Monterey Bay National Marine Sanctuary Updated Condition Report Summary

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MBNMS is currently updating its 2009 Condition Report. This update provides an assessment of ecosystem health, status and trends since release of the original report. The assessment addresses four areas of the sanctuary – estuarine (Elkhorn Slough), nearshore (<30 meters depth), offshore (>30 meters), and the Davidson Seamount (an underwater mountain 70 miles southwest of Monterey). Most of MBNMS is offshore. The report is developed using new information and expert review and judgment from regional scientists and partner agencies with local knowledge.

The report is in peer review, but draft results indicate the sanctuary is doing quite well. Overall, while there are some localized problems change and ocean acidification are significant areas of concern, but related long-term effects are not well understood.

Sanctuary habitats and living resources are in excellent condition compared to the rest of the world's oceans. The abundance and diversity of wildlife seen in the Monterey Bay is evidence of a healthy ecosystem. Nevertheless, there are many opportunities to improve conditions relative to near-pristine conditions. Sanctuary management is mandated to better understand, protect, and improve conditions, as well as share information with the public.

Findings indicate the following, as compared to the findings in 2009:

1) **Resources identified as healthy:**
   - Davidson Seamount: benthic habitats and living resources on or near the seamount appear to be in near-pristine condition.
   - Nearshore biogenic habitat: kelp, other algae and structure-forming species are generally abundant and stable.
   - Non-indigenous species: no new introductions are known.
   - Biodiversity: no significant changes in species richness (# of species).
   - Key species and assemblages appear to be stable or slightly increasing.
   - Most beaches: improved water quality and lower human health risk due to improved sewer infrastructure and non-point source controls.

2) **For the Estuarine Environment (Elkhorn Slough, an area of concern), we note:**
   - Continued inputs of nutrients and contaminants, especially in areas of muted tidal influence, are contributing to events such as frequent hypoxia, algal blooms, and impacts to sensitive species.
   - Substantial tidal erosion and historic habitat conversion and loss continue.
   - High percentage of non-native species competing with natives and impacting ecosystem health.
   - Some key species (eelgrass, native oysters) show signs of improvement.
   - Ongoing restoration projects and improved land management practices should improve water quality.

3) **For the Nearshore Environment (shoreline to 30 m depth), we note:**
   - Continued nutrient enrichments and occurrence of harmful algal blooms (HABs) that cause fish kills and marine mammal disorientation
   - Improvements in beach water quality at some sites
   - Decreases in dieldrin, DDT and PBDEs in mussels at five locations, but limited information available on 'new' pollutants such as current use pesticides and pharmaceuticals
   - Though habitats in less impacted areas are in near-pristine condition (e.g., Big Sur), there are concerns about localized on-going activities – sand mining, coastal armoring, inputs of contaminants and marine debris
   - Recent drastic declines in sea stars are a concern, but impacts on overall biodiversity will take time to understand

4) **For the Offshore Environment (30 m depth to seaward boundary), we note:**
   - Most key species and assemblages that are monitored offshore appear to be stable.
   - Concerns over acidification, warming, and shoaling of the Oxygen Minimum Zone – impacts starting to be detected
   - Pollutants (e.g., PCBs), marine debris, and toxins from Harmful Algal Blooms (HABs) detected in some key species.
   - Concern about impacts to sensitive species from human-caused noise and vessel traffic.
   - Recent prevalence of warm water, but overall impacts to offshore system not yet understood
   - Trawling – the most extensive impact to offshore benthic habitat – has decreased in effort and spatial extent as well as using less damaging gear and in less sensitive habitats. Recovery of formerly impacted habitats and structure-forming species expected

5) **For Davidson Seamount Environment, we note:**
   - Due to its depth, distance from shore, and regulatory protections, the seamount area has not been impacted by human activities to the extent of other sanctuary offshore areas.
   - Corals, sponges and other benthic fauna appear to be in pristine or near-pristine condition.
   - Some threats exist, such as vessel traffic and climate change – ocean acidification.

6) **The Updated Condition Report points to some issues of concern, including:**
   - Contaminants in some habitats and species
   - Harmful Algal Blooms (HABs)
   - Marine debris accumulating and causing impacts to animals through ingestion and entanglement
   - Unprecedented, dramatic declines in sea stars, a keystone predator in the nearshore environment
   - Substantial, localized impacts from certain activities (sand mining, armoring) and some localized wildlife disturbance
   - Impacts of global climate change, especially ocean acidification which causes shell-forming organisms to dissolve (e.g., plankton–the base of the food-web)

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