

COASTAL CONSERVANCY

Staff Recommendation  
February 15, 2024

**WADULH LAGOON RESTORATION IMPLEMENTATION**

Project No. 22-006-02  
Project Manager: Su Corbaley

**RECOMMENDED ACTION:** Authorization to disburse up to \$1,368,606, a portion of which was granted to the Coastal Conservancy by the U.S. Fish and Wildlife Service, to the Humboldt County Resource Conservation District to implement the Wadulh Lagoon Restoration Project, consisting of restoring 62.1 acres of coastal wetland and riparian habitat by lowering and removing dikes and excavating channels in Wadulh Lagoon on the Mad River Slough on Humboldt Bay in Humboldt County.

**LOCATION:** North Spit of Humboldt Bay, Humboldt County

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EXHIBITS

Exhibit 1: [Project Location Map](#)

Exhibit 2: [Current Conditions](#)

Exhibit 3: [Photos](#)

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**RESOLUTION AND FINDINGS**

Staff recommends that the State Coastal Conservancy adopt the following resolution and findings.

Resolution:

The State Coastal Conservancy hereby authorizes a grant of an amount not to exceed one million three hundred sixty-eight thousand, six hundred and six dollars (\$1,368,606), a portion of which was granted to the Conservancy by the U.S. Fish and Wildlife Service, to the Humboldt County Resource Conservation District (the grantee) to implement the Wadulh Lagoon Restoration Project, consisting of restoring 62.1 acres of coastal wetland and riparian habitat by lowering and removing dikes and excavating channels in Wadulh Lagoon on the Mad River Slough on Humboldt Bay in Humboldt County.

Prior to commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Conservancy the following:

1. A detailed work program, schedule, and budget.
2. Names and qualifications of any contractors to be retained in carrying out the project.
3. A plan for acknowledgement of Conservancy funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.
5. Evidence that the grantee has entered into agreements sufficient to enable the grantee to implement, operate, and maintain the project.

Findings:

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

1. The proposed authorization is consistent with Chapter 3 of Division 21 of the Public Resources Code, regarding the Climate Ready Program.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria.

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## **STAFF RECOMMENDATION**

### **PROJECT SUMMARY:**

Staff recommends the Conservancy authorize a \$1,368,606 grant to the Humboldt County Resource Conservation District (HCRCD) to implement the Wadulh Lagoon Restoration Project, consisting of restoring 62.1 acres of coastal wetland and riparian habitat in Wadulh Lagoon on the Mad River Slough on Humboldt Bay in Humboldt County (Exhibit 1). Wadulh is the word for dunes in the Wiyot language. The name Wadulh Lagoon was selected in recognition of the Wiyot Tribe's significant cultural connection to the project area and to the adjacent Wadulh Unit owned by the U.S. Fish and Wildlife Service (USFWS). The project consists of lowering and removing dikes and excavating channels to expand tidal zones to accommodate sea level rise, allow for upland migration of saltmarsh habitat, and expand fisheries habitat to support endangered salmonids.

In 2022, the USFWS awarded the Conservancy \$806,990 through the National Coastal Wetlands Conservation (NCWC) Grant Program for the restoration of the tidal wetlands in Wadulh Lagoon. In December 2022, the Conservancy authorized disbursement of up to \$226,300, including \$157,173 of the NCWC funds, to the HCRCD to prepare designs, environmental analyses, and permit applications for the wetland restoration activities. This authorization of \$1,368,606, including \$638,926 of NCWC funds, would allow for the implementation of the wetland restoration activities. Construction is expected to begin July 2024 and be completed in 2025.

The site currently consists of subsided and degraded agricultural lands that have been separated from the bay by dikes (Exhibit 2). Wadulh Lagoon is located on a 78-acre parcel that the California Department of Transportation (Caltrans) purchased with the intention of developing a wetland mitigation bank for regional wetland impacts from highway construction.

Caltrans completed extensive site investigations of the project area over a ten-year period including plant surveys, hydraulic monitoring, wetland delineations, and hydraulic modeling, but eventually abandoned the mitigation banking idea because it determined that the project would not meet Caltrans requirements for wetland mitigation credits. Caltrans then determined the site was surplus property, and donated it in July 2021 to USFWS for addition to its Humboldt Bay National Wildlife Refuge (Refuge).

Caltrans provided the background studies that USFWS used in developing the project and which helped USFWS assess feasibility of restoration. Refuge staff have recently completed advanced designs (90%) for the project and are working to complete environmental analysis in compliance with the National Environmental Policy Act. As discussed further below, the project is exempt from California Environmental Quality Act (CEQA). HCRCD conducted environmental review and planning and has coordinated closely with Refuge staff to obtain design information to support the environmental review for the project.

