

IRA RFA Topic Area 2 Potential Project of Interest

1.d: Coordinated buildout and operations of the National Harmful Algal Bloom Observing Network (NHABON)

Goal

This project seeks to coordinate buildout and operations of the National Harmful Algal Bloom Observing Network (NHABON) via cross-regional initiatives to, for example, share equipment, develop data infrastructures, or determine data formats to support wider plankton data networks. The outcome of this work will be progress towards the national network described in the [IOOS Association NHABON Strategy](#) and the [Framework for the National Harmful Algal Bloom Observing Network: A Workshop Report](#).

Project Description

Harmful algal blooms (HABs) occur in coastal, Great Lakes and freshwater environments across the nation. Blooms can be noxious, producing a foul smell or discoloring water, and disrupt ecosystems by shading seagrasses or corals and causing oxygen depletion in bottom waters. By far the most severe impacts are caused by HABs that produce toxins, resulting in sickness and even the death of humans and animals. The economic, environmental, and health impacts of marine and freshwater HABs vary by region yet all frontline communities around the country are experiencing increasing impacts as new HABs emerge and existing blooms occur more frequently and last longer. Expanded HAB impacts are due to a range of factors including nutrient pollution, coastal development, aquaculture expansion, and a warming climate.

Observations and measurements of harmful algal species and toxins are critical to support early warning and forecasting, which are our most effective means of mitigating HAB impacts. The regional diversity of species, toxins, habitats, and impacts, as well as differing effects from climate change, prevents a “one-size-fits-all” approach to developing a HAB observing network. This has fostered a number of independent HAB observing capabilities at the local, state, regional, Tribal, or Federal levels. Many of these have been successfully piloted but lack sustained operational funding.

A National HAB Observing Network (NHABON) is needed to efficiently and effectively integrate local, state, regional, and Federal HAB observing capabilities and deliver products operationally. Implementation of the NHABON will build capacity to achieve the following benefits: enable HAB forecasting and early warning; leverage economies of scale and enhance information transfer between regions; determine algal community baselines and discern patterns/trends to help assess the impacts of climate change, eutrophication, and other environmental forcings; and

provide observations to support the National Oceanic and Atmospheric Administration's (NOAA) mission of understanding and predicting changes in our oceans.

National coordination of NHABON will ensure its smooth operation, facilitate exchange of ideas and expertise, and coordinate communication. Full implementation of NHABON helps to resolve current gaps in HAB observations and will lead to multiple benefits and advancements for addressing HABs and their effects. They include:

- Enhanced decision making by resource and water managers about HAB risks and mitigations by providing high quality observation data in near real-time.
- A national network of sustained HAB observations that support information, alerts and forecasts that are tailored to the unique needs of each region. Better understanding of HAB distributions, and impacts through coordinated efforts, regional service delivery, and integration of data from a variety of sources.
- Efficiencies through coordinated efforts to share technologies to gather and distribute HAB observations in support of more efficient use of observational resources, leveraged economies of scale, reduced duplication of effort, and enhanced sharing of resources and lessons learned.
- Ensuring a close link between research and operations through continued collaboration among IOOS, NCCOS and the HAB research community to ensure the best information is being delivered to users and stakeholders.

Projects under this announcement could contribute by:

- Expanding observing programs, sharing equipment and personnel, developing data management and data infrastructures, or advancing common data formats to support wider multi-regional, national, and global plankton data networks.
- As part of this we encourage establishing, improving, and/or cataloging HABON products and services delivered to support decision making. We want our IOOS collective impact from the IRA funding to point to the products improved (and tracking the use of those) as a key deliverable/outcome.
- Projects should relate to the central themes of the IRA and this specific RFA by
 - Improving coastal climate resilience
Coastal resilience is the ability of populations, ecosystems, and economies to prepare for, absorb, respond to, recover from, and successfully adapt to the impacts of natural and human-caused hazards, such as hurricanes and oil spills, and long-term environmental change, such as habitat loss and sea level rise.
 - Increasing equitable service delivery, especially to overburdened and frontline communities
Equitable Service Delivery is defined as the consistent and systematic fair, just, and impartial process of engaging with users, including individuals who belong to underserved communities that have been denied such treatment, to provide relevant and timely information.
 - Developing new partnerships including between public and private entities that support efforts to better understand ocean processes, develop robust and effective *in situ* and remote methods of HAB detection, develop solutions to

manage complex data, effectively display information and communicate HAB risks, and to engage with managers and the public to foster more effective HAB responses.

For More Information or to Ask Questions

Please contact Tiffany Vance at tiffany.c.vance@noaa.gov with questions on this project theme or to be connected to subject matter experts in NOAA for technical assistance with this project. Please send general questions about the RFA to ioos.regions@noaa.gov.