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Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

Area Map ACP2, S.F. Bay & Delta GRA Locations

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9840 Introduction to San Francisco Bay and Delta Planning Area

The San Francisco Bay and Delta planning area extends from the Sonoma/Mendocino County line to the Santa Cruz/San Mateo County line including tidal waters to the Ports of Stockton and Sacramento. It includes portions of the following counties: Marin, Sonoma, Napa, Solano, Yolo, Sacramento, San Joaquin, Contra Costa, Alameda, Santa Clara, San Mateo and San Francisco. The area includes more than 5000 miles of shorelines in the included ocean and island shores, bay margins and sloughs, and rivers and Delta channels. A paragraph below is devoted to the detailed demarcation of the boundary.

The Area Contingency Plan (ACP) for this area was developed to protect the sensitive and valuable resources of the San Francisco Bay and Delta Estuary and associated coastline in the event of an oil spill. Based on habitat and species sensitivity, sensitive sites have been identified within the Estuary. During the last ten years, 265 sensitive sites have been identified, with site descriptions, site strategies and site diagrams developed to aid in protection of the associated resources from oil and other petroleum products. This effort continues with this 2005 version of the San Francisco Bay and Delta Area Contingency Plan.

Overview of the Planning Area

The ecological concerns, cultural and historic resources, human and economic interests are many. An overview is presented here.

The Sonoma County coast extends 55 miles from the Gualala River to the Estero Americano. The rugged northern coastline is marked by broad, open marine terraces, steep cliffs, pocket beaches within small coves, and sea stacks. South of Fort Ross, the marine terrace narrows and is backed by steep cliffs. Many offshore rocks provide nesting and roosting for seabirds, and haulout sites for pinnipeds.

The Marin County coast lies astride the San Andreas rift zone that extends 650 miles southward from Point Delgada in Humboldt County. The rift zone is clearly visible in Tomales Bay and Bolinas Lagoon. The Point Reyes peninsula is both biologically and geologically distinctive, with at least six species of plants known only to occur on the peninsula. Marin County includes two National Parks, two National Marine Sanctuaries and several State Parks. Natural resources at risk to oil spills are rich and abundant.

The coastline of San Francisco and San Mateo counties is characterized by intermittent sand beaches and rocky intertidal reefs used extensively by marine mammals and shorebirds.

The Farallon Islands, about 28 miles west of San Francisco, occupies only about 211 acres, but is a major wildlife refuge and national marine sanctuary. The islands contain the largest sea bird rookery in the contiguous United States. Twelve species totaling more than 350,000 birds nest there. In addition, it is a primary pupping and rookery area for several pinnipeds.

The San Francisco Bay and Delta Estuary is considered one of the nation's most biologically productive estuaries. The Estuary encompasses an area of about 1,600 square miles, including 700 miles of rivers and sloughs, and 1,100 miles of levees. The waters of two major California rivers, the Sacramento and San Joaquin, and five lesser rivers pass through the Estuary to the Pacific Ocean. The Estuary supports rich communities of crabs, clams, and other aquatic life, as well as providing wintering sites for migrating waterfowl and spawning areas for anadromous fish. Dungeness crab, an important recreational and commercially harvested species, utilizes the Estuary as a major nursery area. Pacific herring, one of the most valuable commercial fisheries in California, spawn in San Francisco Bay on eelgrass, seaweed, and pier pilings during the winter months. The Estuary provides

passage to numerous anadromous fishes such as salmon, steelhead, striped bass, and sturgeon. It provides pupping and forage habitat for a few hundred harbor seals and sea lions. The Estuary is a major stop on the Pacific flyway for more than one million foraging shorebirds and waterfowl.

Native Americans lived near the San Francisco Bay and Delta Estuary for thousands of years, harvesting its bountiful resources, yet changes from these early human communities on the Estuary were small and localized. Beginning around 1850, changes to the Estuary accelerated, as over time the region became an urbanized center for industry, agriculture and commerce. There has been a significant decrease in the size of the Estuary due mainly to diking and filling activities. Reclamation of land at the edge of the Estuary filled in or altered 85-95% of the Estuary's wetlands. For example, tidal marsh habitat has decreased from about 190,000 acres to about 40,000 acres, a result of bayfill and diking to create managed marsh, agricultural baylands, and salt ponds. The Estuary is considered one of the most modified estuaries in the United States.

Substantial changes to the San Francisco Bay and Delta have resulted in similar changes to the associated habitats and populations of fish and wildlife which they support. Habitat loss and degradation have played key roles in population declines for a number of species. Today there are approximately 50 species of plants and animals that occur in or near the Estuary that are listed as threatened or endangered under state and federal endangered species acts.

The San Francisco Bay and Delta and associated habitats continue to be ecologically important for many reasons. The key habitats of the estuary include deep and shallow bay and channels, tidal flats, tidal marshes, lagoons, lowland creeks, storage/treatment ponds, salt ponds, diked wetlands, agricultural baylands, riparian forest/willow groves, grassland, oak woodland, and mixed evergreen forest. These habitats provide critical support of many fish and wildlife species, in particular, key species which collectively represent the immense complexity of the baylands ecosystem. These key species as well as the threatened and endangered species identified require continued protection from anthropogenic influences.

