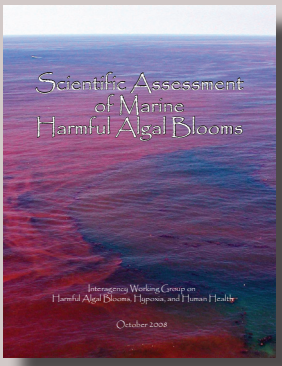
Scientific Assessment of Marine Harmful Algal Blooms

Report Description



The *Scientific Assessment of Marine Harmful Algal Blooms* is the fourth of five reports mandated by the 2004 reauthorization of the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA). This report was developed by the Joint Subcommittee on Ocean Science and Technology's Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health.

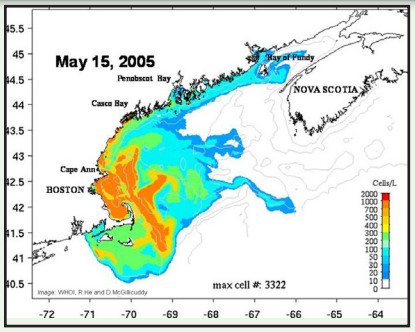
This report describes the nature of harmful algal blooms (HABs) in U.S. marine waters and reviews major advances in marine HAB research over the last decade. In addition to discussing the general problem of marine HABs in the United States, the report highlights major issues and accomplishments by U.S. region.

To download the report: *http://ocean.ceq.gov/about/sup_jsost_iwgs.html* or *http://www.cop.noaa.gov/stressors/extremeevents/hab/habhrca/Report_Plans.html*

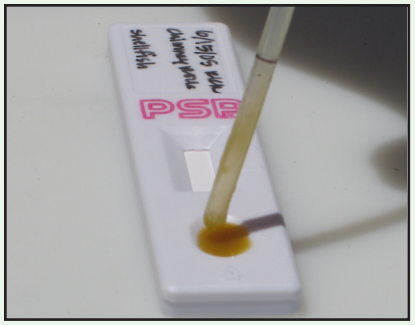
Report Findings

Many advances in HAB research over the last decade have improved management of the Nation's resources and allowed better protection of humans and ecosystems. The following are a few major accomplishments.

- *HAB prediction and tracking*. Regional models have been developed for toxic HAB species through years of research on HAB distributions and causes. Model results are used to forecast the occurrence, severity, and movement of blooms and help managers make informed decisions that protect both human health and coastal economies .
- *Detection methods for HAB cells and toxins.* Many new technologies have emerged and are in routine use—including deployable instruments for continuous, real-time, in-water detection; accurate laboratory techniques; and quick, easy screening methods for use in the field.
- *Toxin impacts on humans and marine animals.* Acute impacts of toxins, such as human respiratory illnesses from aerosols in sea spray have been documented. Many marine mammal mortality events have now been attributed to HAB toxins and long term effects of low-level toxin exposures are being investigated in marine mammals and humans.
- *Emerging HAB outbreaks.* The HAB toxin causing puffer fish poisoning syndrome in Florida has been identified. In the Gulf of Mexico, outbreaks of ciguatera in a new area and the first outbreak of diarrhetic shellfish poisoning were recognized and action was taken to protect public health.



Model output showing distribution of the New England Red Tide organism in the Gulf of Maine. Graphic: WHOI and NCSU



Applying a shellfish sample extract to a field test for paralytic shellfish poisoning toxins. Photo: CA DHS

Sea lion exposed to the domoic acid toxin undergoing MRI scanning to detect extent of brain injury. Photo:MMC

For more about HABHRCA:
http://www.cop.noaa.gov/stressors/extremeevents/hab/habhrca/
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