



Business Plan 2007– Division of Environmental Health - Florida Department of Health

Mission: "Promote and Protect Health"

Vision: "Healthier Floridians"

Goal: To prevent disease of environmental origin

Bureau of Community Environmental Health – AQUATIC TOXINS PROGRAM

Trends and Conditions:

This business plan reflects a maturation of the Aquatic Toxins Program with emphasis on direct public health services supporting DOH County Health Department (CHDs) activities. These public health services include environmental epidemiology support, laboratory analyses, field assessments of blooms, community education and outreach and development of targeted Aquatic Toxins related materials. Additional efforts have been made to foster collaborations with institutions such as the Florida Water Management Districts, Florida Fish and Wildlife Research Institute (FWRI); Mote Marine Laboratory; University of Miami Rosenstiel School of Marine and Atmospheric Science (UM RSMAS); University of Florida Department of Fisheries and Aquatic Sciences Institute of Food and Agricultural Sciences (IFAS); Florida Poison Information Centers in (FPIC) Miami, Tampa and Jacksonville; Florida Department of Environmental Protection (DEP), Florida Department of Agriculture and Consumer Services (DACS) and the US National Oceanic and Atmospheric Administration (NOAA). Collaborations and increased coordination with a greater number of CHDs is progressing as a function of information and education outreach efforts, development of response plans and greater availability of technical and analytical capacity within the Department.

Division Cost: \$971,349 (Grant funding)

Division Positions: 4

County Program Cost: *

County Positions: *

* County staffing and costs are not tracked at a statewide level

The Florida Aquatic Toxins Program has funds for activities related to assessment of human health impacts from HABs including red tide, cyanobacteria, ciguatera, puffer fish poisoning, and newly emerging HABs through September 2007. The Aquatic Toxins Program has been working with the Director of the Division of Environmental Health and the Red Tide Alliance to seek continued funding either through grant opportunities or direct legislative appropriations.

HABs occur throughout the world with Florida having the distinction of being home to all major toxin-producing marine, estuarine and freshwater microalgae. The subtropical warm climate, 1200 miles of coastline, varied aquatic habitats, and the human interface through seafood consumption and from water activities compose an environment where the presence of aquatic toxins can have a significant impact on public health. In Florida, the estimated annual economic impacts from HABs are in the magnitude of millions of dollars with direct effects to both tourism and public health. Approximately \$22 million is attributable to public health issues related to seafood ingestion alone. Additional costs yet to be determined relate to respiratory illness, lost wages due to illness and increased burden on the health care. During the past 2 decades there has been a dramatic increase in the population along Florida's coastline; 80% of the population lives near the coast and greater numbers either vacation or participate in recreational activities at the shore. Coincident with this increase in population, has been an apparent increase in frequency and distribution of toxic blooms. In the waters off Florida, blooms of the toxic dinoflagellate *Karenia brevis* have occurred in the Gulf of Mexico 25 out of 26 years since records have been kept. The geographic extent of the blooms appears to have increased in recent years. The increased reliance of the state on tourism for its economic health together, with an increasing population at risk for exposure to HABs makes the assessment of health related illness from aquatic toxins an important and emerging public health issue.



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Florida residents and visitors have potential environmental exposures to a wide variety of marine toxins which cause human illnesses. Neurotoxic shellfish poisoning, paralytic shellfish poisoning, ciguatera fish poisoning, and puffer fish poisoning are all illnesses caused by eating shellfish or fish contaminated with various toxins produced by dinoflagellates. In addition to risk associated with consumption of contaminated seafood, Florida red tide toxins (brevetoxins) cause respiratory and eye irritations with more serious effects on lung function to sensitive populations such as those with asthma. Research funded by this grant is also evaluating the ability of brevetoxin to accumulate in the edible portions of fish. Issues surrounding the toxicity of various blue-green algae (cyanobacteria) found in Florida’s fresh waters is also an emerging public health concern being evaluated by the Program.

