



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS  
1455 MARKET STREET  
SAN FRANCISCO, CALIFORNIA 94103-1399

*21-Dec 2012*

CESPD-PDS-P

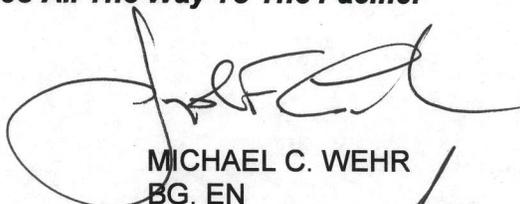
MEMORANDUM FOR Commander, San Francisco District, ATTN: CESPN-ET-PB, Mr. Richard Stradford

Subject: Humboldt Estuarine Complex Restoration Project, Humboldt Bay and Eel River Estuaries, Humboldt County, California, Estuary Habitat Restoration Program, Review Plan Approval

1. Humboldt Estuarine Complex Restoration Project, Humboldt Bay and Eel River Estuaries, Humboldt County, California, Estuary Habitat Restoration Program, Review Plan that is enclosed is in accordance with Engineering Circular (EC) 1165-2-214, Review of Decision Documents, dated 15 Dec 2012. The South Pacific Division, Planning and Policy Division, Regional Business Technical Division, and San Francisco District Support Team have reviewed the Review Plan that has been submitted. The South Pacific Division approves the Humboldt Estuarine Complex Restoration Project, Humboldt Bay and Eel River Estuaries, Humboldt County, California, Estuary Habitat Restoration Program, Review Plan.
2. With MSC approval the Review Plan will be made available for public comment via the internet and the comments received will be incorporated into future revisions of the Review Plans. The Review Plan excludes independent external peer review.
3. I hereby approve the Review Plan which is subject to change as study circumstances require. This is consistent with study development under the Project Management Business Process. Subsequent revisions to the Review Plan after public comment or during project execution will require new written approval from this office.
4. Point of contact for this action is Ms. Nedenia (Deanie) Kennedy, CESPD-PDS-P, 415-503-6585, [Nedenia.C.Kennedy@usace.army.mil](mailto:Nedenia.C.Kennedy@usace.army.mil).

***Building Strong From New Mexico All The Way To The Pacific!***

Encl  
Review Plan

  
MICHAEL C. WEHR  
BG, EN  
Commanding 

# REVIEW PLAN

## Humboldt Estuarine Complex Restoration Project Humboldt County, California

Estuary Restoration Act of 2000  
Estuary Habitat Restoration Program

U.S. Army Corps of Engineers  
San Francisco District



**South Pacific Division Approval Date:**  
December 21, 2012



US Army Corps  
of Engineers ®

# Humboldt Estuarine Complex Restoration Project

## REVIEW PLAN

The Estuary Habitat Restoration Program (EHRP) is authorized by the Estuary Restoration Act of 2000, Title I of PL 106-457 of the Estuaries and Clean Waters Act of 2000, as amended (33 U.S.C. 2901)

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## **1. PURPOSE AND REQUIREMENTS**

### **a. Purpose**

This Review Plan defines the scope and level of peer review for the Humboldt Estuarine Complex Intertidal Habitat Restoration Project, Humboldt County, California. The U.S. Army Corps of Engineers (USACE) HQ review needs to be completed on the Cooperative Agreement Package, which consists of seven sets of documents, attachments A through G:

- (1) Approved Proposal – Attachment A
- (2) Project Management Plan – Attachment B
- (3) Standard Terms and Conditions – Attachment C
- (4) Certifications and Representations – Attachment D
- (5) Monitoring Plan – Attachment E
- (6) Operations and Maintenance Manual – Attachment F
- (7) Real Estate Report – Attachment G

This is a small federal grant/cost shared Project that falls under the Estuary Restoration Act (ERA). The purpose of the ERA, as amended, is to promote the restoration of estuary habitat; to develop and implement a national estuary habitat restoration strategy for creating and maintaining effective partnerships within the Federal government and with the private sector; to provide Federal assistance for and promote efficient financing of estuary habitat restoration projects; and to develop and enhance monitoring, data sharing, and research capabilities.

