

### Mark your calendars...

- Nov 18, 7pm: *Tracking the oil from the DeepWater Horizon through the environment*; UF Whitney Lab. See <http://www.whitney.ufl.edu/lectures.htm>
- Nov 20, 10 am—4 pm: Right Whale Festival (Sea Walk Pavilion, Jax Beach). See [www.rightwhalefestival.org](http://www.rightwhalefestival.org)
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## Gulf region still recovering

I'm sure we were all relieved to hear that the Deepwater Horizon Oil leak was finally plugged about 3.5 months after the initial explosion. Recovery efforts are still ongoing, and fishery closures are still in effect for some parts of the Gulf. It is important to remember that commercially-harvested seafood from the Gulf of Mexico (and elsewhere) is safe to eat. If people avoid seafood, this will only provide further economic harm to the fishermen and Gulf coastal region. Information about the oil spill and seafood safety can be found on the Florida Sea Grant website: <http://www.flseagrant.org/>

Some fishing regulations in Florida were affected by the oil (see below). Additionally, this past winter's cold weather affected snook harvest regulations. While the snook fishing season along Florida's Atlantic coast reopened on September 17<sup>th</sup>, the season will remain closed in the Gulf of Mexico, Everglades National Park and Monroe County waters until September 1, 2011. The snook season in the Atlantic is scheduled to close from December 15, 2010 to September 1, 2011.



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## Fishing updates from FWC

- The 10-day blue crab trap closures around the state were cancelled for 2010 because of the Deepwater Horizon oil spill. The FWC is now considering staggering the closures so that they occur every other year, with closures in the St Johns River and from Nassau through Palm Beach County occurring in even-numbered calendar years. Closures from Broward through Wakulla, and Franklin through Escambia Counties would occur in even-numbered calendar years. Interested parties should watch the FWC website (<http://www.myfwc.com>)—look for a public hearing on this proposed revision to the rule in November or December.
- Anglers who like to fish for red snapper will be happy to hear that there will be some opportunities to harvest them in the Gulf this fall. The recreational harvest of red snapper is allowed in Gulf state waters on Fridays, Saturdays and Sundays for eight consecutive weekends beginning on October 1 and continuing through November 21, 2010.
- The FWC is considering increasing the daily recreational bag limit for red drum (redfish) from one fish per angler to two in Flagler through Nassau Counties, and also from Escambia through Pasco Counties. There will be a public hearing on the proposed draft rule in February in Apalachicola.

## Sea turtle updates

Earlier this summer, I was able to participate in one day of a sea turtle research project in Bermuda. This project, headed by Drs. Peter Meylan (Eckerd College) and Anne Meylan (Florida Fish and Wildlife Conservation Commission), has been ongoing for the past 20 years. Although sea turtles do not nest on Bermuda's beaches, many young green and hawksbill sea turtles spend their early years in Bermuda's coastal waters. Each summer, the Meylans and their students come to the island to catch, measure and tag these animals. Blood samples are drawn for later analysis, and the turtles are then released.



A tagged young green sea turtle ready to be released (Bermuda, August 2010)

Sea turtles are long-lived animals. Green sea turtles are thought to be sexually mature between about 20 and 50 years of age. Hawksbill turtles are mature at about 20-40 years old. By tagging young turtles in Bermuda (and elsewhere), then monitoring nesting turtles throughout the western Atlantic Ocean, the Meylans are starting to learn more about these reptiles. This summer, a green turtle that they tagged in Bermuda in 1996 nested on a beach on the Caribbean coast of Costa Rica. It is likely that that female also hatched from a nest laid on a Costa Rican beach.

How does a two-inch-long hatchling sea turtle navigate its way almost 2000 miles from Costa Rica to the 200 square mile submerged platform around the Bermuda Islands, themselves about 650 miles from the nearest land (Cape Hatteras, NC)? It is thought that sea turtles can navigate by detecting variations in the earth's magnetic field. Adult sea turtles that have been tagged with satellite tags will often migrate directly to far-distant locations. It is speculated that chemical cues in the water might help sea turtles to locate a target beach or feeding area at the end of a migration, but it is unlikely that these cues are used to determine the direction of the migration.

A picture is now emerging about the early life history of green and hawksbill sea turtles. Because sea turtle hatchlings are small, they are probably more likely to be steered by ocean currents than are the adult turtles, which can probably swim across currents fairly easily. Most green and hawksbill sea turtles nest in the Caribbean (while most loggerheads nest on Florida's Atlantic coast). It is likely that at least some of these hatchlings become entrained in the Loop Current, which would carry them through part of the Gulf of Mexico, before probably depositing them into the Florida Current and then the Gulf Stream. Less than 1% of sea turtle hatchlings survive to adulthood (some think that number is closer to 0.1%, or one in 1000).

For about a month this summer, the federal and state wildlife agencies with responsibilities for sea turtles relocated sea turtle nests (mostly those of loggerheads, but also green and Kemp's Ridley sea turtles) from parts of the Florida Panhandle, so that hatchling sea turtles would not risk encountering oil from the Deepwater Horizon leak in the Gulf of Mexico. Over 275 nests were carefully dug up, and the eggs and sand placed in Styrofoam coolers. The coolers were then transported to Cape Canaveral, where they were kept in a temperature-controlled warehouse until the eggs hatched. The hatchlings were then released into the Atlantic Ocean. More than 14,500 turtles successfully hatched and were released.

