

# **Bolinas Lagoon Ecosystem Restoration Project**

## **Draft Feasibility Study**

### **Marin County, California**

## **EXECUTIVE SUMMARY**

### **1.0 Introduction**

The Bolinas Lagoon Ecosystem Restoration Feasibility Study, which was prepared by the US Army Corps of Engineers (Corps) and the non-Federal sponsor Marin County Open Space District (MCOSD), identifies a feasible project to restore nearly 600 acres of subtidal and intertidal habitat in Bolinas Lagoon by removing approximately 1.5 million cubic yards (cy) of sediment. The purpose of this study is to identify the problem in Bolinas Lagoon, identify the opportunities for restoration and constraints to project development, develop planning objectives for the study, and develop a solution that addresses those planning objectives. The overall goal of the project is to find viable alternatives that provide long term benefits to the lagoon ecosystem while minimizing adverse, short term impacts.

### **2.0 Measures and Alternatives Considered**

Restoration measures considered in this study include wet sediment dredging and dry sediment excavation activities in the North Basin, Main Channel, Pine Gulch Creek Delta, Kent Island, Bolinas Channel, Highway One Fill Areas, South Lagoon Channel, Dipsea Road and Seadrift Lagoon. These measures were geographically grouped into North, Central and South. The Central and South alternatives were modified to include other variations, resulting in two alternatives for both. When these alternatives were combined to make alternative plans, all possible combinations were considered and then screened according to the evaluation criteria developed during the planning process. The final array of alternative plans included twelve different combinations of the above restoration measures.

The National Ecosystem Restoration (NER) Plan is the North, Central (Estuarine) and South (No Seadrift) alternative plan and the Locally Preferred Plan (LPP) is the North, Central (Riparian) and South (No Seadrift) alternative plan. Both plans are comprehensive restoration plans addressing all areas of the lagoon, and only differ with respect to excavation in Pine Gulch Creek Delta. The Estuarine plan removes 7 of 17 acres of riparian habitat, whereas the Riparian plan removes no riparian habitat. Because the Recommended Plan will not be identified until the Final Feasibility Report, the public will have the opportunity to comment on the NER Plan and the LPP and make suggestions for further refinement.

A watershed study, the *Bolinas Lagoon Watershed Study: Input Sediment Budget* (2001) in Appendix A of the Environmental Impact Statement/Environmental Impact Report (EIS/EIR), was conducted during the Feasibility Study to identify sources of sediment and potential areas for sediment control and/or restoration in the watershed. The results of the study concluded that, although historical land management practices had been the cause of increased sedimentation in the lagoon in the past, the watershed is in the process of healing due to better land management practices, and there are few places where restoration would be advisable at this time. Future watershed activities will be coordinated by a Bolinas Lagoon Watershed Council, individual property owners, or others.

The environmental impacts will be beneficial in the long term, although there will be some unavoidable adverse impacts in the short term, such as an increase in turbidity and noise disturbance during construction. Monitoring and adaptive management, which will be conducted before, during and after construction, will inform the implementation process and help reduce unexpected impacts. The removal of sediment in Bolinas Lagoon will improve the quantity and quality of subtidal and intertidal habitat for the diverse groups of species that rely on Bolinas Lagoon, including a variety of threatened, endangered, rare and special status species.

### **3.0 Recommendations**

The NER Plan includes the North Basin, Main Channel, Bolinas Channel, Kent Island, Pine Gulch Creek Delta: Estuarine Option, Highway One Fills, Dipsea Road and South Lagoon Channel components. The total project first cost of the NER Plan is \$101,553,000. Cost sharing for ecosystem restoration projects is 65% Federal and 35% non-Federal (local sponsor), for a total of \$66,009,450 Federal and \$35,543,550 non-Federal. The LPP includes the North Basin, Main Channel, Bolinas Channel, Kent Island, Pine Gulch Creek Delta: Riparian Option, Highway One Fills, Dipsea Road and South Lagoon Channel components. The LPP Plan has a total project first cost of \$100,716,000. Cost sharing for ecosystem restoration projects is 65% Federal and 35% non-Federal (local sponsor), for a total of \$65,465,400 Federal and \$35,250,600 non-Federal. For either plan, the costs associated with the Lands, Easements, Rights-of-Way, Relocations and Disposal Areas (LERRD), which would be paid for in full by the local sponsor as part of their 35% share, are expected to be minimal. The entire non-Federal cost share would be financed in cash. Based on continuing coordination with the local sponsor, results of the public review and public involvement process, and continuing refined evaluation of the ecosystem restoration alternatives, a Recommended Plan will be identified in the Final Feasibility Report.