

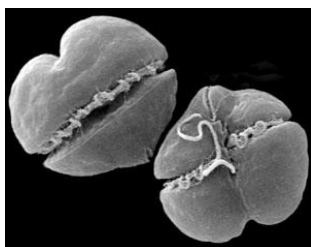
# ECOHAB: *Karenia*

## FWRI ECOHAB PROJECT OBJECTIVES, APPROACH, AND GOALS

### Project

The ECOHAB:*Karenia* Nutrient Dynamics in the Eastern Gulf of Mexico project is funded by the National Oceanographic and Atmospheric Administration's Center for Sponsored Coastal Ocean Research.

### Objectives



Scanning electron microscope image of *Karenia brevis*

The multiple nutrient sources that support and regulate *Karenia brevis* blooms in the eastern Gulf of Mexico remain unquantified. *K. brevis* blooms in Florida's eastern Gulf of Mexico are annually predictable, have severe economic and environmental impacts, and are closely monitored. These characteristics make the eastern gulf an ideal system to examine the complex relationship between nutrient interactions and harmful algal blooms (HABs). This project will combine biological, chemical, and physical measurements with modeling efforts to examine how *K. brevis* is able to sustain high biomass blooms in oligotrophic environments for extended periods.

### Approach



Scientist observing *Karenia brevis* in the laboratory of a research vessel

A multidisciplinary team of scientists with expertise in nutrients, HABs, *K. brevis*, and the southwest Florida environment are collaborating on this project. The team will identify, quantify, and model nutrient inputs and cycling over the entire range of *K. brevis* bloom stages and environments. Work will include laboratory studies; comparative field studies; examination of multiple nutrient sources; measurement of physical flows; and three-dimensional, coupled biophysical modeling.



## Project Goals

The ECOHAB: *Karenia* project addresses two outstanding questions:

1. What are the different nitrogen and phosphorus nutrient sources fueling the massive, persistent biomass accumulations of *K. brevis*?
2. Where are these nutrients coming from?



*Karenia brevis* bloom

Biological, chemical, and physical scientists will answer these questions by comparing the physical and chemical environment and physiological characteristics of *K. brevis* during three bloom stages (initiation and development, maintenance, and decline) and in three different bloom environments (lagoonal, [estuarine](#), and [coastal](#)).

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