

# Monterey Bay National Marine Sanctuary

## Monitoring and Impacts of Tsunami Debris from Japan

### Management Issue

Monterey Bay National Marine Sanctuary (MBNMS or Sanctuary) management must monitor local deposition and impacts of marine debris from the March 2011 tsunami in Japan.

### Description

Levels of debris in both the ocean and at the land-sea interface are of growing concern. Various types of marine debris are known to have adverse effects on marine species, with ingestion and entanglement being two associated problems that may lead to death for mobile species such as fishes, birds, and marine mammals. Benthic organisms can be abraded, poisoned, smothered and dislodged by marine debris. The devastating earthquake that ravaged Japan on March 11, 2011 generated more than 20 million tons of debris, of which about 5 million tons is estimated to have been washed out by the tsunami. About 70 percent of this is believed to have sunk to the seabed along Japan's coast, with the remaining 1.5 million tons suggested that the majority of the floating Japanese tsunami marine debris (JTMD) is currently dispersed north and east of the Hawaiian Archipelago, some JTMD has already washed up on beaches in the US Pacific Northwest. It is estimated that many more large pieces of JTMD – ranging from collapsed houses and plastic to half-submerged fishing vessels and harbor infrastructure – will arrive on the West Coast starting in the fall of 2012. In addition to impacting sensitive areas, large concentrations of heavy objects could interfere with navigation. The NOAA Marine Debris Program is leading efforts with federal, state, and local partners to collect data, assess the debris, and reduce possible impacts to our natural resources and coastal communities. However, the extent to which information gathered by different local groups and networks is being consolidated is unclear. MBNMS management needs to better understand how JTMD information gathered by different networks can be effectively used to anticipate impacts to the Sanctuary. By coordinating existing resources, management can better understand the extent of this threat and respond in the most effective manner.



*A large Japanese dock washed ashore on an Oregon beach on June 6, 2012. Photo credit: Associated Press.*

### Questions and Information Needs

- 1) What are the types and accumulation rates of probable JTMD within MBNMS?
- 2) What tools are available to detect JTMD before they enter MBNMS?
- 3) What groups outside of NOAA are receiving and inventorying reports of JTMD?
- 4) Are certain areas more or less susceptible to JTMD accumulation and/or impacts?
- 5) Are there critical habitat areas that should be prioritized for JTMD or other debris removal efforts?
- 6) Are certain types of debris more likely to contain contaminants and can those be targeted for removal?
- 7) Are certain categories of debris more likely to transport invasive species?
- 8) What are the biological and cultural impacts to marine and coastal resources of JTMD removal efforts?
- 9) What are the biological and cultural impacts of disregarding JTMD and other marine debris?

### Scientific Approach and Actions

- Canvassing networks (NOAA's Marine Debris Monitoring and Assessment Project, Department of Fish and Game CalTIP and OSPR programs, U.S. Fish and Wildlife Service, U.S. Coast Guard, U.S. Geological Survey, Marine Mammal Stranding Network, Marine Mammal Center, Beach COMBERS, and NGOs) to improve coordination of JTMD monitoring
- Work with commercial fishing, research, whale watching, and other recreational Sanctuary users to increase reporting of marine debris sightings
- Contribute to JTMD and other marine debris removal efforts in MBNMS and develop and implement a five-year marine debris removal and prevention plan
- Catalog, secure, contain and properly remove hazardous materials that wash ashore in MBNMS
- Support NOAA marine debris studies

*Current as of 11/28/2012*

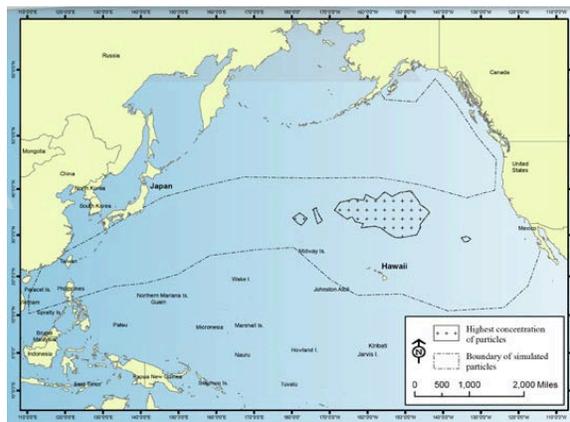
*For More Information -- <http://www.sanctuaries.noaa.gov/science/assessment>*

## Scientific Approach and Actions *(continued)*

- Work with partners to continue to develop and implement an education and outreach strategy for JTMD and other marine debris
- Conduct marine debris removal impact studies to examine the effects of removal efforts on resources
- Establish interagency relationships for research and assistance on the JTMD issue

## Key Partners and Information Sources

NOAA Office of Response and Restoration's Marine Debris Program; U.S. Fish and Wildlife Service; U.S. Coast Guard; U.S. Environmental Protection Agency; California Department of Fish and Game; Marine Mammal Center; University of Southern California's Sea Grant College Program; U.S. Navy; California Ocean Protection Council; California Ocean Science Trust



*Estimated distribution of computer simulated JTMD particles through August 1, 2012.*

*Map credit: NOAA Marine Debris Program.*

## Management Support Products

- Using messaging already created by others, create MBNMS web page dedicated to JTMD with contact info, best practices, etc.
- Develop a local map (with images) for the MBNMS region to track what was found
- Direct stakeholders and the public to latest model predictions
- Increased understanding of how JTMD and marine debris in general can impact particular resources
- Create a plan to manage invasive species threats associated with JTMD
- Develop education and outreach products to inform general public about marine debris issues

## Planned Use of Products and Actions

- Facilitation of data coordination among existing reporting mechanisms
- Develop sanctuary protocols for addressing marine debris
- Define sensitive areas and support regular cleanup efforts in those locations
- Define categories of JTMD and other marine debris of particular concern for invasive species or other risks, and target removal efforts appropriately

## Program References

### MBNMS Management Plan

- Marine Mammal, Seabird, and Turtle Disturbance Action Plan, Strategy MMST-4, MMST-7
- Davidson Seamount Action Plan, Strategy DS-3
- Tidepool Protection Action Plan, Strategy TP-7
- Emerging Issues Action Plan, Strategy EI-1, EI-2, EI-3
- Introduced Species Action Plan, Strategy IS-2, IS-3
- Sanctuary Integrated Monitoring Network (SIMoN) Action Plan, Strategy SI-1, SI-3, SI-4

### MBNMS Condition Report

- What are the levels of human activities that may influence habitat quality and how are they changing?
- What is the status of non-indigenous species and how is it changing?
- What is the condition or health of key species and how is it changing?
- What are the levels of human activities that may influence living resource quality and how are they changing?

### ONMS Performance Measures

- Number of sites in which habitat, based on long-term monitoring data, is being maintained or improved
- Number of sites in which select living marine resources (LMRs), based on long-term monitoring data, are being maintained or improved

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