

Mark your calendars...

- November 13-18—St Johns County Fair. See www.stjohnsfair.com.
- November 17, 5pm—Awards ceremony for International Year of the Reef Poster Contest. St Johns Co. Ag. Center
- November 27, 10 am-noon—Marine Invasives working group meeting at Fort Clinch. Contact Maia at 904-209-0430 or mpmcg@ufl.edu for more information
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International Year of the Reef

Thanks to all who have entered the International Year of the Reef poster contest—we have some great designs! The posters will be judged in early November, and the prizes will be awarded on November 17th (see side panel). I'm excited about putting together a great 2008 calendar with the winning posters! I'm also working on finding locations to display the posters during 2008—possible sites include the GTMNERR Environmental Education Center and at the St Johns County Fair.

The University of North Florida is advertising for an Environmental Center Director/Environmental Chemistry Professor. Links to this and other marine/environmentally-related job opportunities (most are education positions), are at the job section of the NE Florida Sea Grant Extension website.

M. P. McGuire
Maia McGuire, PhD
Marine Extension Agent



An osprey on its nest

NOAA's Teacher at Sea Program

The National Ocean and Atmospheric Administration's (NOAA) Teacher at Sea program is now accepting applications until December 31, 2007. Since 1990, NOAA's Teacher at Sea Program has enabled more than 500 teachers to gain first-hand experience of science and life at sea.

NOAA's Teacher at Sea Program accepts applications from currently employed K-16 teachers, Teachers may select a cruise aboard one of NOAA's 19 ships, of which there are three main types: fisheries research vessels, oceanographic and coastal research vessels and hydrographic survey vessels. Teachers can expect to be at sea anywhere from one week to a month. Most teachers take advantage of cruises offered during the summer, but cruises take place throughout the year. All necessary travel costs are paid for by the NOAA Teacher at Sea Program. While airfare is paid for upfront by the government, all other necessary travel costs are reimbursed.

For more information please visit <http://teacheratsea.noaa.gov>

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Red tide coming to an end (?)

At the time of writing, there are still some patches of red tide off the coast of NE Florida, but the cell densities along most of our coast seem to be low. This should bring relief to many coastal residents who have spent the last month experiencing the first major red tide event in the region since about 1999.



The red tide dinoflagellate,
Karenia brevis

Red tides in Florida are caused by a plant-like microscopic organism belonging to the group of marine plankton called dinoflagellates. The specific species of dinoflagellate that causes most red tides in the state is *Karenia brevis*. Scientists do not know what causes red tide blooms to start, but blooms (rapid growth rates resulting in high concentration of dinoflagellate cells) are initiated offshore, in nutrient-poor waters. They may be transported inshore by winds and currents, or may remain offshore. Red tide blooms are an annual event in the Gulf of Mexico, but do occur less frequently off the Atlantic coast of Florida and as far north as North Carolina. To date there has been no scientific evidence to link coastal runoff to the formation of red tide blooms. Scientists do say, however, that once the bloom has formed and moved inshore, it is possible that the severity and duration of the bloom might be increased by coastal nutrient runoff.

Red tide dinoflagellates produce a toxin that can affect the central nervous system of fish, birds, mammals and other animals. This is why we see fish kills during red tide blooms. Red tide dinoflagellates are always present in our coastal waters, but usually at low enough concentrations that we do not see an impact on wildlife or humans. The toxin that dinoflagellates produce can cause skin irritation and burning eyes in swimmers--swimming near dead fish is not a good idea. Symptoms from breathing red tide toxins include coughing, sneezing and watery eyes. Wearing a dust-mask may help reduce the effect of red tide toxins, as may the use of over-the-counter antihistamines. During the peak of the red tide, I found that a dust mask allowed me to spend time at the beach without coughing, but if I took the mask off, I had the immediate urge to cough. When winds are blowing onshore (from the NE, E or SE), human impacts will be greater than if the winds are blowing offshore (from the NW, W or SW). People with respiratory problems (e.g. asthma) should avoid red tide areas, especially if there are onshore winds. Fish in freshwater ponds (especially ornamental fish in shallow backyard ponds) may be killed by red tide toxins that are transported through the air.

Commercial seafood found in restaurants and grocery stores is safe because it comes from red tide-free waters and is monitored by the government. Recreational fishermen should not harvest or eat clams, oysters or other mollusks (mussels, coquinas, etc) from areas affected by red tides as they contain a toxin that causes a type of food poisoning called neurotoxic shellfish poisoning (NSP). Fish that are caught live during a red tide can be safely eaten, but should be filleted. People who are handling fish caught in red tide waters may experience skin irritation. Shrimp and crab are safe to eat, even during a red tide. Fish that are found dead or obviously distressed should never be eaten.

