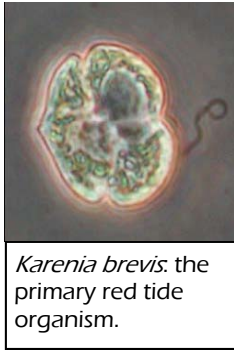


Florida Aquaculture

Mote releases red tide assessment

Mote Marine Laboratory's Marine Policy Institute recently released "An Assessment of Florida Red Tide: Causes, Consequences and Management Strategies." The analysis provides an overview of historical and current red tide research and public discussion, covering areas as diverse as the cause of Florida's red tide and governance issues, to the effects red tide has on Florida residents and marine species and the state's economy.



Karenia brevis: the primary red tide organism.

much has been learned. Yet research has failed to identify a primary cause for the blooms, leading to frustration among policymakers, stakeholder groups and the general public. We can't let unresolved nutrient questions detract from two important agendas: reducing coastal pollution and responding to red tide. Florida needs to reduce coastal pollution for reasons that go beyond red tide, and its response to red tide needs to go beyond reducing coastal pollution. We need to push forward with both agendas regardless of their linkage."

This assessment is broken down into sections that cover the most relevant and important aspects surrounding Florida's red tide.

- "The Causes of Florida Red Tide" addresses bloom dynamics and physiology with a view toward understanding the causes of red tide. After providing some basic background, the section directs its attention toward pressing questions regarding historical trends and coastal pollution.
- "Consequences: Impacts to Marine Life and Human Health" addresses the consequences of red tide with a focus on the toxicology of *Karenia brevis* and its impacts on marine life and human health.
- "Consequences: Economic Impacts" extends the discussion of the conse-

quences that red tides have on the economy and the need for better measures to understand the impacts.

- "Management Strategies" addresses strategies that include prevention, mitigation and control measures and the implications for each.
- "Governance Issues" provides an overview of the regulatory framework pertaining to red tide issues and suggests measures to strengthen governance functions.
- "Conclusion" revisits the assessment's major points.

The full report can be downloaded from <http://www.mote.org/mpi>. Image courtesy Mote Marine Lab.

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Reportable animal disease reminder

Please note that 5C-20.004, Requirement to Report Suspicious Disease Incidents, Florida Administrative Code, requires that any person who has knowledge of, or suspects, the existence of any other unusual animal

disease or pest in Florida which may be a foreign or a newly-emerging disease that might result in unusually high animal loss, economic damage, or is suspected of causing human disease, should immedi-

ately report suspicions or findings to the State Veterinarian during office hours: (850) 410-0900; fax: (850)410-0915; after hours: (800) 342-5869; email: rad@doacs.state.fl.us.

Freshwater shrimp and prawn growers gather

The U.S. Freshwater Prawn & Shrimp Growers Association Annual Meeting will be held December 7-8, 2007 at the Radisson Hotel Opryland in



Nashville, TN. Topics will include current university research, workshops on pond construction, stocking, grow-out, harvest, marketing, and more.

Details of the meeting posted at

<http://www.freshwaterprawn.org>.

For information email usprawn growers@yahoo.com or phone Dolores Fratesi at 662-390-3528. To make reservations call Radisson Reservations toll free number 800-333-3333 or the hotel directly at 615-231-8888 and mention the Association's group rate.

Culturing coral: Rules and regs by Portia Sapp, Division of Aquaculture, Bartow Field Office

The number of Florida aquaculturists growing corals (sea fans, hard or stony coral, or fire coral) is increasing in response to demand by marine aquarium hobbyists. There have been multiple inquiries about the regulations associated with harvesting, growing, and selling coral in Florida, this article will serve to answer questions that the Division has recently received.

If you are interested in actively culturing corals as a business venture, then you may qualify to be certified as an aquaculture facility by the State of Florida. Persons interested in starting an aquaculture facility should apply for an Aquaculture Certificate of Registration issued by the Division of Aquaculture under Aquaculture Best Management Practices, in accordance with Chapter 597, Florida Aquaculture Policy Act, Florida Statutes. For information about the Aquaculture



Certificate visit http://www.floridaaquaculture.com/bad/bad_aquacertify.htm and to review BMPs visit http://www.floridaaquaculture.com/bad/bad_bmp.htm. Applications for an Aquaculture certificate are located at: <http://www.doacs.state.fl.us/onestop/forms/15106.pdf>.

Collecting sea fans, hard or stony coral or fire coral from Florida waters is prohibited except under permit from the Florida Fish and Wildlife Conservation Commission for scientific or educational purposes (Section 370.10(2), Florida Statutes). However the possession and sales of these corals legally harvested from sources outside the state is allowed as long as the source is documented by establishing the chain-of-possession from the initial transaction after harvest by receipt(s), bill(s) of sale, or bill(s) of lading, and any cus-

toms receipts (68B-42.009, Prohibition on the Taking, Destruction, or Sale of Marine Corals and Sea Fans, Florida Administrative Code).

Federal regulations may apply beyond state waters off Florida's coasts (beyond 3 miles off the Atlantic coast and beyond 3 leagues off the Gulf coast). To find and print the federal regulations, visit <http://www.gulfcouncil.org/> for Gulf waters and <http://www.safmc.net/> for Atlantic waters.

For coral collection rules visit the Florida Fish and Wildlife Conservation Commission's commercial marine rules and regulations page at: http://myfwc.com/marine/Commercial_Fisheries_Information.htm.