Short Term Objectives

By June 1, 2007:

- Increase documentation of harmful algal bloom-related illnesses with HAB-specific CDC affiliated surveillance system.
- Document health effects from HABs utilizing epidemiological studies.
- Increase awareness of health impacts from aquatic toxins among health care professionals and the general public.
- Develop generic comprehensive community based HAB response plans.
- Develop DOH cyanobacteria toxin analysis capacity within DOH Bureau of Laboratories.

Long Term Objectives

By January 1, 2008:

- Establish county-specific comprehensive community based HAB response plans for 10 high risk counties in Florida.
- Develop re-current funding to support DOH cyanobacteria toxin analysis capacity together with FDOH Bureau of Laboratories.
- Obtain re-current funding for Aquatic Toxins Program within the Department.
- Establish interim recommendations for limiting exposure to harmful algal bloom toxins in recreational water.
- Have capability at CHD level to utilize CDC affiliated surveillance system for collection and analyses of HAB related illness.
- Develop paperless reporting system for cyanotoxin analyses by FDOH Laboratory.

By January 1, 2009:

- Evaluate appropriateness for brevetoxin-associated respiratory illness as reportable disease.
- Integrate reporting and response to HAB events with preparedness programs.



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Measure #1: Continue public health representation to public and private coalitions within Florida and nationally to assure focus on identification, diagnosis, treatment, and prevention of adverse health effects from exposure to harmful algal blooms and their toxins.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Goal: Create a statewide culture of Environmental Health	Sub-goal: Provide the best Environmental Epidemiology assets	Increase DOH representation in Florida-based and national HAB initiatives.	Increase number of institutions in which FDOH has representation for coordination, response and planning activities.	Andrew Reich/ Sharon Watkins	December 2007	Ongoing; ATP provides pivotal role for FDOH by focusing attention on health issues related to HABs by creation of FHABTF technical committees.
		<ul style="list-style-type: none"> Continue collaborative relationships with academic institutions, research labs, and other entities actively involved in HAB research. 	Collaborations with at least three major research institutions on HAB research.	Andrew Reich/ Sharon Watkins	Ongoing	Scientists at UM RSMAS, University of North Florida (UNF), Mote Marine Laboratory and Laboratory and the Lovelace Respiratory Institution are participating in collaborative research activities with DOH; additional collaborations initiated with DEP, WMDs, USGS, and EPA.
		<ul style="list-style-type: none"> Maintain active membership in the Florida HAB Task Force and other Florida based entities. 	Monthly contact with representatives of FWRI (responsible agency for Task Force), Red Tide Alliance, Visit Florida, and the citizen group, Solutions to Avoid Red Tide.	Andrew Reich	Ongoing	ATP and FDEP lead HAB Task Force Technical Panel for Cyanobacteria Analytical and Field Sampling Protocol development. Development of technical guide for HAB response being finalized; Membership in Red Tide Alliance and the Florida Oceans and Coastal Resources Council by ATP secured with continued participation anticipated.



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	Sub-goal: Collect, use and analyze data.	Promote HAB-related public health research	At least 30% of grant funding used to support research.	Andrew Reich	September 2007	Grant funding currently being used to support a variety of research efforts. Additional funding from CDC secured through September 2007 with increased emphasis on surveillance and interpretation of results for human health effects.
		<ul style="list-style-type: none"> Solicit project proposals from academic institutions, private research labs, and other governmental entities with known HAB expertise. 	Contracts with at least 3 entities for Aquatic Toxins research.	Andrew Reich	September 2007	UM RSMAS, Mote, UM SOM, Lovelace, and GreenWater Laboratory are participating in collaborative research activities in Year 03b; projects will be completed by target date
	Sub-goal: Support Community Outreach	Increase the use of current research in educational/outreach materials	Materials developed based on research findings.	Andrew Reich	September 2007	Materials and other communications activities utilizing findings of research initiatives are produced.
		<ul style="list-style-type: none"> Perform scheduled review and updates on DOH literature and websites. 	Material content review and updated on a bi-annual basis.	Andrew Reich	September 2007	Postings on the web site willsite will continue to include proceedings and power points from seminars.
		<ul style="list-style-type: none"> Develop new DOH literature on HABs. 	Brochures and fact sheets produced	Andrew Reich	September 2007	Intra bureau collaborations initiated for development of ciguatera and NSP brochures; Other activities include development of database with inventory of available HAB material in Florida. The information will be used to develop a web site to centralize available HAB materials.



