

A satellite-style map of the Gulf of Mexico region, showing the Gulf of Mexico, Florida, and parts of Mexico and Central America. The Gulf is highlighted in a dark blue color. A grid is overlaid on the map.

***Gulf of Mexico Alliance***  
**Water Quality *Priority Issue***

***First-year review***

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# Water quality for healthy beaches and shellfish beds

- **WQ-1: Improve harmful algal bloom detection and forecasting in the U.S. and Mexican Gulf States**
- **WQ-2: Improve beach water quality management**
- **WQ-3: Improve government efficiency in water quality monitoring**

# WQ-1: Improve harmful algal bloom detection and forecasting in the U.S. and Mexican Gulf States

## Three 36-Month Outcomes, 12 Actions :

- Improve the current HAB Forecasting System off the Southwest Florida coast to better identify the onset of blooms and better predict the transport of blooms.
- Develop a satellite detection, forecasting and Internet-based notification capability for *Karenia brevis* off the southern coast of Texas.
- Develop a satellite detection and Internet-based notification capability for *K. brevis* off the coast of the Mexican Gulf state of Veracruz.

# WQ-1: Improve harmful algal bloom detection and forecasting in the U.S. and Mexican Gulf States

## - 12 Actions -

- Completed:
  - #2. Conduct an interagency workshop to review scientific advances related to red tide in the Gulf of Mexico and identify future priorities for the region.
  - #10. Implement an operational HAB forecasting capability off the South Texas coast.

# Achievements:

- (1) NOAA and Florida have deployed 5 additional Brevebuster sensors, including sensors on autonomous gliders, to better detect and track SW Florida blooms and both have funded sensor development and monitoring network expansions.

# Achievements:

- (2) NOAA has funded tests of an optical early warning HABs system off Texas for deployment on ocean platforms.

# Achievements:

- (3) NOAA initiated modeling programs that provide 3-D development of blooms, forecast impacts, and link models in real-time to provide improved bloom initiation. Tools to visualize, evaluate, and compare models have also been developed.

# Achievements:

- (4) FWC FWRI hosted a phytoplankton identification workshop in June 2006, another in June 2007, and will host one in 2007 for Mexican scientists.

# Achievements:

- (5) Mote Marine Laboratory is offering red tide concentration data from AUVs and fixed moorings through Google/Earth and is using lifeguards in Sarasota County for a real-time monitoring system that feeds a respiratory irritation monitoring website.

# Achievements:

- (6) NOAA awarded a \$4.7 million, five-year ECOHAB grant to a group of Florida agencies and Florida and east-coast universities to examine the causes of red tide along Florida's Gulf Coast, especially how and what types of nutrients fuel the blooms. This will combine biological, chemical, and physical measurements, and will use both experimental and modeling approaches.

# Achievements:

- (7) Florida DEP RBNEERR hosted a public workshop in January 2007 to address local red tide issues. An even larger audience will be reached through a two-segment documentary being produced by Comcast Cable.
- Texas printed 100,000 red tide information cards for residents and tourists that list the top ten red tide facts.

# Achievements:

- (8) NOAA is funding research to understand the accumulation of brevetoxins in shellfish; to validate ELISA for shellfish monitoring; and to determine toxin impacts on marine mammals. FDA is sponsoring proposals for acceptance of the ELISA and LC-MS as methods to replace the mouse bioassay.

# Achievements:

- Mexico
- (1) EPA funded NOAA NDBC in January 2007 to deploy 2 coastal meteorological (C-MAN) stations and 3 BreveBuster sensors in the vicinity of Veracruz, Mexico, in late spring/summer. NDBC is currently building the C-MAN stations and deployment will take place once all equipment is available.

# Achievements:

- Mexico
- (2) NOAA developed a Spanish language HAB data entry tool and ArcIMS in support of Veracruz project.
- (3) EPA funded a cooperative agreement with the USF College of Marine Sciences to conduct HAB identification training for Veracruz personnel in Summer 2007.

# WQ-2: Improve beach water quality management

- **Action:** Ensure safe bathing beaches by advancing a practical, field ready standardized microbial source tracking method(s) to determine coastal waters with public health impairment and to identify the priority sources of bacterial pollution to remediate.

# WQ-2: Improve beach water quality management

## Two 36-Month Outcomes, 7 Actions:

- Conduct a peer-reviewed field evaluation of current bacterial source tracking capabilities in an estuarine recreational area and select two methodologies for intensive field-testing/validation.
- Implement pilot testing of these two methods in five Gulf of Mexico estuaries with varying environmental conditions (preferably one location in each Gulf state).

# WQ-2: Improve beach water quality management

- Completed:
  - #1. Conduct a “State of the Gulf” workshop on pathogen indicators and microbial source tracking research, with an endpoint of selecting the sites and designing the study and the parameters for evaluation.

# WQ-2: Improve beach water quality management

- Achievements:
  - EPA funded research to subject candidate MST methods to comparative field trials

# WQ-2: Improve beach water quality management

- This Action Item is a sequential set of steps, each depending on the outcome of the previous. Next step awaits outcome of presently-funded research.
- Workshop results indicates changes to the sequence may be necessary.

# **WQ-3: Improve government efficiency in water quality monitoring**

- **Action:** Maximize the efficiency and utility of water quality monitoring efforts for local managers by coordinating and standardizing state and federal water quality data collection activities in the Gulf region.

# **WQ-3: Improve government efficiency in water quality monitoring**

- **One 36-Month Outcome, 4 Actions:**
- Implement a regional pilot effort to coordinate and standardize state and federal water quality data collection activities in the Gulf region for one or more nutrient parameter(s) and/or one or more pathogens.

# **WQ-3: Improve government efficiency in water quality monitoring**

- 1. Host an annual Gulf of Mexico Forum for Environmental Monitoring to promote coordination of water quality monitoring by state, local, and federal agencies.

# WQ-3: Improve government efficiency in water quality monitoring

- 2. Comprehensively survey state, local, and federal agencies for types of water quality data being collected, methods of collection, analytical methods, quality assurance protocols, proprietary restrictions, and database platforms.

# **WQ-3: Improve government efficiency in water quality monitoring**

- 3. Develop accountability tools and accreditation standards for laboratories performing analyses included in Gulf-wide monitoring databases.

# **WQ-3: Improve government efficiency in water quality monitoring**

- 4. Facilitate the selection of a pilot parameter for monitoring coordination and standardization by state and federal water quality agencies and GCOOS (leverage possible linkage to National Water Quality Monitoring Council regional pilot activities).

# Potential Nutrient-Study Sites



