

11TH U.S. SYMPOSIUM ON HARMFUL ALGAE

A ROUNDTABLE DISCUSSION: CAN A QUANTITATIVE PCR ASSAY FOR RESTING CYSTS BE USED TO IMPROVE THE ALEXANDRIUM CATENELLA FORECAST IN THE GULF OF MAINE?

An Alexandrium early warning/forecast product has been produced in the Gulf of Maine by NOAA, WHOI and partners for the last 25+ years. The forecast is based on a coupled biological-physical model that considers the life cycle of Alexandrium catenella along with hydrodynamic and meteorological forcing. The forecast is initialized (1st order predictor) by an annual cyst abundance map for the region. Historically, cyst abundance has been determined using microscopy-based identification and enumeration with primulin staining. While effective, this method is time consuming and requires specialized expertise for identification of A. catenella cysts. NOAA and partners have since improved upon this method by developing a species-specific quantitative PCR assay that is faster and more cost-effective than microscopy for the enumeration of Alexandrium cysts. The application of this assay will increase the capacity for cyst-based monitoring through partnerships with stakeholders and resource managers in the Gulf of Maine, Puget Sound and other Alexandrium-endemic locations. In this round table discussion, we will first provide a summary of the current state of science for Alexandrium cyst quantification, followed by a detailed overview of the qPCR method, associated costs, technical expertise, and equipment required for the procedure. We will solicit feedback from regional stakeholders and partners on the best applications for the cyst assay and interest in 1) providing samples to bolster the Gulf of Maine Alexandrium forecast, 2) joining a beta group to evaluate the qPCR method and 3) willingness to adopt this approach to expand the NOAA HAB forecast. We invite participation from regional aquaculture associations, resource managers, public health officials, and other stakeholders in the Northeast. In an attempt to inspire a meaningful discussion with regional stakeholders, this is a closed session. Please contact Steve Kibler (steve.kibler@noaa.gov) if you are interested in participating.

STEVE KIBLER, OCEANOGRAPHER | NOAA NCCOS BEAUFORT LABORATORY

Steve Kibler and Mark Vandersea have been working for NOAA NCCOS on various aspects of HAB ecology, physiology and toxicology for more than 20 years. Much of this work has focused on development of novel detection and quantification approaches to support NCCOS partners and coastal communities.

STEVE.KIBLER@NOAA.GOV

Co-Authors:

Vandersea, M.W., NOAA NCCOS Beaufort Laboratory;

Greengrove, C.L., University of Washington Tacoma;

Masura, J.E., University of Washington Tacoma;

Matweyou, J.A., University of Alaska Fairbanks - Alaska Sea Grant;

Hart, C., University of Alaska Fairbanks - Juneau Center;

Harman, T.E., NOAA NCCOS Beaufort Laboratory;

Pokrzywinski Boyd, K.L., NOAA NCCOS Beaufort Laboratory