Information about health issues relating to red tides can be obtained by calling 1-888-232-8635. The current Florida red tide status report can be obtained online at <http://research.myfwc.com> or by calling 1-866-300-9399.

Plastics in the Ocean

Many of us are accustomed to finding plastic items on local beaches—this summer, participants in one of my day camps collected 123 pieces of trash on one visit to a little-used beach. Many of the items collected were plastic. Some plastic items were clearly identifiable (bottles, straws, etc.), others were simply pieces. It is estimated that about 80% of marine plastics come from terrestrial sources. Unfortunately, plastics do not biodegrade. As they age and weather, plastics simply break apart into smaller and smaller pieces.



Trash accumulated on a Flagler County beach following a storm event. Photo courtesy of Jerry Full.

Beaches around the world are littered with plastic debris. Even the most remote islands, uninhabited by human beings, are becoming inundated with non-biodegradable plastics. Researchers from the Marine Science Department at the University of Hawaii analyzed plastic debris from nine remote locations throughout the Hawaiian Archipelago. A total of 22 20-liter buckets of sand scooped from the surface of the remote beach were collected from the nine sites. The samples were sieved for pieces that were between 1mm and 15mm in size. Of the sample collected, 72 % was plastic! 19,100 pieces of plastic were sorted from the sample. 11% were preproduction pellets, called “nurdles”.

The Algalita Marine Research Foundation, based in Los Angeles, CA conducted a plankton tow in the northern Pacific Ocean using a 333 μm mesh net (collecting anything bigger than 1/3 of a mm in diameter). They found that plastic debris in the North Pacific Gyre outnumbered zooplankton by a ratio of 6:1 by mass, and is increasing. For more information on Algalita’s research, see www.algalita.org. Plastics are showing up more and more in marine food chains—even in the digestive tracts of zooplankton, and in the stomachs of baby sea turtles who have washed back to shore within a few days to a few weeks of hatching.

We can all do our part to try and reduce the amount of plastic entering our oceans. Below are a few simple suggestions:

- Recycle as much as possible. Plastics coded with a “1” or “2” can be recycled by most curbside programs. Monofilament fishing line can be recycled at many tackle shops and many fishing locations around Florida (and elsewhere). See www.fishinglinerecycling.com for more information. Plastic shopping bags can be recycled at many stores.
- Choose to buy glass rather than plastic containers when possible. Glass and much of our beach sand have the same chemical composition, so ground up glass is essentially the same thing as silica-based beach sand.
- Do not release balloons into the air. They will come down somewhere, and may be washed into rivers, lakes or the ocean where they can be mistaken for jellyfish by animals like leatherback sea turtles and ocean sunfish which feed on jellyfish almost exclusively. It is illegal to release balloons which have curling ribbon (or any ribbon or string) attached. Permits are required for release of more than 9 balloons.



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More “Mark your calendars”

- December 8, 10 am—4 pm—NE Florida Marine Science Educators’ Association coral reef workshop at GTMNERR. Contact Angie at 904-823-4500 or angie.golubovich@dep.state.fl.us for more information.
- Upland Habitats Master Naturalist class Jan 18-Feb 22, 2008; Volusia County. For more information, see www.masternaturalist.org.
- Freshwater Wetlands Master Naturalist class Feb 25-Mar 24, 2008; Clay County. For more information, see www.masternaturalist.org.
- February 2, 2008—Water Education Festival at Jacksonville Museum of Science and History. For more information, contact Felicia Boyd at WAVDuval@sjrwmd.com.
- February 27-28, 2008—Sustainable Water Resources Symposium, Gainesville, FL. For more information, see <http://www.treeo.ufl.edu/conferences/water/>
- March 10-14, 2008—“Exploring our Environment—from the ocean to the river” adult day camp. For more information, contact Maia at 904-209-0430 or mpmcg@ufl.edu.

Please check the calendars at <http://calendar.ifas.ufl.edu> for other environmental education programs around the state.

Aqua Notes is provided as one of the many services relating to educational programs offered by the University of Florida/IFAS cooperative extension service. This publication is available on the Web at <http://stjohns.ifas.ufl.edu> or in an alternate format on special request. In compliance with ADA requirements, participants with special needs will be reasonably accommodated with 5 days advance notice by contacting the St. Johns County Extension Service at 904-209-0430. Those needing telecommunications assistance, please call the Florida Relay Service (TDD) at 1-800-955-8771. The use of websites or product names in this publication is not a guarantee, warranty or endorsement of the sites/products named and does not signify that they are approved to the exclusion of others. For more information about this document, contact Maia McGuire at the St. Johns County Extension Service at 904-209-0430.