NPS/CZARA FACT SHEET No. 4
Marinas & Recreational Boating Management Measures

The SWRCB, CCC, and other State agencies have identified 17 management measures (MMs) to address marina and recreational boating sources of nonpoint pollution that affect State waters. Because marinas are located at the water's edge, pollutants generated from marinas and boats are less likely to be buffered or filtered by natural processes and are thus more likely to adversely affect coastal waters and resources. When boating and boating-related activities (e.g., marinas and maintenance areas) are poorly planned or managed, they may threaten the health of aquatic systems and pose other environmental hazards. The USEPA (1993) identifies several sources of pollution associated with marinas and boating activities:

- Poorly flushed waterways;
- Pollutants discharged from boats (recreational boats, commercial boats, and "live-aboards");
- Pollutants carried in stormwater runoff from impervious surfaces (parking lots, roofs, etc.);
- Physical alteration of wetlands and of shellfish/ other benthic communities during construction of marinas, ramps, and related facilities;
- Pollutants generated from boat maintenance activities on land and in the water.

California's management measures to address marina and boating sources of nonpoint pollution:

4.1 <u>Assessment, Siting and Design</u>
- A. Water Quality Assessment
- B. Marina Flushing
- C. Habitat Assessment
- D. Shoreline Stabilization
- E. Stormwater Runoff
- F. Fueling Station Design
- G. Sewage Facilities
- H. Waste Management Facilities

4.2 <u>Operation and Maintenance</u>
- A. Solid Waste Control
- B. Fish Waste Control
- C. Liquid Material Control
- D. Petroleum Control
- E. Boat Cleaning and Maintenance
- F. Maintenance of Sewage Facilities
- G. Boat Operation

4.3 <u>Education/Outreach</u>
- A. Public Education

<u>Management Measures</u>:

California's management measures are intended to be applied to control impacts to water quality and habitat from marina siting and construction (both new and expanding marinas), and marina and boat operation and maintenance. The measures are designed to reduce nonpoint source (NPS) pollution by requiring the best possible siting for marinas and hull maintenance areas, providing for the best available design and construction practices and for appropriate operation and maintenance practices, and encouraging the development and use of effective pollution control and education efforts. The following operations/facilities are covered by the management measures (USEPA, 1993):

- Any facility that contains 10 or more slips, piers where 10 or more boats may tie up, or any facility where a boat for hire is docked;
- Boat maintenance or repair yards that are adjacent to the water;

- Any Federal, State, or local facility that involves recreational boat maintenance or repair that is on or adjacent to the water;
- Public or commercial boat ramps;
- Any residential or planned community marina with 10 or more slips; and
- Any mooring field where 10 or more boats are moored.

Siting and Design. Siting and design are among the most significant factors influencing the long-term impact a marina will have on water quality within the immediate vicinity of the marina and the adjacent waterway. Initial marina site selection is the most important factor. The location of a marina— e.g., its basin configuration [whether it is open (located directly on a bay or river) or semi-enclosed] and its orientation to prevailing winds—influence circulation and flushing, which in turn play important roles in the distribution and dilution of potential contaminants. Thus the selection of a site that has favorable hydrographic characteristics and that requires the least amount of modification can reduce potential impacts. Because marina development can result in reduced levels of dissolved oxygen, many waters with average dissolved oxygen concentrations barely at or below State standards may be unsuitable for marina development. The final design of a marina is usually a compromise that will provide the most desirable combination of marina capacity, services, and access, while minimizing environmental impacts, dredging requirements, protective structures, and other site development costs. For those planning to build a marina, attention to the environmental concerns of marina operation during the marina design phase will significantly reduce the potential for generating pollution from these activities. The objective of the Marina Assessment, Siting and Design MMs is to ensure that marinas and ancillary structures do not cause direct or indirect adverse water quality impacts or endanger fish, shellfish, and wildlife habitat before, during and following marina construction.

Operation and Maintenance. During the course of normal marina operations, various activities and locations in the marina can generate polluting substances. Such activities include waste disposal, boat fueling, and boat maintenance and cleaning; such locations include storage areas for materials required for these activities and hull maintenance areas. Of special concern are substances that can be toxic to aquatic biota, pose a threat to human health, or degrade water quality. Paint sandings and chippings, oil and grease, fuel, detergents, and sewage are examples. It is important that marina operators and patrons take steps to control or minimize the entry of these substances into marina waters. For the most part, this can be accomplished with simple preventive measures such as performing these activities on protected sites, locating servicing equipment where the risk of spillage is reduced (see the Siting and Design MMs), providing adequate and well-marked disposal facilities, and educating the boating public about the importance of pollution prevention.

Education/Outreach. The benefit of effective pollution prevention to the marina operator can be measured as the relative low cost of pollution prevention compared to potentially high environmental clean-up costs. For existing marinas, minor changes in operations, staff training, and boater education should help protect marina waters from these sources of pollution.