The proposed action at Humboldt Estuarine Complex Intertidal Habitat Project, Humboldt Bay, California is a Project under the Estuary Habitat Restoration Program (EHRP), which is authorized by the Estuary Restoration Act of 2000, Title I of PL 106-457 of the Estuaries and Clean Waters Act of 2000, as amended (33 U.S.C. 2901). The Estuary Restoration Act authorizes the Secretary of the Army to carry out estuary habitat restoration projects and establishes the Estuary Habitat Restoration Council (Council), comprised of the USACE, Department of the Interior (acting through the U.S. Fish and Wildlife Service), National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), and Department of Agriculture (DOA). The USACE or other agencies represented on the Council that have available funds may fund projects the Army approves. Costs of projects funded under the ERA must be shared with non-federal parties. District offices, subject to USACE HQ and Major Subordinate Command (MSC) oversight, are responsible for carrying out approved projects funded by the USACE in cooperation with non-Federal interests.

### **b. Applicability**

This Review Plan does not cover decision documents or implementation products as defined by EC 1165-2-209. The documents covered by this Review Plan are “other work products” as defined by EC 1165-2-209; it is intended for documents associated with the Cooperative Agreement Package, which includes the design and construction phases of the Project. This Review Plan is appended to the PMP (Attachment B of the Cooperative Agreement). The documents associated with the Cooperative Agreement will be reviewed, edited, and approved by the San Francisco District Project Delivery Team and certified by the District Office of Counsel (see Table 1 in Attachment 1 below).

### c. References

- (1) Engineering Circular (EC) 1165-2-209, Civil Works Review Policy, 31 Jan 2010
- (2) EC 1105-2-412, Assuring Quality of Planning Models, 14 May 2010
- (3) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
- (4) Implementation Guidance for the Estuary Habitat Restoration Program (Cooperative Agreement), June 2011
- (5) PMP (15 August 2012), Humboldt Bay Eelgrass Restoration (P2 Number 371115)

### d. Requirements

This Review Plan was developed in accordance with EC 1165-2-209, which outlines four general levels of review: District Quality Control /Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review.

- (1) District Quality Control/Quality Assurance (DQC). All major documents associated with this Project (e.g., Project Management Plan, Monitoring Plan, O&M Manual) shall undergo DQC as provided in EC 1165-2-209, paragraph 8.

DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Project Management Plan (PMP). For this Project, the USACE San Francisco District, QC/QA Manager will be responsible for DQC efforts. The Project plans and specifications developed by the Recipient (Ducks Unlimited, Inc.) or other non-federal parties will undergo DQC.

The PDT will be responsible for performing a technical review of the plans and specifications, cost engineering, real estate documents, coastal ecology, and environmental compliance. The DQC review will be completed prior to approval of the Cooperative Agreement. Duties of the DQC team include the following:

- Reviewing report contents for compliance with established principles and procedures, using clearly justified and valid assumptions.
  - Reviewing plans and specification to ensure they are correct and reasonable.
  - Providing documentation of comments, issues, and decisions arising out of the DQC review to the Project Manager. Comments and resolutions will be collected by the Project Manager and documented in the Project file. Corrections will be made to the reviewed documents before construction begins.
- (2) Agency Technical Review (ATR). The implementation guidance for the Estuary Habitat Restoration Program (reference c (4)) clarifies that the Risk Informed Decision process is applied, as appropriate, to determine if an ATR will be required. The San Francisco District determined that an ATR was not appropriate or necessary for this Project.

This Project was designed by non-federal agencies and environmental organizations with prior experience in tidal-habitat restoration projects in Humboldt Bay and environs. The Project is a relatively simple action involving hand excavation and removal of eelgrass plants

(near-shore locations), covering of plants with mats (off-shore locations), heating plants to high temperatures, and disposal of collected plants and sediment at an approved landfill. Therefore, technical review beyond the DQC review has been determined unnecessary.

This Project has not been deemed by the USACE Director of Civil Works or Chief of Engineers to be controversial in nature. This Project is a small estuary restoration Project, which has been reviewed by local, state, and federal resource agencies, and has gone through a public review process during a previous permitting phase. There have not been any significant public disputes over the size, nature, or environmental effects or benefits of the Project. All questions and concerns have been thoroughly addressed and all outstanding issues have been resolved.

