



California's Nonpoint Source (NPS) Program — Stopping Water Quality Degradation at Its Source

The NPS goal: to prevent nonpoint source pollution from affecting California's waterbodies

Nonpoint source pollutants are the leading cause of water quality degradation in California's waterways. NPS pollutants originate from many diffuse sources and are transported into California waters through rainfall, snow, air, and other pathways. Such sources include: pesticides, oils, and other organic materials; pesticide and sediment erosion from agricultural practices; sediment erosion from forestry roads; and pump-out spillages in marinas. The goal of the NPS Program is to prevent nonpoint source pollution from impacting California's waterbodies, which support a diversity of beneficial uses.

How the NPS Program Works

The NPS program addresses both surface and ground water quality. The program achieves its goals through several means:

- Watershed-based approaches, such as implementing high-priority management measures to control and prevent polluted runoff. Each management measure consists of numerous site-specific management practices.
- Implementation and enforcement of the NPS Control Program through California's NPS Implementation and Enforcement Policy.
- Public education through the State Water Resources Control Board's Clean Water Team. The NPS Program also provides technical information through workshops on up-to-date management.
- Financial and technical assistance for projects and programs that address nonpoint source pollution, land use, and watershed management.
- Tracking, monitoring, and assessment of the effectiveness of management measure implementation.

Funding

Funding sources for the NPS Program include California bond funds and Clean Water Act 319(h) grant funds that support:

- Development and implementation of watershed management and total maximum daily load plans.
- Implementation of management measures and practices.
- Education and technical assistance on nonpoint source pollution problems and solutions.

Partnering to Address the Causes of Nonpoint Source Pollutants

The NPS Program identified six categories of land use that contribute to nonpoint source pollutants that affect water quality in California's waterways—agriculture, forestry (silviculture), urban, marinas, hydromodification, and wetlands/riparian areas. The NPS Program partners with more than 20 other state agencies with programs, or responsibilities in one or more of these six land use categories.

AGRICULTURE. Agriculture contributes more than half of the pollutants entering our nation's waterbodies, the most well documented being pollutant nutrients, sediment, animal wastes, pesticides and salts. Agricultural activities may also affect habitat through physical disturbances caused by livestock or the control or diversion of waterways.

NPS partners to address agricultural pollutants:

- California Department of Food and Agriculture
- California Department of Pesticide Regulation

FORESTRY (SILVICULTURE). Silviculture contributes pollutants to 17% of the polluted rivers and 21% of the polluted lakes in California. Forestry operations degrade waters that receive drainage from forest lands by:

- Increasing sediment concentration from accelerated erosion.
- Increasing water temperatures from loss of riparian shade.
- Depleting dissolved oxygen concentrations from the accumulation of organic debris.
- Increasing the concentrations of organic and inorganic chemicals from fertilizers and pesticides.

NPS partners on forestry issues:

- California Department of Forestry
- California Board of Forestry

URBAN. Eighty percent of the nation's population resides along the coast. Major pollutants that affect coastal and estuarine waters from urbanization include sediment, nutrients, oxygen-demand substances, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses.

NPS partners to address urban pollutant runoff:

State and local agency members of the California Water and Land Use Partnership

MARINAS. 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. Poorly managed marinas and boat maintenance areas may threaten the health of aquatic systems and pose environmental hazards. These sources include:

- Poorly flushed waterways.
- Pollutants discharged from boats (recreational, commercial, and "live-aboard" boats).
- Pollutants carried in stormwater runoff.
- Physical alteration of wetlands and shellfish or other benthic communities during construction of marinas, ramps, and related facilities.
- Pollutants generated from boat maintenance activities.

NPS partners on marina issues:

- State and local agency members of the Critical Coastal Areas Program
- State and local agency members of the Areas of Biological Significance Program

HYDROMODIFICATION. Channel hydromodification includes the modification of stream and river channels, dams and water impoundments, and streambank/shoreline erosion. These activities are undertaken in rivers or streams to straighten, enlarge, deepen, or relocate the channel and can affect water temperature; change the natural supply of fresh water to a water body; and alter rates and paths of sediment erosion, transport, and deposition.

NPS partners to reduce the polluting effects of hydromodification:

- California Department of Water Resources
- California Office of Environmental Health Hazard Assessment
- California Department of Fish and Game
- State Water Resources Control Board's CWA 401 Water Quality Certification Unit Program

WETLANDS, RIPARIAN AREAS. Wetlands and riparian areas reduce polluted runoff by filtering runoff-related contaminants such as sediment, nitrogen, and phosphorus. Changes in hydrology, substrate, geochemistry, or species composition can impair the ability of wetland or riparian areas to filter out excess sediment and nutrients. Harmful activities include drainage of wetlands for cropland, overgrazing, hydromodification, highway construction, deposition of dredged material, and excavation for ports and marinas.



NPS partners to improve, restore, and enhance wetland and riparian areas:

- State Water Resources Control Board's CWA 401 Water Quality Certification Unit Program
- California Department of Water Resources
- United States Army Corps of Engineers

Coordination Enables Broader Monitoring Activities

The NPS Program also works in close partnership with the State Water Board Surface Water Ambient Program (SWAMP) and the California Department of Fish and Game to assess statewide water quality status and trends for Wadeable Perennial Streams through:

- The California Monitoring and Assessment Program (CMAP), focusing on the status and trends of ecological conditions and the extent and identification of impairments due to nonpoint sources in Wadeable Perennial Streams.
- The Perennial Streams Assessment Program (PSA), to be initiated in 2008 to continue the work of the Environmental Monitoring and Assessment Program—West (EMAP—W) and CMAP studies on the ecological conditions in perennial streams, including additional indicators. It will also integrate a statewide plan and regional monitoring efforts.
- The development of assessment tools such as the Index of Biological Integrity and Assessment Models.

Tools Developed through/in Cooperation with the NPS Program

- Index of Biological Integrity (IBI) — a multi-metric index where the total score is the sum of scores for a variety of individual measures that make up the key characteristics of biotic integrity.
- Observed/Expected Index (O/E Model) — a measure of how many kinds of macroinvertebrates are expected to occur at a site.
- Best Management Practice (BMP) Methodology Tool — a new, GIS-based method to help stakeholders throughout Los Angeles County in conceptual planning of and establishing priorities for structural BMP placement. The method helps users identify and rank both large-scale regional and small-scale distributed BMP projects.
<http://ladpw.org/wmd/bmpmethod/overview.shtml>
- Management Practice Miner (MP Miner) — Under Construction — a comprehensive database of nonpoint source pollution management practices.
- NPS Encyclopedia — Under Construction — a free on-line reference guide that offers a basic understanding of NPS pollution control through direct hyperlinks to resources available on the Internet.
http://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/
- Impervious Surface Analysis Tool (ISAT) — Coming Soon! — an ArcView 3.x extension used to calculate the percentage of impervious surface area of user-selected geographic areas such as watersheds, municipalities, and subdivisions.



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