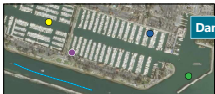


Sampling locations

Water and sediment quality: 75 stations
Seafloor Community: 15 stations



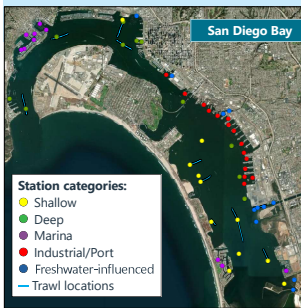
Dana Point Harbor



Oceanside Harbor



Mission Bay



San Diego Bay

Station categories:

- Shallow
- Deep
- Marina
- Industrial/Port
- Freshwater-influenced
- Trawl locations

Want to learn more?



The RHMP also conducts special studies to address emerging concerns during each monitoring cycle. In 2018, this included an assessment of historic and current indicator bacteria concentrations to assess safety for human contact and recreation, and measures of chemical concentrations in sport fish to assess risk related to both human consumption and accumulation in food webs. Scan QR code above to access this report.



The RHMP is a part of a larger regional monitoring program, the Bight Program, which looks at water quality, sediment quality and biological communities in bays/harbors and offshore habitats of southern California. Scan QR code above for Bight Program information.



wood.



REGIONAL HARBOR MONITORING PROGRAM

2018 Survey Findings



Bat star



Pacific seahorse

What is the RHMP?

The Regional Harbor Monitoring Program (RHMP) is a collaborative network of stakeholders and scientists whose goal is to understand the quality of water, sediments, and aquatic life across four embayments in the San Diego region. Surveys occur on a 5-year cycle. These findings are from the 2018 surveys.

What can we learn?

- ❶ What are the types and spatial distribution of pollutants?
- ❷ Do the waters and sediments sustain healthy marine life?
- ❸ What are the long-term trends in water and sediment quality?

What is measured?

Water

- Sensors are used to measure water quality indicators, like temperature, pH, salinity, clarity, and dissolved oxygen.
- Water samples are analyzed for nutrients, metals, oil, and other petroleum-based compounds.

Harbor Sediments

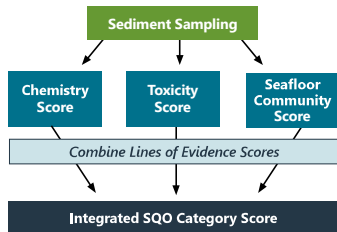
- Sediment is collected from the seafloor to determine its physical characteristics (grain size, organic content).
- Sediment samples are tested for toxicity and chemical characteristics (metals, oil and other petroleum-based compounds, pesticides, polychlorinated biphenyls (PCBs), and chemicals of emerging concern, such as fire retardants).

Fish and Marine Life

- Collect samples for marine life living within seafloor sediments (benthic infauna).
- Trawl nets collect fish and invertebrates living on the surface of the seafloor.

How does the RHMP measure the health of harbor habitats?

Seafloor sediments can be used to measure habitat quality using the State of California Sediment Quality Objectives (SQOs) approach. A scoring system based on chemistry, toxicity and biological data from each site ranks each site's potential impact from pollutants.



Are harbor waters impacted by pollution?

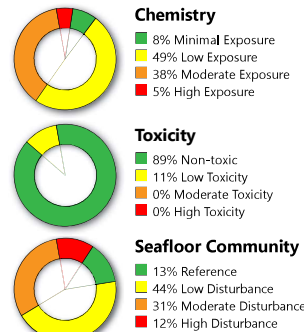
- Measures of water quality in all four harbors overall indicate good water quality protective of marine life and beneficial uses by humans.
- Areas in marinas and port/industrial areas have shown signs of elevated copper in the water column.



Are harbor sediments impacted by pollution?

- Using integrated SQO category scores, sediments at 72% of stations are considered unimpacted or likely unimpacted.
- There was little toxicity observed and common pollutants have decreased over time.
- Across all harbors a total of 414 species were identified in the harbor sediments, with 6 to 70 species per station. Benthic infauna communities were most impacted at stations in marinas and near freshwater inputs such as creeks and storm drains.

Percentage of bay sediment SQO scores for various lines of evidence



Final Integrated SQO Category Scores for sediments in RHMP harbors



Are harbor fish and invertebrate communities healthy?

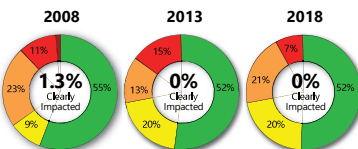
Seafloor fish and invertebrate communities sampled with a trawl net appeared diverse and healthy in all harbors.

- 32 total fish species, with 9-17 species per harbor. Anchovy, sand bass, round stingrays, and halibut are most common.
- 47 total invertebrate species, with 2-30 species per harbor. Sponges, lobsters, sand dollars, crabs and shrimp are most common.



Are harbor habitats getting better?

Integrated SQO Score Category



Since 2008, harbors are stabilizing with healthy communities and fewer sites that are clearly or likely impacted, signaling continued improvement and stabilization of healthy marine ecosystems.



Summary

- RHMP program results to date point to improving harbor habitats that sustain healthy marine life and safe waters for human use.
- Areas of concern remain primarily within marinas, around industrial and port facilities.