- (3) Independent External Peer Review (IEPR). IEPR may be required for decision documents under certain circumstances. There are two types of IEPR: Type I is generally for decision documents and Type II is generally for implementation products. A Type I IEPR is not required because this review plan does not cover any decisions documents. A Type II IEPR is not required because this Project does not involve a significant threat to human life/safety assurance.

Based on the types of documents to be reviewed, the EHRP implementation guidance, and conclusion that for this Project, all of the following specific criteria are met:

- The Project does not involve a significant threat to human life/safety assurance;
- The total Project cost is less than \$45 million;
- There is no request by the Governor of an affected state for a peer review by independent experts;
- The Project does not require an Environmental Impact Statement (EIS);
- The Project is not likely to have significant economic, environmental, and/or social effects to the Nation;
- The Project/study is not likely to have significant interagency interest;
- The Project/study is not likely highly controversial;
- The decision document is not likely to contain influential scientific information or be a highly influential scientific project;
- The information in the decision document or proposed Project design is not likely to be based on novel methods, involve the use of innovative materials or techniques, present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices; and

- (4) Policy and Legal Compliance Review. Project documents will be reviewed for their compliance with applicable law and policy.
- (5) Cost Engineering Review and Certification. There are no decision documents requiring cost review. The basic material, labor and construction costs for this Project were reviewed and certified by the San Francisco District Cost Engineering Section.
- (6) Model Certification/Approval. EC 1105-2-412 mandates the use of certified or approved models for all planning activities to ensure the models are technically and theoretically

sound, compliant with USACE policy, computationally accurate, and based on reasonable assumptions. This estuary habitat restoration Project does not require any modeling.

## **2. REVIEW MANAGEMENT ORGANIZATION COORDINATION**

The Review Management Organization (RMO) is responsible for managing the overall peer review effort described in this review plan. The RMO for EHRP projects is the South Pacific Division (SPD). SPD will coordinate and approve the Review Plan. The San Francisco District will post the approved Review Plan on its public website.

## **3. STUDY INFORMATION**

### **a. Background**

The invasive eelgrass (*Zostera japonica*) was detected in Humboldt Bay in 2002, and in the Eel River Estuary in 2008. These populations represent the southern extent of its range along the Pacific coast and the first discovery in California. *Z. japonica* is capable of rapid expansion over non-vegetated mudflats, and the species has become well established in estuaries throughout Oregon and Washington.

*Z. japonica* populations in Humboldt Bay have been actively monitored and removed between 2003 and the present. The population in the Eel River Estuary has been monitored since its detection. All populations exhibit exponential growth when not controlled. After several years of consistent eradication, the Indian Island site has been completely cleared of *Z. japonica*. This success demonstrates the high potential of the proposed Project to restore habitat to pre-invasion conditions.

At other sites in Humboldt Bay, eradication efforts have been less consistent. Long-term permits were applied for in 2008 upon detection of the McNulty Slough population in the Eel River Estuary. Project operations continued under a one-year waiver in 2008, while the longer term permit applications were reviewed and granted. No waiver was received in 2009 and not eradication activities were conducted that year. The amount of eradication successfully completed in 2010 effectively addressed this lapse of activity.

### **b. Project Location and Description**

The Humboldt Estuarine Complex Intertidal Habitat Restoration Project originally had two geographical project areas: Humboldt Bay (located at 40° 46' N and 124° 14' W) and McNulty Slough (Eel River Estuary located at 40° 38' N and 124° 18' W), both in Humboldt County, California. Only the Humboldt location, situated in intertidal waters known as tidelands, will be implemented under the current proposal. The map in Figure 1 shows the locations of invasive eelgrass sites in northern Humboldt Bay.

Broad expanses of non-vegetated, intertidal flats comprise 60% of Humboldt Bay surface area and are characterized by gradual slopes, muddy or sandy substrates. In the Eel River Estuary, narrow bands of intertidal flats are exposed along slough channels and near the river mouth at low tide. The estuary is situated on relatively flat landscape. Intertidal areas provide habitat for animals that depend on the detrital based food webs. These areas are considered key migratory, staging, roosting and refueling areas for migrating and wintering shorebirds and waterfowl in the Pacific Flyway.