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Measure #2: Provide infrastructure to Department of Health Central Office and County Health Departments to evaluate and respond to public health concerns related to harmful algal blooms.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Goat: Create a statewide culture of Environmental Health	Sub-goal: Collect, use and analyze data.	Improve CHD access to HAB data.	CHDs notified in real time of impending HAB presence in their county	Andrew Reich	Ongoing	Postings on EpiCom and via E-mail with information on active or probably bloom impacts on public health
		<ul style="list-style-type: none"> Increase use by CHDs of ATP website as a reference for appropriate response to HABs. 	CHD targeted materials generated and distributed at DOH meetings and through Intranet.	Andrew Reich/ Sharon Watkins	Ongoing	HAB material disseminated to CHDs at FPHA and FEHA meetings, HABTF meeting; through contacts made via presentations; and via offers by email
		<ul style="list-style-type: none"> Facilitate dissemination of data and reports from public health entities, other agencies, and non-traditional sources 	CHDs provided information to make informed public health decisions	Andrew Reich/ Sharon Watkins	Ongoing	Red-tide affected CHDs receive e-mail notifications of bi-weekly NOAA HAB bulletins when health impacts are predicted. Blue-green algae data and publications sent to affected CHDs as available; Utilization of EpiCom for dissemination of HAB related bulletins.

Measure #3: Increase surveillance of harmful algal blooms, contributing environmental factors, “at risk” populations, harmful algal bloom exposures, and HAB-related health outcomes.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Create a statewide culture of	Sub-goal: Collect, use and analyze data.	Expand surveillance of HAB-related	Presentation of COPD and asthma surveillance findings.	Sharon Watkins/ Andrew Reich	September 2007	Progress has been made in establishing data sharing agreements with various



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Environmental Health		health impacts on asthma and chronic obstructive pulmonary disease (COPD) from existing data collection systems.				institutions. Surveillance activities will be expanded with the addition of an environmental epidemiologist, Dr. Sharon Watkins, in late 2006
		<ul style="list-style-type: none"> Form partnership with FPIC to collect data on exposures to aquatic toxins. 	Receive case data on monthly basis from Aquatic Toxins Hotline/ PCIC database.	Sharon Watkins/Andrew Reich	September 2007	The FPIC has developed a web-based access tool to facilitate real-time access to authorized staff to track HAB related calls and cases; the Center also is developing modules to better describe illnesses which are now misclassified in the national system; other sources of information being evaluated include those at the Agency for Health Care Administration (AHCA), and local hospital medical records.
		<ul style="list-style-type: none"> Access hospitalization and emergency room data from AHCA. 	Data sharing agreement with AHCA or through DOH affiliate program.	Andrew Reich/ Sharon Watkins	September 2007	In Progress. The ATP has access to summary data on asthma deaths and hospitalizations via CHARTS. AHCA began collecting ER data in January 2005. In compliance with HIPAA confidentiality restrictions on patient data, the ATP is pursuing AHCA data acquisition under the health tracking program for wider access to asthma data and



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						other respiratory illness in conjunction with economic impact information; collaborations with Mote Marine Laboratory, UF and UM researchers.
		<ul style="list-style-type: none"> Develop an integrated surveillance system for HABs in Florida. 	Tool developed and disseminated.	Sharon Watkins/ Andrew Reich	September 2007	The CDC developed a multi-state HAB surveillance tool for both environmental and health indicators. Data entry into the federal surveillance tool has begun. Comments and feedback have been provided to CDC. However, greatly expanded efforts to make this system more user friendly will begin with the addition of an environmental epidemiologist in late 2006.
	Sub-goal: Provide the best Environmental Epidemiology assets	Further define and quantify health impacts from exposures to leading HABs through appropriate epidemiological investigations.	Percent of studies planned that were successfully implemented.	Sharon Watkins/ Andrew Reich	September 2007	Both exposed and non-exposed Red Tide Studies scheduled for 2007.
		Participate in a multi-agency study on occupational and recreational exposures to aerosolized red tide toxins (brevetoxins),	At least two studies (one during a red tide and one without red tide exposure) performed annually.	Andrew Reich/Sharon Watkins/Kim Watford	In-progress	Both exposed and non-exposed Red Tide Studies scheduled for 2007.



