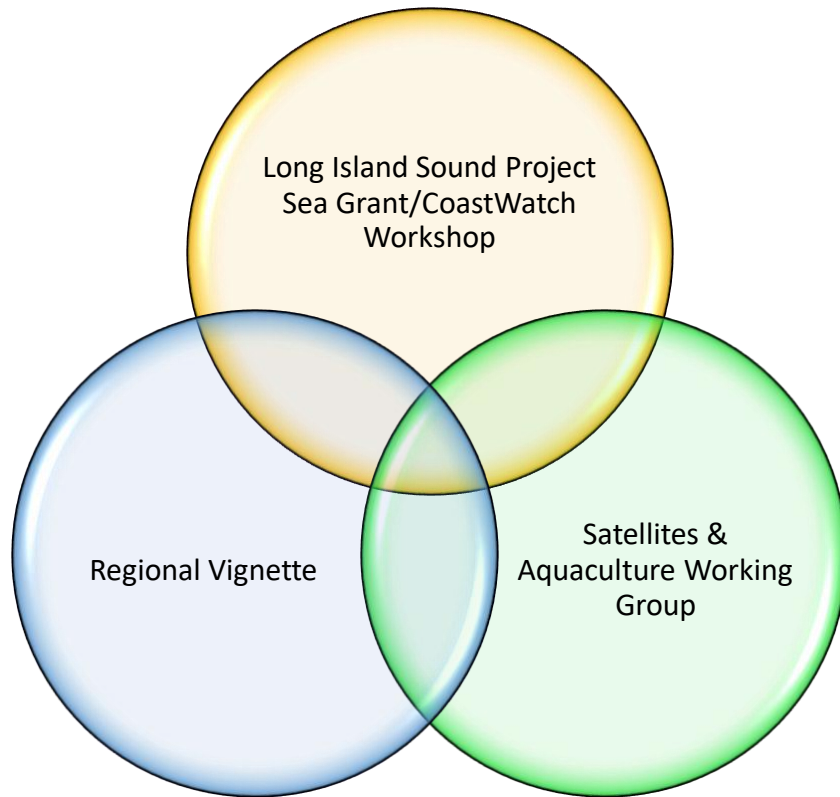# HAB Liaison Engagement in the Northeast

Key Project Partners: NOAA NCCOS HAB-Forecasting Branch, NOAA CoastWatch, Sea Grant Programs in NE
Key Community Partners: CUNY NY, Columbia University, NOAA Fisheries, CT DEEP

Rivers, streams, lakes and coastal waters are valuable natural resources that support a variety of industries, including fisheries, recreation, tourism, agriculture and manufacturing in the northeastern United States (NE-US). These industries depend on healthy ecosystems for success and can be negatively impacted by harmful algal blooms (HABs) that produce toxic or harmful effects on people, animals, commodities, and environments.

There are different satellites products and methods used for bloom detection with no one size fits all approach. HAB tracking and predicting are interdisciplinary problems requiring observations and models. Chlorophyll biomass can be seen and quantified from satellites and satellite data can be useful for initiating and validating bloom models. Model accuracy for short-term and seasonal forecasts can be improved by including biological measurements and simulated data.

Two distinct but complimentary efforts have sought/seek to advance satellite product development and delivery in the NE-US. A third project was completed as part of the HABs and Hypoxia Research and Control Act (HABHRCA) national assessment to Congress.

1) In 2023, a Long Island Sound Project funded by New York Sea Grant aims to: 1) Assess the impacts of environmental stressors and the factors driving harmful algal blooms (HABs) under various conditions. 2) Develop satellite products for water quality and HAB monitoring to aid resource management and policy. 3) Integrate findings into NOAA's CoastWatch Program, creating accessible data products that support environmental justice initiatives and CCMP priorities. 4) Incorporate satellite data in resource management and decision-making related to water quality and shellfisheries. This project is a collaboration between researchers at City University of New York – City College (PI), Columbia University and NOAA CoastWatch (Co-PIs).