Humboldt Bay has lost 90% of its salt marshes since 1900, largely through diking and draining, and over 75% of its shoreline has been armored or otherwise altered. Diking and draining of salt marshes has contributed to the substantial population declines of local salmonid species, including coho, Chinook, and steelhead as well as tidewater goby; all are threatened or endangered under the federal and state Endangered Species Acts. Restoration of tidal channels, eelgrass beds, and salt marsh will provide significant off-channel and nursery habitat. Juvenile salmonids use the estuary, especially areas with eelgrass, as nursery areas for extended periods before entering the ocean.

The project will restore 62.1 acres of diked, subsided, agricultural wetland to a combination of estuarine and palustrine wetland habitats, including salt marsh, brackish marsh, mudflat, and subtidal/intertidal eelgrass habitat, while enhancing and protecting existing forested wetlands, to increase adaptation to sea level rise, provide habitat and wildlife protection on land that is owned and managed by USFWS and protect against sea level rise inundation of a county road, and USFWS road used to access public lands. The project will assist in the recovery of threatened and endangered fish species, as well as special status bird, amphibian, and plant species. The project supports state and federal goals for restoring and conserving 30% of coastal waters by 2030.

Project tasks include: 1) Lowering the existing dike in some areas and fully removing the dike in one or more places, restoring full tidal flow to the site; 2) Placing fill in strategic areas to create suitable elevations for establishment of salt and brackish marsh; 3) Placing fill abutting an existing dike that protects the property owner to the south to create a buffer of salt marsh, increasing adaptation to sea level rise; 4) Strategically placing fill to create conditions to trap tidally-transported suspended sediment and to promote salt marsh expansion; 5) Excavating primary and secondary tidal channels to allow for circulation and provide fish habitat during low tides; and 6) Excavating an area on the east side that was historically open water to the proper elevation to support eelgrass.

**Site Description:** The project area is located within 78 acres owned by USFWS and managed as part of the Humboldt Bay National Wildlife Refuge. It is located adjacent to Mad River Slough on Humboldt Bay, and was formerly a tidal wetland prior to its conversion to agricultural land in

the early 1900s. Historical diking and draining converted approximately 50 acres to a freshwater wetland that was used for agricultural production. The remaining acreage consists of uplands, roadway, and subtidal lands within Humboldt Bay (Exhibit 1, page 3). Over time, the drained lands subsided due to decay of organic soils, degrading the value of the site for agricultural use, and leaving the land vulnerable to sea level rise. Currently the project site is a fallow agricultural field that is bound on the east side by a failing dike and the Mad River Slough, on the west side by dunes and dune forests, on the north by Lanphere Road, and on the south by an emergency dike that was erected by the neighbors after the tide gate on the parcel failed in 2019 (Exhibit 2). This site is currently covered by non-native invasive plant species and non-native grasses with some native freshwater riparian species present along the fringe of the agricultural field (Exhibit 3).

The completed project will restore and protect 62.1 acres of intertidal salt, brackish marsh, freshwater emergent wetlands, and fringe wetlands. The project is an opportunity to restore a natural shoreline with a transition from slough to salt marsh to freshwater riparian wetlands. Its location is the only place on the Bay where the natural transition from slough to salt marsh to freshwater wetlands to upland (dunes, located to the west) is preserved.

**Grant Applicant Qualifications:** The HCRCD is currently managing a grant to complete the planning and environmental review and permitting for the restoration work that is the subject of this authorization. It has successfully managed over \$25 million in state and federal contracts for similar projects within the last 10 years. During this same period, the HCRCD has successfully managed seven State Coastal Conservancy grants, including two grants obtained in partnership with the USFWS for the White Slough Wetland Enhancement Project, a restoration project on the south end of Humboldt Bay on USFWS-owned land.

The USFWS, as landowner of the project site, is the partnering federal agency on the project. Refuge staff engineers and hydrologists are currently completing the designs for the restoration work and providing support to HCRCD to complete environmental review and permitting. Refuge staff have worked on many restoration projects on/around Humboldt Bay on USFWS-owned and non-USFWS-owned wetland, estuarine, and riverine project areas. Additionally, the current Refuge staff have recently completed the White Slough wetland restoration project with similar restoration components to Wadulh Lagoon, and are conducting post project monitoring at that site similar to what will occur on the restored Wadulh Lagoon.

#### **CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA:**

The proposed project is consistent with the Conservancy's Project Selection Criteria, last updated on September 23, 2021, in the following respects:

##### **Selection Criteria**

##### **1. Extent to which the project helps the Conservancy accomplish the objectives in the Strategic Plan.**

See the "Consistency with Conservancy's Strategic Plan" section below.