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		including exposures of sensitive cohorts.				
		<ul style="list-style-type: none"> • Provide epidemiological support on health impacts from exposure to cyanobacteria toxins (cyanotoxins) in recreational and occupational environments. 	ATP takes lead with investigations of reports of illness from freshwater environments	Sharon Watkins/ Andrew Reich	September 2007	The ATP is currently working with DEP to assess rashes reported by parks to determine any association with use of springs. Coordination activities with DEP HQ and state parks; increased surveillance tools and coordination at target sites are being developed. Additional activities related to occupational exposures from scientific field teams are also being facilitated through various federal and state agencies involved in these activities.
		<ul style="list-style-type: none"> • Increase knowledge, skills and abilities within the Aquatic Toxins Program to facilitate assessment of health impacts from HABs and to encourage professional growth of staff within program. 	Each staff member attends at least two training courses per year	Andrew Reich/ Sharon Watkins/ Kim Watford/ Val Grant	Ongoing	Staff encouraged to attend many training opportunities including spirometry education; fiscal management seminars, epidemiology training and public health conferences
		<ul style="list-style-type: none"> • Increase knowledge of 	Hospital records abstractions, case series	Sharon Watkins/Andy	Ongoing	Hospital record abstraction of recent NSP outbreak is



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		health effects of HABS to clarify and expand information available to public health providers.	reports, other epidemiologic investigations as needed	Reich/Regional Epidemiologists		ongoing. Similar investigation pending for recent PSP outbreak. Efforts continue to clarify and expand knowledge of health outcomes related to HABS.
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Measure #4: Increase the number of public health strategies, policies, and guidelines to reduce and/or mitigate the risks of exposure to harmful algal blooms.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Create a statewide culture of Environmental Health	Support comprehensive community-based response capabilities	Facilitate the review and evaluation of public health policies to address HAB considerations.	Recommendations drafted and circulated.	Andrew Reich	September 2007	Draft of Technical Guide in development
		<ul style="list-style-type: none"> Prepare recommendations for the development of community-based response plans. 	Generic Public Health Community Response Plan for HABS.	Andrew Reich	March 2007	Draft Technical Support Manual posted on ATP Sharepoint for comments by CHDs
	Support comprehensive community-based response capabilities	Ensure consistent and efficient response to harmful algal bloom events.	Four high risk CHDs with response plans.	Andrew Reich	September 2007	HAB Task Force working on recommendations for response plans.
		<ul style="list-style-type: none"> Promote ATP website. 	Identification of ATP contact person in each CHD and ensure awareness of Generic Community Response	Andrew Reich	Ongoing	The ATP continues to work to establish relationships with the CHDs through regional epidemiologists, and participation in director



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			Plans.			meetings and conferences. Additional contacts have been made via “Healthy Beaches” staff at CHDs.
		<ul style="list-style-type: none"> Develop Technical Guidance Manual for CHD Staff. 	Technical Manual developed.	Andrew Reich	March 2007	The HAB Task Force is developing recommendations for community-based response plans. The ATP will develop its technical guidance manual based on those recommendations. Framework and contents have been identified and collection of various elements being made.
		<ul style="list-style-type: none"> Establish harmful algal bloom training program for DOH and CHD staff. 	Presentations at CHD meetings; orientations.	Andrew Reich	May 2007	Once materials are developed through contracts, these will be cobbled into a multifaceted and comprehensive training module for CHD staff. Most elements are currently available on the ATP web site; additional needed protocols being developed in concert with “expert” CHD representatives.
	Support comprehensive community-based response capabilities	Establish appropriate HAB guidelines/policies for drinking water consumption.	Guidelines published and circulated.	Andrew Reich	September 2007	In progress.
		<ul style="list-style-type: none"> Review current literature and established guidelines. 	Literature review published with supportive documentation.	Andrew Reich	September 2007	The WHO cyanobacteria guidance documents have been evaluated with support by EH toxicologists; additional literature review ongoing.