As part of this project a virtual Sea Grant / CoastWatch workshop was held in 2024 with key stakeholders from New York and Connecticut state agencies and NOAA regional partners to guide application development; the liaison served as organizer & facilitator. Input was received from participants in terms of how the different agencies make decisions, and how satellite data can help inform them regarding where and when to sample, how to decide on spatial extent of closures, and how to fill temporal and spatial gaps of regular water quality monthly sampling to improve understanding of phytoplankton transitions in Long Island Sound. Initial next steps from the workshop were to develop satellite imagery that could be

"[Our] work [is] all being done in LIS [Long Island Sound] and does not include any phytoplankton or turbidity measurements that satellites can provide, and could help us again understand observations we make, disruptions in the oysters in the cages, and on the farms we're studying." Long Island Sound Workshop Participant

Venn Diagram

- Long Island Sound Project Sea Grant/CoastWatch Workshop
- Regional Vignette
- Satellites & Aquaculture Working Group

incorporated into partner reports, such as a monthly newsletter produced by CT DEEP. CT DEEP's June Water Quality Newsletter included a spotlight on remote sensing for water quality, the Sea Grant project and CoastWatch and emphasized the benefits of incorporating satellite data into their monitoring efforts, illustrating elevated sea surface temperatures and the emergence of a potential phytoplankton bloom, alongside their bi-weekly sampling.

Work continues on the LIS project and in February 2025, a second workshop was held to provide stakeholders with updates on progress since the initial 2024 workshop. 27 stakeholders attended. Additionally, as part of this project and two-tiered CoastWatch training has been planned and will occur on March 31-April 4, 2025. 61 participants are registered for the class.

2)   In 2023, a new working group within NOAA was formed to advance satellite use in aquaculture decision-making. Participants include Aquaculture leads within NOAA Fisheries, NOAA NCCOS, and NOAA Sea Grant, along with optical oceanographers from NOAA CoastWatch and NOAA NCCOS HAB-Forecasting Branch, including the HAB Liaison. The group engaged aquaculture agents during a Sea Grant aquaculture chat.

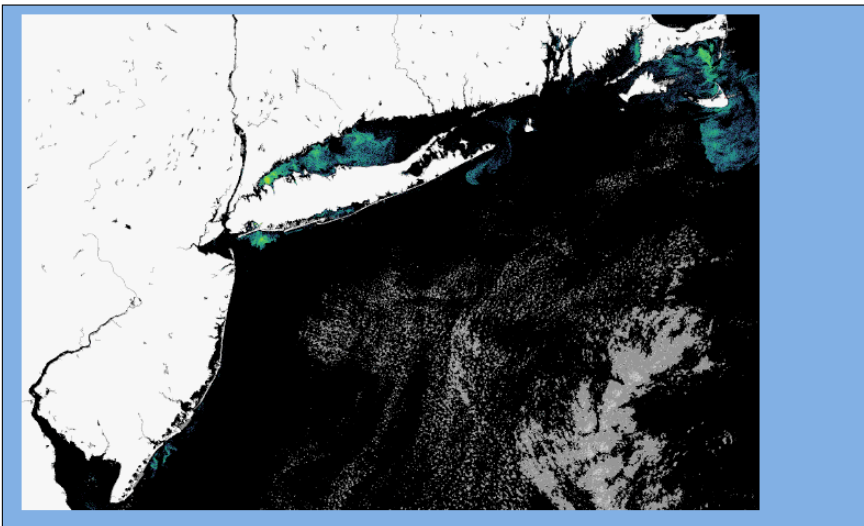Follow-up discussion with Sea Grant agents in the NE resulted in the delivery of satellite products to agents and their agency partners for input on applicability and usefulness. 2024 efforts have included inviting identified state agency partners to sign up to receive satellite imagery. Thirty partners have signed up and are receiving imagery from NCCOS when bloom features are identified. Additionally, NCCOS is receiving monitoring information from agencies to support satellite bloom detection efforts. Connecticut Department of Energy & Environmental Protection (CT-DEEP) featured NCCOS in their September Water Quality Newsletter, spotlighting the how an early warning of a bloom in August 2024 led to a collaborative interagency/organization response.

Spotlight- NCCOS HAB Monitoring System

The [Harmful Algal Bloom Monitoring System](#) was developed by the National Centers for Coastal Ocean Sciences (NCCOS) to assist in locating, monitoring, and quantifying algal blooms in US coastal and lake regions in the form of geographic based images. These products are available in near real-time. A major goal of the program is to develop HAB forecasts and early warnings to alert managers before blooms cause harm and allow for mitigation of impacts.

On August 22, 2024 the NOAA HAB Forecasting Team notified Northeast managers of blooms present on 8/21/24 imagery in Long Island Sound, as well as

Figure 1 Screenshot from Connecticut DEEP September Newsletter

3)   In 2024, the liaison led the development of a regional vignette on the NE as part of the HABHRCA National Assessment to congress. The NE Vignette is one of nine prepared by the Interagency Working Group for HABHRCA with each providing a general description of the region, a summary of the major HABs and Hypoxia issues, and the federal activities undertaken (projects and programs) in the region.