Water Quality for Healthy Beaches and Shellfish Beds

**Long-term Alliance Partnership Goal**

Provide critical water quality information to Gulf of Mexico resource managers, in near-real time where appropriate, to help protect human health at beaches and to help ensure healthy shellfish growing waters.

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LONG TERM WATER QUALITY GOALS

• A real-time pathogen monitoring network that identifies the sources of pathogens in coastal and estuarine waters and their potential impact on human-health and the coastal economy

• A HAB tracking, and forecasting system that supports the reduction or elimination of blooms and that can be used by coastal managers to minimize the human health and negative economic effects from blooms

• A reduced potential risk of mercury-induced health effects from Gulf seafood consumption

• A cooperative and integrated water quality monitoring network for estuarine, coastal, and offshore waters that provides vital information on the status and trends of Gulf ecosystem health
WQ-1: Provide coastal managers with better means to make decisions that benefit the public and coastal economy by improving understanding of the sources and survival in coastal waters of the organisms causing disease in humans.

**Action Steps:**

**WQ-1.1:** Identify most-effective methods to identify the coastal waters and beaches that are impaired by disease-causing organisms and to track the sources of those organisms. Identify gaps where methods need to be developed.

**WQ-1.2:** Improve our ability to determine which kinds of organisms in coastal waters constitute risks to human health

**WQ-1.3:** Provide coastal managers with information to make better informed health and resource management decisions.

**WQ-1.4:** Assess existing information to better understand *Vibrio* bacteria ecology and health risks and to identify research needs.
WQ-2: Reduce effects on human health and coastal economies by improving the ability to predict, detect, track, and forecast the movement and effects of harmful algal blooms in waters along the Gulf coast.

**Action Steps:**

WQ-2.1: Advance understanding of the ecology and toxicity of harmful algal blooms. Provide decision-making information and data to coastal managers. Increase communication among those involved in harmful algal bloom-related monitoring and those involved in decision-making.

WQ-2.2: Improve methods and technologies for the detection of harmful algal bloom species and their toxins.

WQ-2.3: Improve the capabilities of monitoring systems around to Gulf to support HAB detection and tracking.

WQ-2.4: Determine the significance of ballast water introductions and transfers of harmful algal bloom species in the Gulf of Mexico.

WQ-2.5: Determine the connection between HABs and human health effects.
Highlights of Governors’ Action Plan Accomplishments

Harmful Algal Bloom (HAB) detection and forecasting in the Gulf of Mexico
The HAB Forecasting System provided by NOAA supplies information on the location, extent, and potential for development or movement of harmful algal blooms in the Gulf of Mexico.

Harmful Algal Blooms Observing System (HABSOS)
HABSOS is a regional, Web-based data and information dissemination tool. This Web site provides a secure data entry tool for collection of cell count observations of the algal species *Karenia brevis*.

GCOOS/GOMA HABIOS:
Harmful Algal Blooms Integrated Observing System
HABIOS Workshop I, New Orleans, 14-16 Nov 2007
HABIOS Workshop II, St. Petersburg, 21-23 April 2009
WQ-3: Understand the sources and factors controlling the accumulation of mercury in some Gulf fish

**Action Steps:**

**WQ 3.1** Establish and regularly update the existing understanding of how mercury cycles in the Gulf of Mexico and define/update research priorities to improve that understanding.

**WQ 3.2** Assess Potential (Non-Mercury) Contaminants of Gulf of Mexico Seafood.
WQ-4: Support good management decisions about coastal fisheries, recreation, tourism, public health, and infrastructure planning by providing information on the condition of Gulf of Mexico waters and the plants and animals living in them.

**Action Steps:**

WQ 4.1 Improve data comparability across the Gulf of Mexico
WQ 4.2 Coordinate the collection and management of information about monitoring programs across the Gulf of Mexico.
WQ-4.3: Design a water-quality monitoring network for the Gulf of Mexico adequate to address Gulf Alliance needs.
WQ 4.4 Develop at least one pilot project in the gulf region (using existing data, models, and tools) to create a GIS-linked landscape and/or water quality modeling tool that can be used by local managers as a guide for land-use decisions in coastal watersheds.
WQ 4.5 Improve data dissemination tools to deliver information to resource managers.
WQ 4.6 Improve the knowledge base needed to properly manage or reduce nutrients in coastal waters. (in collaboration with other Priority Issues)
Gulf of Mexico Alliance
Pathogen Workshops Threesome
Feb 10-13
St. Pete Beach, FL 33706

Note: there are three adjoining workshops taking place.

• Gulf of Mexico Alliance, Action Plan II development workshop, Pathogens chapter – GOMA Water Quality Team’s Pathogen Workgroup. Interested parties welcome. Note that this workshop is in two parts, before and after workshop #2.
• Microbial Source Tracking (MST) and Pathogens Detection Workshop - Gulf of Mexico Alliance, Water Quality Team. Interested parties invited.
• Microbial Source Tracking in the Gulf of Mexico: A Review of the Current Study and Directions Forward – EPA workshop put on by joint USF/USM/UWF researchers. GOMA workshop attendees welcome.
WQ-5: Research needs for Water Quality Priority Issues. Some Priority Issues require research to identify the means to address Gulf Alliance needs. These are listed in this section.

**Harmful Algal Blooms**
WQ-2.1: Better understand harmful algal bloom development, ecology and toxins.
WQ-2.6: Develop methods and technologies for the prevention, control, and mitigation of harmful algal blooms and their impacts.
WQ-2.7: Determine the connection between HABs and human health effects.

**Mercury in Gulf Fish**
WQ-3: Understand the sources and factors controlling the accumulation of mercury in some Gulf fish.
WQ 3.3 Quantify the major input pathways for mercury to the Gulf of Mexico.
WQ 3.4 Determine where mercury methylation occurs and what processes govern its occurrence.
WQ 3.5 Determine how and where methylmercury enters into the food webs and bioaccumulates in fish (in collaboration with Nutrients PIT).
WQ 3.6 Better our understanding of mercury effects on key non-fishery species (e.g., whales and dolphins, seabirds).
Questions?