Figure 1. Locations of Invasive Eelgrass Removal Sites, Northern Humboldt Bay



Humboldt Estuarine Complex Restoration Project  
Estuary Restoration Act

San Francisco District December 2012



The scope of this Project was reduced to remove the invasive eelgrass at multiple sites in northern Humboldt Bay only, because the original grant amount was reduced due to San Francisco District administrative costs. Approximately 40 to 50 acres of critical intertidal habitat will be managed through eelgrass removal. Hand excavation involves digging up the plant material above and below ground surface, and placing the material in plastic trash bags. The bags from Humboldt Bay will be transported to a landfill at the City of Arcata Wastewater Treatment Plant. The burial method involves rolling out burlap fabric over patches of *Z. japonica* and securing the fabric with surrounding sediment. The Project includes monitoring seed viability, epibenthic invertebrate community structure, and shorebird use of infested sites. Monitoring for new occurrences of *Z. japonica* will be done by shoreline and boat surveys.

The Project will refine the new method of sterilizing the plant and seed bank with high-heat cartridges inserted into the substrate. Cartridges are attached to a metal grid to increase the area of *Z. japonica* to be eradicated. Heaters will be systematically moved to control above-and-below-ground plant material, completing eradication of large areas in a relatively short time. A second innovative technique is covering the perimeter of patches greater than 40 square feet, which will be monitored to evaluate whether this slows growth within the patch and/or kills the plants.

The restoration Project is expected to enhance estuarine intertidal habitat and to benefit five protected fish species (Tidewater Goby, Coho Salmon, Steelhead Salmon, Chinook salmon, and Green Sturgeon) as well as seven bird species of concern (Willetts, Marble Godwits, Dunlin, Least Sandpiper, Long billed Curlew, Whimbrel, and Western Sandpiper). The mid- to upper- intertidal ecosystem will benefit from the eradication of invasive eelgrass. Open mudflats support large numbers of resident and migrating shorebirds and waterfowl that feed on invertebrates and the native eelgrass (*Z. marina*).

The estimated cost (federal and other sources) of the Project in the original ERA proposal was \$302,452. The current Project estimated cost for the northern Humboldt Bay work is \$269,657.

#### **c. Factors Affecting the Scope and Level of Review**

The Project is not likely to have significant economic, environmental, or social effects to the Nation or involve a significant threat to human life/safety. The Project is an estuary habitat restoration Project consisting of removal of invasive eelgrass, monitoring of success, and additional eradication efforts as needed. The Project is designed to enhance the biological productivity of the area. The Project will also provide educational and research opportunities. The Project is not likely to have significant interagency interest, be highly controversial, contain influential scientific information or be a highly influential scientific assessment due to the relatively small footprint of this Project. The information in the Project Management Plan or proposed Project design is not based on novel methods. Successfully implemented techniques will be supplemented with innovative use of heat cartridges. The Project design does not present complex challenges for interpretation, contain precedent-setting methods or models, or present conclusions that are likely to change prevailing practices.

#### **d. Products and In-Kind Contributions**

The following products will be reviewed: PMP, Cost Estimate and Specs, NEPA Evaluation, Monitoring Plan, and OMRR&R Manual. Products and analyses provided by the Recipient as in-kind services are subject to peer review, similar to any products developed by USACE. This vegetation-

removal project is limited in scope without construction of new features or facilities. It is therefore suggested that the DQC team would not need engineering or construction members. Rather, DQC would be conducted by the District's QC/QA manager, and real estate and coastal ecology team members (see Table 2 in Attachment 1 below).