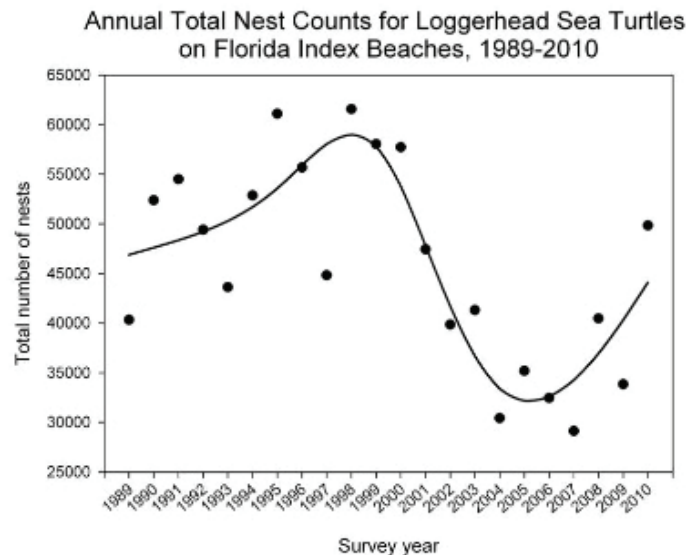
Relocation of sea turtle nests can be detrimental to the embryos. As reptiles, the gender of sea turtle hatchlings is determined by the temperature at which the eggs are incubated. A one or two degree difference in incubation temperature can make the difference between an embryo developing into a male (cooler temperature) or female (warmer temperature). Prior to the early 1980's, nest relocation may have resulted in entire clutches of eggs developing into either all males or all females, as the temperature-sex determination relationship was not well understood at that time. Sea turtle embryos can be

killed if the eggs are rotated once membranes inside the eggs have formed. These egg membranes form about 12 hours after the eggs are laid. Therefore, if nests need to be relocated, they are often moved within those first 12 hours. If not immediately relocated, it is best to wait to move the eggs until the gender has been determined—somewhere around day 20-40 of incubation. In the case of the nests in the panhandle, the eggs were relocated at about day 50-53 of incubation. This allowed for the gender of the turtles to be established in the original nest, and the eggs were carefully handled so as not to rotate them. The eggs hatch after they have incubated for about 55-60 days (the actual time depends on the species of turtle and the temperature of the environment).

### Sea turtle nesting statistics for 2010

According to the Florida Fish and Wildlife Conservation Commission (FWC), all three species of sea turtles that nest regularly on the state's beaches had higher nest counts in 2010 than the previous 10 years' average. This news is especially good for loggerhead sea turtles, which have experienced declines in nesting in recent years. Loggerheads, the species that most commonly nests in Florida, had nest counts that were 30 percent higher than the 10-year average. Nest numbers for leatherback and green sea turtles also continued to increase, with nests in 2010 totaling the second-highest since standardized counts began in 1989.

Scientists with the Florida Fish and Wildlife Conservation Commission caution that while the numbers are encouraging, a single year's data do not mean that there is a trend. It will be several years before they can say if nesting numbers are truly increasing. Volunteers conduct nest counts each summer and report data to Florida's Index Nesting Beach Survey. This survey was created to measure seasonal sea turtle nesting, and to allow for accurate comparisons among beaches and years. The standardized index counts take place on 248 miles of selected beaches along both the Atlantic and Gulf coasts.



Annual total nest counts for loggerhead sea turtles on Florida Index beaches, 1989 – 2010. (Source: <http://research.myfwc.com>)

### Harvest of sea turtle eggs in Costa Rica

Some of you may have seen an e-mail related to the harvesting of sea turtle eggs. There are various versions of the text, but the pictures show people digging up sea turtle eggs in Costa Rica, amid a cluster of nesting turtles. Some images show people carrying large sacks of eggs on their backs. The text implies that the people are stealing the eggs. In reality, while the people are digging up sea turtle eggs, they are doing so as part of an approved annual harvest of Olive Ridley sea turtle eggs. Olive Ridges are unusual because they nest in mass events, known as "arribadas." Thousands of female turtles come ashore to lay their eggs on a small section of beach on the Pacific coast of Costa Rica. This happens over a few days in late summer or early fall each year. There are so many turtles involved that they often crawl over each other and dig nests one on top of the other. Natural predators, including ghost crabs, vultures and raccoons, swarm the beaches after the arribada, feasting on the newly-laid eggs.

Since the mid-1980's, the Costa Rican government has allowed a regulated harvest of Olive Ridley eggs in the community of Ostional. Only members of the local community association can harvest eggs, and they must follow a management plan. Eggs harvested from Ostional are labeled to show their origin, and these are the only sea turtle eggs that can be sold on the market. Members of the community protect their harvest by preventing poaching by outsiders.



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### More “Mark your calendars”

- Feb 2: River Region East Science Fair Judging (FCTC, St Augustine)—JUDGES NEEDED. Please contact Mark Lewis at [lewism@stjohns.k12.fl.us](mailto:lewism@stjohns.k12.fl.us) or 904-547-7529.
- February 4—March 11, 2011: Coastal Master Naturalist Class; Marine Discovery Center, New Smyrna Beach. For information and to register, see [www.masternaturalist.org](http://www.masternaturalist.org)
- Feb 5th, 2011: Water Education Festival, Museum of Science and History (Jacksonville) 10 am—4 pm. Free Admission!
- Feb 28-Mar 6, 2011: National Invasive Species Awareness Week. Check local media to find out about air potato roundups and more!
- April 21—June 2, 2011: Upland Habitats Master Naturalist Class; Clay County. For information and to register, see [www.masternaturalist.org](http://www.masternaturalist.org)

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

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