

EnviroNET

A newsletter of Environmental Management Services,
Volusia County Government



Hatchling green sea turtle



Loggerhead sea turtle

Photo provided by Cathy Thompson of the Volusia Sea Turtle Society

Volusia County sea turtle conservation

This special edition of EnviroNet focuses on sea turtle conservation. The protection and survival of these endangered and threatened animals are critical issues in Volusia County. Through education and cooperation, we can protect these gentle creatures that use the beach habitat we all share.

Marine turtles lay between 400 and 600 nests each year on Volusia County's beaches. Approximately 45,000 hatchlings will emerge from these nests in the sand each year and try to crawl to the ocean for a very long trip offshore.

Odds are against the survival of the hatchlings of this ancient species. Scientific predictions are that one in 1,000 to one in 10,000 will live to reach sexual maturity (about 20 years). The natural predatory dangers mean that only five to 50 of the hatchlings that leave our beaches each season will survive to become adults. Those are the best odds. The chance for survival is lessened by lights that illuminate our beaches at night.

Hatchlings instinctively move toward the lightest open horizon. Artificial light sources outshine the natural glow of the ocean and draw the hatchlings away from the water. Hatchlings crawl toward the light sources and can be lost in the dunes, street, parking lots and storm drains, leaving them weakened and vulnerable to predators, vehicles and dehydration. For sea turtle hatchlings, improperly managed lights are a matter of life and death.

Fortunately, Volusia County enforces a beach lighting ordinance, resulting in a much darker beach than in years past. Coastal residents and businesses can help by shielding lights close to the beach.

"In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught."
-Baba Dioum

What you can do to help sea turtles

In Volusia county, sea turtle nesting season is from May - October. During this time there are many things you can do to protect these magnificent creatures:

- Observe wildlife from a distance. Sea turtles are protected under state and federal laws, which make it illegal to touch or disturb nesting females, hatchlings and nests.
- Remove all beach furniture and trash when you leave to minimize obstacles and entanglement risks for wildlife.
- Ensure that lights do not illuminate the beach at night and that any source of light cannot be seen. This helps to prevent disturbing nesting adults and disorienting hatchlings.
- At night, avoid using flashlights or flash photography.
- Use designated dune walkovers to protect fragile vegetation and habitat.
- Buy a sea turtle specialty tag for your vehicle.
- Drive in designated areas on the beach. Do not park or drive in conservation zones (marked by aqua poles in the driving areas), and watch out for turtle nest barriers.

If you see adult or hatchling sea turtles, dolphins or other marine animals, DO NOT attempt to put them back in the water. Contact one of the following agencies:

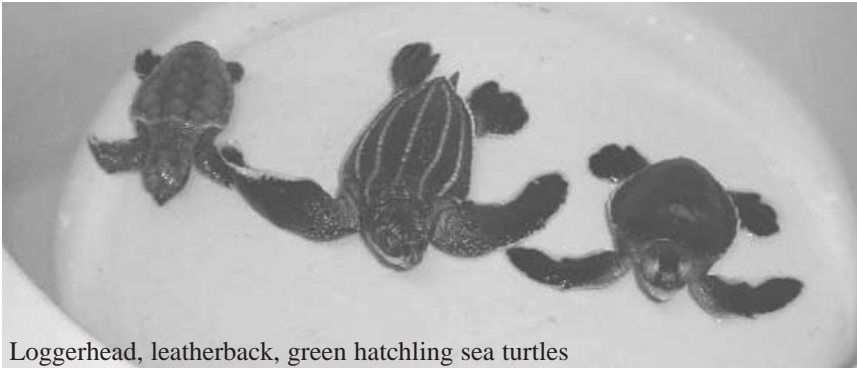
Volusia County Beach Patrol (7 a.m.-7 p.m.) at (386) 239-6484 in Daytona Beach or (386) 424-2345 in New Smyrna Beach.

After hours, please call the Volusia County Sheriff's Office at (386) 248-1777 and press 0, or the Florida Fish and Wildlife Conservation Commission at (888) 404-FWCC.

Nesting sea turtles

Each year, the nesting season on our beaches officially begins May 1 and continues through Oct. 31. Male and female turtles can be found offshore at any time of the year. In late spring and summer, females come ashore to lay their eggs. Each turtle lays three to eight nests in approximately 12-day intervals during a season and then may not nest again for two or three years.

The female turtle crawls from the ocean under the cover of darkness and chooses a nesting site. She digs an egg chamber with her rear flippers, drops her eggs into the chamber, and covers it with sand using all four flippers to disguise the site. Each nest contains an average of 100 eggs that are similar in size to ping pong balls.