**2. Project is a good investment of state resources.**

The proposed project will restore 62.1 acres of wetlands and adjacent habitats on Humboldt Bay. As mentioned, Humboldt Bay has lost 90% of its salt marshes since 1900 and over 75% of Humboldt Bay's shoreline has been armored or otherwise altered. Humboldt Bay's loss of shoreline and salt marshes resulted in significant loss of ecosystem services that are essential to people and the environment including wildlife food and habitat, water quality, recreation, buffering against sea level rise impacts, and carbon sequestration. The proposed project will restore wetlands and provide those important ecosystem services. The project will support state and federal goals for restoring and conserving 30% of coastal waters by 2030.

**3. Project includes a serious effort to engage tribes. Examples of tribal engagement include good faith, documented efforts to work with tribes traditionally and culturally affiliated to the project area.**

USFWS Refuge staff contacted the local tribes in 2021 in support of Conservancy staff's application to the USFWS NCWC Grant program for the project. The Refuge has completed its formal consultation process with local tribes whose ancestral lands include the project area. In Summer 2023, USFWS conducted archival research and a field inventory to determine whether any historic properties or cultural resources occur within the Area of Potential Effect of the project. During tribal consultation, one tribe requested that a cultural monitor be present during project implementation. No other responses regarding the project have been received from the other local tribes. The Refuge has worked with these tribes on past projects to address any concerns and will continue to work with them to ensure that their concerns are addressed and that cultural resources are protected. One of the local tribes, the Wiyot Tribe, will be an active participant in concept and design of interpretive signage around the restoration site and will use the restored site to educate its members and provide eco-cultural interpretation.

**4. Project benefits will be sustainable or resilient over the project lifespan.**

The project is designed around process-based restoration; though the individual features will likely evolve due to the dynamic nature of a tidal setting, they are expected to persist and provide value for at least fifty years given sea level rise. Project design elements are intended to trap suspended sediment brought in by tides which may allow marshes to keep pace with sea level rise for a longer time. Barriers to upslope migration of salt marsh will be removed.

**5. Project delivers multiple benefits and significant positive impact.**

The project will result in benefits for coastal wetlands and associated dependent species. It will restore diked and drained salt marsh and intertidal areas, restore a natural transition from uplands to shoreline and the slough, and provide nursery and significant off-channel habitat for federally and state listed fish species and habitat for shorebirds and raptors. These project benefits will be resilient to changing ocean conditions and sea level rise because the removal of the dike will result in accommodation space for sea level rise. USFWS will provide management and long-lasting stewardship of the site.

**6. Project planned with meaningful community engagement and broad community support.**

The project is a collaboration between the Conservancy, the HCRC, Caltrans, and the Refuge. The team has met with neighbors and partners, including tribes whose ancestral lands include the project area (see Project Selection Criteria, Item 3, above), to develop the project in a coordinated and cooperative manner.

In August 2015, Caltrans, the then-current landowner, held conceptual design coordination meetings with neighbors, stakeholders, and agencies to present and choose a restoration option to use the site for Caltrans' mitigation needs. Though Caltrans determined the site was unsuitable for its mitigation needs and abandoned further design development at the conceptual stage, USFWS staff have updated those plans to reflect the current restoration goals.

The project is supported by California Senator Mike McGuire, Assemblymember Jim Wood, and Humboldt County Supervisor Mike Wilson. This support is evidenced in letters that were submitted for the December 2022 Conservancy authorization of funding for planning and environmental review. That support remains. The project is also supported by local non-profit organizations Friends of the Dunes and Redwood Region Audubon Society; each provided a letter in support of the Conservancy's 2021 NCWC grant application and remains committed to supporting public outreach and education following completion of restoration activities.

**PROJECT FINANCING**

<b>Coastal Conservancy</b>	<b>\$729,680</b>
US Fish and Wildlife Service ( <i>via</i> a grant to the Conservancy)	\$638,926
<b>Project Total</b>	<b>\$1,368,606</b>

A portion of the funding for the proposed authorization is a USFWS NCWC Grant awarded to the Conservancy for this project. As described in the Project Summary section of this staff report, the USFWS has awarded \$806,990 to the Conservancy, including the \$638,926 proposed for this authorization. On December 1, 2022, the Conservancy authorized disbursement of \$157,173 of the NCWC grant to HCRC to prepare designs, environmental analyses, and permit applications; the remaining \$13,891 from the NCWC grant will be retained by the Conservancy to support staff costs.

A portion of the funding for the proposed authorization is anticipated to come from a FY 2023/24 appropriation to the Conservancy from the General Fund for the purposes of "urgent sea level rise adaptation and coastal resilience needs using nature-based solutions or other strategies" (Budget Act of 2023, SB 101). The project is a sea level rise adaptation project that will restore coastal wetlands in a coastal estuary, allowing for upland migration of saltmarsh habitat and thereby protecting the estuary from sea level rise. Conservancy funding includes \$279,680 for non-federal cash match for the NCWC grant and \$450,000 needed to complete the project.

