



# NOAA

NATIONAL OCEAN SERVICE  
UNITED STATES DEPARTMENT OF COMMERCE



## Scientific Assessment of Hypoxia in U.S. Coastal Waters

This report describes the prevalence, causes, and impacts of hypoxia (or low oxygen) in the United States, the progress made through federal investment in understanding this problem, and research priorities for the future.

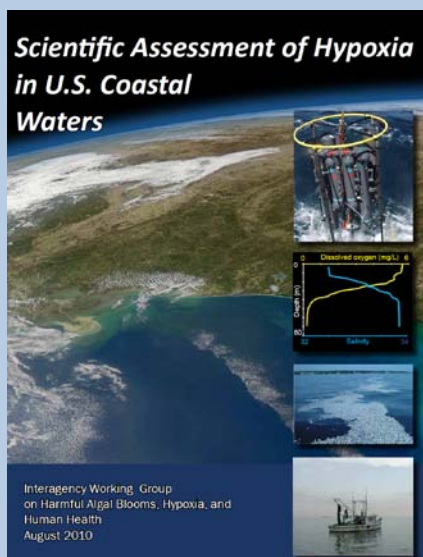
It provides a comprehensive list of U.S. coastal water bodies impacted by hypoxia and highlights a spectrum of vulnerable ecosystems in eight descriptive case studies (Lake Erie, Long Island Sound, Chesapeake Bay, Pensacola Bay, northern Gulf of Mexico, Yaquina Bay, Oregon/Washington shelf and Hood Canal).

This is the last of five reports mandated by the 2004 reauthorization of the Harmful Algal Blooms and Hypoxia Research and Control Act (better known as HABHRCA), and was developed by the Joint Subcommittee on Ocean Science and Technology's Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health.

Scientists from NOAA, EPA, USGS, USDA and the Virginia Institute of Marine Science co-authored the report.

To download the report, visit:

<http://www.whitehouse.gov/administration/eop/ostp/nstc/oceans>



## Findings

- The incidence of hypoxia in coastal waters has increased 30-fold in the U.S. since 1960, primarily due to human activities that create excess nutrients that run off into coastal waters.
- Over 300 U.S. coastal water bodies now experience stressful or lethal oxygen levels, threatening commercial and recreational fisheries.
- Federally supported research, monitoring, and modeling has made significant progress in describing the extent of hypoxia, what causes it, and how it impacts coastal organisms. New predictive tools integrate the complex science to evaluate alternative management options, including the application of best management practices on agricultural and developed lands to reduce nutrient runoff.
- Effective nutrient reduction will not only lessen the occurrence and severity of hypoxia but will also mitigate other habitat impacts such as algal blooms.

## Future Directions

- Develop and implement cost effective and scientifically sound nutrient reduction strategies to achieve healthy water quality in rivers, lakes and coastal waters.
- Improve ecosystem models to assess how hypoxia affects commercially important fish populations in order to refine management strategies to protect coastal economies.
- Improve scientific understanding for emerging sites such as the Oregon and Washington shelf, where hypoxia may be driven primarily by events linked to climate change. This knowledge will help managers mitigate impacts on natural resources and coastal economies.
- Expand stream and river monitoring to document extent and sources of nutrients and progress in achieving management goals. This can lead to more strategic and effective targeting of nutrient reduction actions.
- More systematically monitor oxygen levels in coastal waters using new technologies and observing systems. This is critical for forecast model development, fisheries management, and determining nutrient reduction success.

**If questions, contact NOAA's Office of Legislative and Intergovernmental Affairs at 202-482-4981**