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						Guidelines from HAB Programs in other states are being evaluated.
		<ul style="list-style-type: none"> Evaluate effectiveness of standard treatment methods for HAB removal. 	Published research on treatment options.	Andrew Reich	Ongoing	Discussions on sampling and analyses of water , both pre and post treatment, from public water supplies during bloom conditions has been initiated with collaborating CHDs, WMDs, and DEP.
		<ul style="list-style-type: none"> Monitor environmental conditions to determine potential exposure levels. 	Laboratory results on cyanotoxins in bathing areas and drinking water supplies.	Andrew Reich	September 2007	In progress. The ATP is currently developing surveillance strategies.
		<ul style="list-style-type: none"> Complete risk assessment based on available information. 	Risk assessment published.	Andrew Reich	September 2007	New toxicology reviews on cyanotoxins just released by EPA; will be reviewed by FDOH toxicologists
		<ul style="list-style-type: none"> Develop interim recommendations for exposure limits as needed. 	Recommendations published on ATP web site.	Andrew Reich	September 2007	Will be done in concert with the US EPA. The WHO cyanobacteria guidance documents have been evaluated with support by EH toxicologists; New toxicology reviews on cyanotoxins just released by EPA; will be reviewed by FDOH toxicologists



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Measure #5 Provide laboratory capability and capacity to Department of Health Central Office and County Health Departments to evaluate and respond to public health concerns related to harmful algal blooms.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Goat: Create a statewide culture of Environmental Health	Sub-goal: Collect, use and analyze data.	Develop in-house expertise (within DOH Laboratory Program) for analytical assessment of cyanotoxins.	Have redundant laboratory personnel trained in cyanotoxin analyses	Andrew Reich/ Director: Bureau of Laboratories	Ongoing	Collaborative efforts with the DOH Laboratory Program continue.
		<ul style="list-style-type: none"> Finalize High Pressure Liquid Chromatography (HPLC) methodology. 	Documentation of HPLC procedure.	Andrew Reich/DOH Laboratory Scientist	September 2007	With the inability of the FDOH Laboratory to fulfill necessary QA/QC requirements, the capability and capacity of CHDs to collect samples for cyanotoxins has been put on hold. Needed analytical support has been outsourced to a private laboratory. Efforts are beginning to utilize this capacity and begin offering services to the CHDs. With the appointment of a new laboratory director, new efforts will be made to re-establish a relationship with the Environmental Chemistry Program; New Laboratory Director evaluating FDOH initiative to create capacity to analyzed cyanotoxins
		<ul style="list-style-type: none"> Develop Quality Assurance/Quality Control measures. 	Preparation of QA/QC report.	Andrew Reich	Ongoing	The Florida HAB Task Force created, with facilitation by the ATP, a Technical Panel on



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						Cyanobacteria Analytical and Field Sampling Protocol Development coordinated by the FDEP. Conference calls between agencies and other interested entities are developing appropriate guidance documents.
		<ul style="list-style-type: none"> Increase capacity for analysis. 	100 samples/year	Andrew Reich	September 2007	Being provided by contract laboratory

Measure #6: Procure adequate recurrent funding for Aquatic Toxins Program.

Division Strategic Plan		Strategy	Benchmark	Responsible Party	Target Date	Status
Secure adequate funding, flexibility and authority for staff and programs	Sub-goal: Provide continued presence in Florida on HABs and public health impacts	Obtain recurring legislative appropriation for program support including funds for staff, associated activities, and research initiatives	Funds obtained for staff and continued programmatic activities; with research capacity a secondary benchmark	Andrew Reich	October 2007	Grant opportunities are being identified
		<ul style="list-style-type: none"> Gather support from state agencies, non profit organizations, and citizen groups; facilitate educational efforts to key legislators for need for continued funding; develop budget initiative within FDOH 	Projects supporting ATP fully funded which support 4 staff positions	Andrew Reich	October 2007	ATP will be submitting a proposal to the FWC once the RFP on Red Tide Mitigation initiatives is released; additional funding by NOAA through the FDEP Coastal Program is also being pursued.