Demarcation Boundaries

The CG/EPA demarcation line runs from the San Mateo County/Santa Cruz County border north along Highway 1 to Highway 35 near San Francisco; west on Hwy 35 to the Great Hwy; north on the Great Hwy to the intersection with Point Lobos Avenue; Point Lobos Avenue east to Geary Blvd.; Geary Blvd. east to Laguna Street; Laguna Street south to Bay Street; Bay Street east to intersection with State Belt railroad tracks; State Belt railroad tracks south along Embarcadero to Third Street; Third Street south to Hwy 101; Hwy 101 south to Hwy 237; Hwy 237 east to intersection with Southern Pacific railroad tracks; Southern Pacific railroad tracks north to intersection with Hwy 880 (approximately ½ mile south of 98th Avenue exit); Hwy 880 north to intersection with Southern Pacific Railroad tracks near Albany; Southern Pacific Railroad tracks north and east until intersection with Hwy 4 (approximately 2 miles east of Antioch); Hwy 4 east to I-5 at Stockton; I-5 north to Hwy 80; Hwy 80 west to Hwy 113; Hwy 113 south to Hwy 12; Hwy 12 west to Hwy 80; Hwy 80 west to Hwy 680; Hwy 680 south to Hwy 780; Hwy 780 west to Hwy 80; Hwy 80 west to Hwy 29; Hwy 29 north to Hwy 37; Hwy 37 west to Hwy 101 near Ignacio; Hwy 101 south to Hwy 1 at Marin City; Hwy 1 north to Gualala.

The northern offshore boundary extends from the Mendocino County/Sonoma County border along the 38-46'07" N latitude to the offshore extent of the Exclusive Economic Zone.

The southern offshore boundary extends from the San Mateo County/Santa Cruz County border along the 37-06'26" N latitude to the offshore extent of the Exclusive Economic Zone.

Because of the contiguous flow patterns, the plan addresses adjacent marshes in the Napa Marsh and the south Delta which, though outside the boundary, are part of the hydrodynamic Bay-Delta system.

Sensitive and Unique Resources, and Associated Protection Strategies in the SF Bay and Delta Planning Area

Eelgrass

The shallow subtidal and intertidal areas of the San Francisco Bay and Delta region support few specialized plant communities. In addition to the more visible cordgrass and pickleweed along the shores, eelgrass (*Zostera marina*) occurs in select locations just offshore and underwater. Eelgrass is currently the only seagrass found in San Francisco Bay. The current eelgrass populations may be the last remnants in San Francisco Bay and are extremely vulnerable to local extinction. Eelgrass beds can vary in distribution, density, and height from year to year. Eelgrass is vulnerable to oil based on its location and physiology.

Eelgrass beds create a valuable shallow-water habitat, providing shelter, feeding, and/or breeding habitat for many species of invertebrates, fishes, and waterfowl. Pacific herring (recently the most valuable fishery in California) preferentially uses eelgrass habitats for spawning. The major subtidal spawning areas for Pacific herring are Richardson Bay and the large shallow area between Richmond and Alameda. Eelgrass beds are important nursery and cover habitat for fish species and invertebrates, such as shrimp, crabs and clams. In turn, these concentrations of fish and invertebrates make these areas important forage areas. The California least tern is known to forage on juvenile and small fishes that inhabit eelgrass beds. Eelgrass is also an important forage for several species of waterfowl such as wigeon, gadwall, pintail, Canada goose, and black brant.

Eelgrass is more vulnerable to oil than most marine and aquatic plants. Eelgrass leaves are rough and do not have a mucous layer like many seaweeds, therefore oil will readily stick. Eelgrass occurs in shallow water and often forms a canopy layer on the water surface, presenting an increased risk of oiling. Oil sticks to the floating eelgrass tops. Once eelgrass gets fouled with oil, oil becomes a subsurface threat to fish and other organisms which thrive in this cover and the leaves will continue to sheen, prolonging oil exposures.

In San Francisco Bay, site specific areas containing eelgrass beds have been identified in the individual GRA subsection and, in some instances, as an individual Sensitive Site. Protective strategies for eelgrass are based on its location and surface exposure in the intertidal and subtidal zones. Eelgrass would be exposed to oil and is at greatest risk primarily in areas where it is found in the intertidal zone, but this oiling can also occur with subtidal eelgrass beds. Eelgrass beds are most vulnerable when eelgrass leaves are at the surface during spring tides, particularly in the summer months. Oil sticks to the exposed floating eelgrass leaves. Once eelgrass gets fouled with oil, oil becomes a subsurface threat to fish and other organisms which thrive in this cover and the leaves will continue to sheen, prolonging oil exposures.

A Sensitive Site with eelgrass as its sensitive resource is given a Category "A" resource sensitivity when eelgrass leaves are exposed at the surface during the spill and a Category "C" when the leaves stay submerged. If a spill occurs, an OSPR Resources-At-Risk Technical Specialist must assess the site to determine if eelgrass is at risk based on density, location and tidal exposure. Specific Site Strategies for protection of eelgrass beds are found in the individual GRA's Sensitive Site Strategy and include assessment and booming recommendations.

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