or threatened species or their habitat; there will be no hazardous materials at or around the sites to be selected; and the project will not result in significant impacts when viewed in connection with the effects of past, present, or probable future projects.

Each of the projects has been endorsed by the U.S. Fish and Wildlife Service and other resource agencies and each is intended and designed to have beneficial effect on endangered species. Riparian planting and restoration along the restored wetland area of the stream will measurably improve habitat with no material risk of adverse effect to the environment. In addition to these long-term beneficial effects, by design and approach, this project will not impact the endangered fish species because best management practices identified in the CDFW’s Restoration Manual and in permit terms established by NOAA Fisheries will be employed by the grantee and its contractors. Consistent with Section 15333(d)(6), the wetland restoration will be undertaken in accordance with published guidelines and permit terms.

Staff will file a Notice of Exemption upon approval.

¹ California courts have not squarely addressed the question of whether CEQA review is required for a project that is not subject to further environmental review and is to be implemented completely outside the State of California. However, there is a suggestion that such projects are subject to CEQA review. The Guidelines suggest the lead agency use the following factors to determine if a project is to be reviewed under CEQA:

- (1) The activity does not involve the exercise of discretionary powers by a public agency;
- (2) The activity will not result in a direct or reasonably foreseeable indirect physical change in the environment; or
- (3) The activity is not a project as defined in Section 15378.

14 CCR §§ 15060(c). In addition, the funding source for this project, Proposition 50, requires all projects financed under the bond be “in compliance” with CEQA, which begs the question of whether CEQA is required in this instance. See Water Code § 79506. Accordingly, staff has evaluated the project under CEQA in an abundance of caution and to address any impacts that may affect the environment within California. See Pub. Res. Code § 21080(b)(14).