Unless specifically identified as “Required Match,” the other sources of funding and in-kind contributions described above are estimates. The Conservancy does not typically require matching funds or in-kind services, nor does it require documentation of expenditures from other funders or of in-kind services. Typical grant conditions require grantees to provide any funds needed to complete a project.

**CONSISTENCY WITH CONSERVANCY’S ENABLING LEGISLATION:**

The project is consistent with Section 31113 of Chapter 3 of Division 21 of the Public Resources Code, which establishes the Climate Ready Program and authorizes the Conservancy to address the impacts and potential impacts of climate change on resources within the Conservancy’s jurisdiction (Section 31113(a)).

Pursuant to Section 31113(b), the Conservancy is authorized to award grants to nonprofit organizations and public agencies to undertake projects within its jurisdiction, including those that reduce greenhouse gas emissions or address extreme weather events, sea level rise, flooding, and other coastal hazards that threaten coastal communities, infrastructure, and natural resources.

Pursuant to Section 31113(c), the Conservancy must, to the extent allowed, prioritize grants for projects that maximize public benefits and have several listed purposes, including reducing greenhouse gas emissions and enhancing coastal wetlands. Consistent with Section 31113(d), the Conservancy must prioritize certain types of projects, including those that provide multiple public benefits, and give consideration to projects in a variety of ecosystems along the state’s coastline, including those that protect coastal estuaries and lagoons that provide critical feeding and nursery habitat for juvenile fish species and foraging habitat for birds.

Consistent with these provisions, the recommended authorization is to award a grant to the HCRCDC, a public agency, to restore tidal wetlands adjacent to Mad River Slough, which is located within the coastal zone and therefore within the Conservancy’s jurisdiction, provide a buffer against the impacts of sea level rise, and help sequester carbon pollution. The project will also provide for upslope migration of the wetlands, thus ensuring that the restored wetlands are themselves resilient to sea level rise over the coming decades.

**CONSISTENCY WITH CONSERVANCY’S [2023-2027 STRATEGIC PLAN](#):**

Consistent with **Goal 1.1 Commit Funding to Benefit Systemically Excluded Communities**, the project includes engagement with the Wiyot Tribe in development of interpretive signage and will provide the opportunity for the Tribe to use the site to educate its members and provide eco-cultural interpretation.

Consistent with **Goal 3.2 Restore or Enhance Habitats**, the project will restore 62.1 acres of wetland habitat that supports both aquatic and terrestrial species, including providing nursery habitat for anadromous salmonids.

Consistent with **Goal 4.3 Multi-benefit Nature-Based Climate Adaptation**, the project will restore wetland function and provide sea level rise resilience for critical habitat.

**CEQA COMPLIANCE:**

On December 1, 2023, the HCRCDC, as lead agency for the project, determined that the project meets the criteria to be statutorily exempt from review under the California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.56. This section exempts from CEQA review projects that (1) conserve, restore, protect, or enhance, and assist in the recovery of California native fish and wildlife, and the habitat upon which they depend, or (2) restore or provide habitat for California native fish and wildlife. (Public Resources Code Section 21080.56(a).) Consistent with Section 21080.56(e), the Director of the California Department of Fish and Wildlife concurred with HCRCDC's determination on January 17, 2024.

Consistent with Section 21080.56(a), the proposed project will restore and enhance the recovery of native wildlife habitat in the Wadulh Lagoon on the Mad River Slough. Wetland habitat within Wadulh Lagoon will be expanded by lowering an existing dike, strategically placing fill to raise low lying areas to salt marsh elevation, and fully removing the dike in other locations to restore full tidal flows, providing habitat for a diversity of California native species, including waterfowl, endangered salmonids, and tidewater gobies, as well as providing upland foraging habitat for terrestrial species including birds and amphibians. Enhancement to the adjacent riparian forest will increase wildlife corridor and roosting habitat for neotropical migratory avian species. Consistent with Section 21080.56(d), construction activities included as part of the project are solely related to habitat restoration.

In order to qualify for an exemption under Section 21080.56, projects must result in long-term net benefits to climate resiliency, biodiversity, and sensitive species recovery and include procedures for ongoing management for the protection of the environment. (Public Resources Code Section 21080.56(c)). The project will promote biodiversity and sensitive species recovery through restoration and enhancement of the Wadulh Lagoon. The project will result in long-term net benefits to climate resiliency by providing restored and enhanced native habitats that provide the necessary resources, refugia, and corridors for native species to adapt to a changing climate and migrate upland as the sea rises. The project will be protected by USFWS as part of the Refuge and will be monitored for adaptive management, thereby providing for ongoing management and protection of the environment.

Upon approval of the project, staff will file a Notice of Exemption.