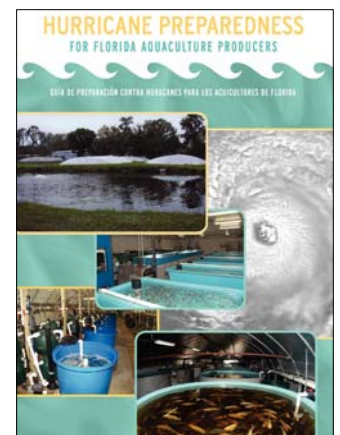
For additional information contact Portia Sapp, 863-519-8459 or gotwalp@doacs.state.fl.us. Image courtesy of Craig Watson, UF-Tropical Aquaculture Laboratory.

Hurricane preparedness DVD available

A hurricane preparedness DVD for Florida aquaculture producers is now available, in English and Spanish, to educate and prepare farmers on how to reduce the potential damage a hurricane can cause to their facilities and crops. The production features advice from many aquaculture farmers who have experienced hurricanes first hand. Free copies will be sent to all Florida Aquaculture Certificate Holders during early September.

If you are not a certificate holder and would benefit from receiving a copy of the DVD, please contact Helen Lopez at Harbor Branch Oceanographic Institute at (772) 465-2400 x 363 or hlopez@hboi.edu.

Hurricane Preparedness for Florida Aquaculture Producers was produced by Harbor Branch Oceanographic Institute and supported by the Florida Department of Agriculture and Consumer Services, Division of Aquaculture, and the Florida Aquaculture License Plate.



Water distribution, minimum flows, and fish resources

Commentary by Dr. Bill Pine, University of Florida

Florida contains over 7,000 lakes, 10,500 miles of rivers and streams, the largest concentration of first-magnitude springs in the world, and receives some of the highest annual rainfall levels in the U.S. While the idea of water as a scarce resource is counterintuitive meeting Florida's water demands in the 21st century for our booming populous will certainly be the biggest challenge for our resource management agencies and citizens.

Cynthia Barnett in her book *Mirage: Florida and the Vanishing Water of the Eastern U.S.* chronicles the transition of Florida from a state where water was too plentiful to a State where water is scarce. A recurring theme in her book is the challenges an increasing population brings. The numbers simply cannot be avoided; Florida has a net influx of about 1,060 people *per day* from the following sources: 1,890 move in, 945 move out, births exceed deaths by 115. To meet this population growth, water managers have to find an additional 200,000 gallons of water daily. However, these freshwater resources are becoming threatened due to rapidly increasing demands to meet human consumption and agricultural needs.

Traditionally Florida has relied on groundwater pumping for the majority of its water supply. Yet in many areas groundwater pumping has far exceeded aquifer recharge rate, leading to mandatory water conservation restrictions and water shortages. As groundwater resources have declined, surface waters including lakes, streams, and rivers have received increasing attention as sources for meeting local – and potentially even intrastate demand.

In 1997 the Florida Legislature expedited the development of minimum flows and levels for state water bodies. These guidelines were

designed to protect water resources from significant harm resulting from permitted water withdrawals. But what defines significant harm and how is this assessed?

Understanding how aquatic organisms respond to water withdrawals and changes in flow are questions needing substantial research. While intuitively “leaving a little water in the river for the fish” is appealing, in reality changes in riverine flows can have large changes in the types of fish habitat that are available, alter the access to historic spawning sites, increase the risk of predation, or magnify the likelihood of an invasive species becoming established. The state entities mandated with managing water (five Water Management Districts) and the agencies responsible for managing the resources that rely on the water (primarily the Florida Fish and Wildlife Conservation Commission) are separate agencies.

The Water Management Districts are taking the lead to rapidly establish minimum flows and levels for water bodies to help meet water demands while the Commission is playing “catch-up” to try and determine how modified flows may impact aquatic resources. This is coupled with little existing historical information on stream and river ecosystems to draw from and very limited staff and funding available to advance Commission's understanding and ability to work with the Water Management Districts to make informed decision.

At a recent Florida Stakeholder's Fish and Wildlife Forum (<http://wild.ifas.ufl.edu>) there were many stakeholder groups in attendance but *none* that represented freshwater fish resources. Where are the stakeholders that will represent

freshwater fish and the waters these species live? If fishery stakeholders are not involved, does this imply that these resources are not as important?

Modifications to riverine flow regimes in Florida through surface and sub-surface pumping to meet water demands should be viewed as a large-scale experiment and research efforts should be directed at developing techniques to predict and test ecosystem responses to flow modifications and associated changes in available habitat.

Stakeholders and management agencies in Florida should work to establish measurable goals related to aquatic resources such as fish populations expressed in terms of real resource issues. While the idea of protecting habitat and setting an adequate minimum flow level are intuitively appealing, without rigorous evaluation of how fish populations respond to these treatments we can not be certain how our resources respond to the chosen management action.

Conflicts between those charged with meeting water demands and those who are charged with protecting the resources who use the water are unavoidable. Uncertainty in resource response to management actions is common. Ultimately value judgments have to be made as to what our aquatic resources in Florida will look like. If stakeholders and agencies decide that stream and river fish resources, game and non-game species, are important to Florida and are valued at the same level as the water that they live in, then adequate financial resources must be made available to the agencies involved in managing these species.

An editorial adapted, with Dr. Pine's permission, from the July 2007 issue of *The Shellcracker*, a newsletter of the Florida Chapter of the American Fisheries Society. Images courtesy of <http://florida.rivers.ifas.ufl.edu/>.



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