INTEGRATING OBSERVATIONS TO INVESTIGATE HARMFUL ALGAL BLOOM DYNAMICS IN FLORIDA'S MARINE WATERS

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Florida has more than 50 harmful algal bloom (HAB) species, several of which produce biotoxins that have the potential to cause negative impacts on the health of wildlife, humans, ecosystems, and economies. Three marine HABs (*Pyrodinium bahamense, Pseudo-nitzschia* spp., and *Karenia brevis*) produce neurotoxins that cause recurring issues. Other species also form ecosystem disruptive blooms but may not be associated with toxicity, such as nanoplankton including the brown tide alga *Aureoumbra lagunensis*, and the marine cyanobacterium *Synechococcus*. These diverse and often overlapping bloom events necessitate a broad, adaptive, and highly integrated observation network. In a single year, thousands of seawater samples collected statewide are processed using light microscopy, genetic tools, and flow cytometry to allow high throughput, sensitive, and/or in situ detection of cells to help increase both spatial coverage and frequency of observational data. These data coupled with environmental observations, targeted physiology studies, and modeling, have the potential to provide novel insights into the diverse and complex factors that impact bloom dynamics – from initiation to termination – for each type of HAB and across Florida's distinct marine ecosystems.

PRESENTER BIO: Dr. Kate Hubbard leads the harmful algal bloom (HAB) program for the Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute. As a research scientist, she works with a broad network to sustain and advance comprehensive HAB observations and research in Florida and across the United States.