Loggerhead, leatherback, green hatchling sea turtles

Hatchling sea turtles

After an incubation period of 46 - 70 days, the hatchlings are ready to leave their nests. The hatchlings must cooperate as a group to work their way up through the sand to just below the surface. They then wait for darkness and the accompanying cooler temperature. That is their cue to emerge from the nest to crawl to the ocean for the long swim offshore. The crawl to the water has many hazards. Ghost crabs wait for passing turtles (or the hatchlings fall into open crab holes), night-feeding birds and feral predators grab the hatchlings, and fish feed on the hatchlings in the surf and open water.

The hatchlings swim nonstop for many days to reach the open ocean and floating sargassum seaweed beds where they find cover and are relatively safe during their first years of life. They feed on tiny jellyfish, crustaceans, seaweed berries and other small inhabitants of the floating ecosystem. After the hatchlings reach Frisbee size, they are less subject to predation and have a better chance of survival.

Conservation efforts

The U.S. Fish and Wildlife Service (USFWS) renewed Volusia County's Incidental Take Permit (ITP) in November 2005. The permit allows daytime public beach driving.

Issuance of the permit was conditioned upon Volusia County's adherence to a variety of measures to minimize the potential to harm the five species of federally protected sea turtles that use the beach as nesting habitat. These measures were detailed in a Habitat Conservation Plan (HCP) that accompanied the ITP application. The HCP provides a framework for managing vehicular access to Volusia County's beaches in a manner and extent compatible with the protection of sea turtles, other critical species, and the natural beach environment.

Managing the HCP involves compiling field data collected by two volunteer monitoring groups that provide Volusia County with nesting information they gather on the beach. Other components of the plan include the creation of non-driving areas for habitat protection, a rut-raking program that removes all obstacles in the driving areas near nests that are due to hatch, management of the lighting ordinance, and detailed instructions on how to respond to different sea turtle emergencies.

Penalties

The following penalties and enforcement provisions are from the Federal Endangered Species Act. (16 U.S.C. 1540)

Penalties: Any person who knowingly violates any provision of the Endangered Species Act may be liable for a civil penalty of not more than \$25,000 for each offense, and a criminal penalty of not more than \$50,000 and/or imprisonment for a period not to exceed one year.

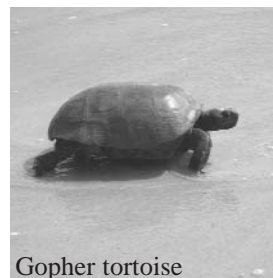
Enforcement: The Endangered Species Act is enforced by the Departments of Interior, Treasury and Homeland Security. Jurisdiction is in the federal district courts.

Citizen suits: Any person may start a "citizen suit" to stop any person, including the U.S. government, alleged to be violating any provision of the Endangered Species Act, or to compel the U.S. government to enforce the requirements of the law.

Sharing our beaches

In addition to sea turtles, there are other protected species that inhabit our coastline. The gopher tortoise, a threatened species, lives in sand dunes where they dig deep homes called burrows to take shelter during storms and extreme weather. Sand dunes also provide shelter and food for the threatened southern beach mouse. Piping plovers, small shore birds, winter along our inlet shores. This foraging environment is so important for the plovers' migration that some beaches have been listed by the federal government as critical habitat.

We must work together to conserve wildlife habitat and educate others on how they can share the beaches. Picking up trash, avoiding groups of resting and nesting birds, and not feeding wildlife are simple ways you can help.



Gopher tortoise

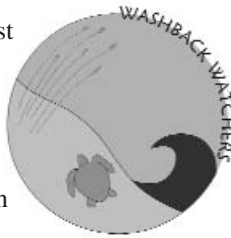


Piping plover

Volunteer opportunities

Volusia County Environmental Management has two volunteer programs for local beachgoers.

- If you are interested in looking for more than just seashells at the beach, join the Washback Watchers. This volunteer team is trained to find and rescue young sea turtles that wash ashore due to heavy winds and surf. Volunteers are able to look for the sea turtles among accumulations of seaweed within different beach zones. Training usually takes place in July.



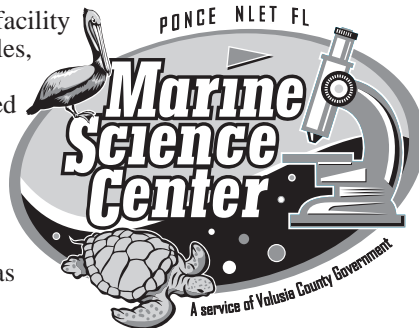
- Want to take care of your favorite mile of beach along Volusia County's coastline? The Adopt-a-Beach program is a great way to do your part in keeping Volusia County's beaches clean. With support and supplies, adopters (families, companies, organizations) clean their mile at least four times a year.

For more information or to sign up for either program, contact Volusia County Environmental Management at (386) 239-6414 ext. 33 or 34.

Volusia County Marine Science Center

Located in Ponce Inlet near Lighthouse Point Park, the Marine Science Center provides an innovative learning experience where visitors can discover, enjoy and appreciate the many wonders that embody the world of marine science in Volusia County. Of particular interest are the sea turtle and bird rehabilitation areas.

