

Issue Characterization: GFNMS - Water Quality:

Problem Statement

Water quality within the Gulf of the Farallones NMS is generally good due to the rural nature of the coastline with no major industrial discharges and exposure of the coastline to the strong currents of the open ocean. Nevertheless, there are several potential threats to water quality in the Sanctuary that should be considered in revising the Management Plan. The rural estuarine habitats and adjacent coastal waters of Bolinas Lagoon, Tomales Bay, Estero Americano, and Estero de San Antonio are vulnerable to land-based nonpoint source pollution from livestock grazing, agricultural activities, past mining activities and poorly maintained septic systems. In addition, the discharge of the San Francisco Bay Estuary may periodically have an impact on the Sanctuary depending on coastal currents and is a source of pollution from 8 million people living in the Bay area, agricultural waste products from the Central Valley and residual sediments and metals from the California gold rush era. Other potential threats to water quality include diversion of fresh water, floating debris (e.g., plastics), accidental spills and residual materials from historical ocean dumping.

Issue Description:

After identifying all potentially significant threats to water quality in the Sanctuary, the Water Quality Workgroup will investigate each potential threat and propose activities to minimize those threats and protect Sanctuary resources.

IMPACTS ON ESTUARINE ENVIRONMENTS As with much of California and the nation, the Sanctuary is threatened by nonpoint source pollution. Given the rural nature of the Sanctuary's coastline the greatest threat is not from urban sources, but from livestock grazing, agricultural activities, past mining activities and poorly maintained septic systems. Of special concern are the estuarine habitats of Bolinas Lagoon, Tomales Bay, Estero Americano, and Estero de San Antonio where circulation is more restricted than on the open coast and where organisms that rely on estuarine conditions are exposed to the relatively undiluted effects polluted runoff. Due to restricted circulation, the estuarine environment is especially threatened by accidental spills from ships, land-based tanks or other sources, as well as poorly regulated small-scale discharges such as oily bilge water, detergents from deck wash, runoff from shipyards or sewage from boats, septic systems or leaking sewers. Residual pollutants from past practices, such as mining operations, and diversion of freshwater have the greatest potential impact in restricted waterways such as estuaries and creeks. Several of these sources of impact have occurred in Tomales Bay which has been identified by the state water quality agency as consistently failing state water quality standards for mercury (from an abandoned mine), pathogens, sediment and nutrients.

IMPACTS ON OPEN COASTAL ENVIRONMENTS The open coastal environments of the Sanctuary are also threatened by nonpoint source pollution, but the threat is lower (than for estuaries) due to the greater distance from most sources (mines, septic systems, high density grazing) and the greater water circulation. Nevertheless the areas near the

mouths of creeks or estuaries can be subject to impacts from nonpoint source pollution. And the threat of offshore spills is a constant presence in areas of the coast near well-used shipping lanes. In the event of oil spill the impact to the open coast would mainly be determined by the sea conditions, which could easily overcome protection efforts.

IMPACTS ON OFFSHORE ENVIRONMENTS

The greatest protection for the offshore waters of the GOF was the designation of the Sanctuary itself. The size of the Sanctuary and the “restrictions” place on its use provide additional oversight and protections to offshore waters and the Farallones Islands. The offshore areas of the Sanctuary are somewhat protected from threats to water quality by their distance from the sources of pollutants and land-based runoff and the continuous circulation of the offshore waters at many scales. Nevertheless water quality in the offshore regions could be threatened or impacted by large or continuous discharges from the shore, spills by vessels, illegal dumping activities or residual contaminants from past dumping activities. Leaks from sunken vessels have been a periodic source of impacts to marine organisms within the Sanctuary.

Persistent organic pollutants such as DDT and PCBs were widely used nationwide before the mid-1970s and residuals of these chemicals still remain in sediments and organisms within the Sanctuary. Elevated levels of pollutants have been reported for fish, seabirds and marine mammals within the Sanctuary. The Water Quality Workgroup should evaluate these reports to determine if they warrant recommendations for additional water quality protection efforts.

IMPACTS FROM THE SAN FRANCISCO BAY ESTUARY OUTFLOW Just south of the Sanctuary is the discharge of the San Francisco Bay Estuary potentially carrying pollution from the 8 million people living in the Bay area, agricultural waste products from the Central Valley and residual sediments and metals from the California gold rush era. The Bay has been identified by the state water quality agency as consistently failing state water quality standards for several pesticides, metals, PCBs and exotic species. The potential for the outflow from the Bay to degrade Sanctuary water quality needs to be evaluated by the Water Quality Workgroup.

IMPACTS FROM FLOATING DEBRIS (e.g., PLASTICS) The impact of plastic debris is a world-wide problem due to the many potential sources of debris, longevity of plastic in the marine environment, the impacts caused by plastics even as they degrade to smaller and smaller particles and the tendency for marine organisms that select food by sight to mistake plastic for a source of nutrition. The floating debris that potentially threatens Sanctuary resources may come from the San Francisco Bay outflow, local watersheds that drain into the Sanctuary or from across the Pacific. The Water Quality Workgroup should evaluate the potential local efforts that could be taken to reduce the impacts on the Sanctuary.