#### **4. PUBLIC PARTICIPATION**

The proposed Project has included coordination and collaboration between local, State, and Federal agencies over several years. Ducks Unlimited, Inc. and University of California Sea Grant Program are the two principle groups coordinating the field and laboratory activities to be carried out by the CA Department of Fish & Game, the City of Arcata, the Wiyot Indian Tribe, and the Humboldt Bay Harbor Recreation and Conservation District. The Regulatory Division, San Francisco District, previously determined that this type of restoration project is authorized by Department of Army Nationwide Permit No. 27, Aquatic Habitat Restoration, Establishment, and Enhancement, under Section 10 of the Rivers and Harbors Act. The permit review involved coordination with resource agencies and tribes as required by applicable laws and regulations. The public has had the opportunity to comment on the Project through the public notice process and notifications in the local news media. This type of aquatic restoration project continues to be authorized under the USACE HQ Nationwide Permit Program, which was reviewed and updated in 2012. In addition, many volunteers have already participated in the previous Project phases.

The Review Plan will be made accessible to the public through the San Francisco District website:

<http://www.spn.usace.army.mil>

#### **5. REVIEW PLAN APPROVAL AND UPDATES**

The Commander of South Pacific Division (SPD) is responsible for approving this Review Plan. The Commander's approval reflects vertical team input regarding the scope and level of review for the decision document. It is a living document and will be revised when needed. The San Francisco District Project Manager is responsible for maintaining the Review Plan. After approval by SPD, minor changes to the Review Plan will be documented in Attachment 2 below. Significant changes such as changes to the scope and/or level of review should be re-approved by SPD following the process used for initially approving the Review Plan. The latest version of the review plan will be posted on the District's webpage.

#### **6. REVIEW PLAN POINTS OF CONTACT**

Public questions and/or comments on this review plan can be directed to the following points of contact:

- Richard Stradford, San Francisco District Project Manager (CESPN-ET-PB) 415-503-6845
- Deanie Kennedy, South Pacific Division Program Manager (CESPD-PDS-P) 415-503-6585

## ATTACHMENT 1: PROJECT DELIVERY TEAM AND DQC TEAM ROSTERS

<b>TABLE 1 PROJECT DELIVERY TEAM</b>			
<b>RESOURCE NAME</b>	<b>RESOURCE CODE</b>	<b>LEAD TEAM MEMBER</b>	<b>PHONE NUMBER</b>
Program Manager	CESPN-PM-A	Glen Mitchell	(415) 503 6731
Project Manager	CESPN-ET-PA	Richard Stradford	(415) 503-6845
Grants Officer	CESPL-CT-P	Maria Cisneros	(251) 452 3242
Real Estate	CESPK-RE-B	Chuck Rairdan	(916) 557-7833
Legal Counsel	CESPN-OC	Ian Clunes-Ross	(415) 503-6758
Cost Engineer	CESPN-EC	Paul Mason	(415) 503-6880
GIS	CESPN-ET-EI	Dan Specht	(415) 503-6914
Construction	CESPN-ET-C	Mary Bridgewater	(415) 944-0349

<b>TABLE 2 DQC TEAM</b>			
<b>RESOURCE NAME</b>	<b>RESOURCE CODE</b>	<b>LEAD TEAM MEMBER</b>	<b>PHONE NUMBER</b>
QC/QA Manager	CESPN-ET	Syed Burney	(415) 503-6826
Coastal Ecology	CESPN-ET-PB	Bill Brostoff	(415) 503-6867
Real Estate	CESPK-RE	TBD	TBD

## ATTACHMENT 2: REVIEW PLAN MINOR REVISIONS

<b>Revision Date</b>	<b>Description of Change</b>	<b>Page / Paragraph Number</b>

### ATTACHMENT 3: ACRONYMS AND ABBREVIATIONS

<b><u>Term</u></b>	<b><u>Definition</u></b>
ATR	Agency Technical Review
CAP	Continuing Authorities Program
DQC	District Quality Control/Quality Assurance
EA	Environmental Assessment
EC	Engineer Circular
EHRP	Estuary Habitat Restoration Program
HQ USACE	Headquarters, U.S. Army Corps of Engineers
IEPR	Independent External Peer Review
ITR	Independent Technical Review
MSC	Major Subordinate Command
NEPA	National Environmental Policy Act
OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
PDT	Project Delivery Team
PMP	Project Management Plan
RMO	Review Management Organization
SPD	South Pacific Division
USACE	U.S. Army Corps of Engineers