Seven turtle pools, in front of the main facility house injured and rehabilitating sea turtles, hatchlings and washbacks (recently hatched young sea turtles that are washed back to shore by rough seas and strong onshore wind.) The hatchlings, washbacks and rehabilitated sea turtles are released upon full recovery. Depending on available space, the Marine Science Center accepts turtles locally and from as far away as New England.



The bird rehabilitation area has received more than 115 species of birds and, on average, receives approximately 700 birds per year.

To report the finding of an injured bird or turtle, call (386) 304-5545.

Outside the rehabilitation areas, guests can view aquarium displays, enjoy a nature walk down a boardwalk to an observation tower, or become involved in classroom activities.

To learn more about education programs, such as school field trips, summer camps and adult programs, please visit www.marinesciencecenter.com. The Marine Science Center is open Tuesday - Saturday, 10 a.m. - 4 p.m., and Sunday, noon - 4 p.m. (Rehabilitation staff is available seven days a week.) General admission is \$3 for ages 13 and older, and \$1 for children age 5 to 12. Children under 5 years of age are free (price includes state sales tax).

SEA TURTLE



Adoption

Since 1984, the Volusia Sea Turtle Society and the Volusia Turtle Patrol volunteers have worked tirelessly to help protect nesting turtles, their nests, and hatchlings on our local beaches. Both organizations are nonprofit and work on very limited budgets.

You can help to support these groups by adopting sea turtle nests. For a \$25 donation, you will receive an adoption certificate in your name and information about "your" nest. Information includes the address of the nest, the date the nest was laid, date of hatch, how many hatchlings emerged and information about the group's efforts. Early risers are encouraged to volunteer in the local monitoring efforts.

For more information, please contact:

Volusia Sea Turtle Society
(south of Ponce Inlet)
P.O. Box 2524
New Smyrna Beach, FL 32170
(386) 423-4278

Volusia Turtle Patrol
(north of Ponce Inlet)
4738 S. Peninsula Drive
Ponce Inlet, FL 32127
(386) 763-0977

If you should see...

If you should see a stranded sea turtle, a dead sea turtle, hatchlings or a turtle nesting during the day, please report this information to the nearest lifeguard or Beach Patrol officer. Or, please call the Volusia County Beach Patrol at (386) 239-6484 (Daytona Beach) or (386) 424-2345 (New Smyrna Beach).

Public turtle walks

If you want to see a nesting sea turtle, you can join a state-approved and organized turtle walk.

Permitted walks usually are offered May - July. Leaders of this walk are trained to aid the public in watching sea turtles without disturbing them.

For a list of organized walks, call
(850) 922-4330 or (561) 575-5407,
or visit

[http://www.myfwc.com/seaturtle/
Education/2006_watches_List.htm](http://www.myfwc.com/seaturtle/Education/2006_watches_List.htm)

Managing light

Protecting sea turtles, saving energy

Artificial light that shines onto the beach disrupts critical night behavior of adult and hatchling sea turtles. Fortunately, light from homes, condominiums, businesses, signs, streetlights and other structures near the beach can be managed effectively so they do not harm sea turtles. This can be accomplished without a great deal of effort, expense or compromise to personal safety, security and convenience. In many instances, good light management improves the appearance of the property and reduces energy costs.



Be a considerate beach user and minimize beach lighting

The lighting issue

On beaches where artificial light is visible, hatchlings' crucial journey to the ocean is disrupted. Hatchling sea turtles emerging from nests at night are attracted to light sources along the beach and will crawl toward streetlights, porch lights or interior lighting visible through windows. Disoriented hatchlings may fail to find their way to the ocean, succumbing to attacks by predators, or becoming weak and dehydrated by the morning sun.

A single light left on or near a sea turtle nesting beach can disorient and kill hundreds of hatchlings. Cases where hatchlings have crawled to their deaths into the flames of unattended fires are testimony to the strong attraction hatchlings have for light.

Artificial lighting also affects the nesting of female sea turtles. Studies have shown that brightly lit beaches are used less frequently as nesting sites. In addition, females attempting to return to the ocean after nesting can be led astray by nearby lighting.

Failure to protect sea turtles from harmful lighting can result in hearings before the Volusia County Code Enforcement Board. This board has the ability to fine violators up to \$1,000 per day for an initial violation; \$5,000 per day for repeat violation, or a one-time fine not to exceed \$15,000. Criminal and/or civil prosecution by Florida and/or the U.S. government may result if lighting harasses or causes a sea turtle injury or death.

The most important aspect of light management is to confine light to the property and not let it stray onto the beach. The greater the amount of light near the beach, the greater the potential for harm to sea turtles. Evaluate the level of light illumination and, if possible, implement some of these recommended changes.

- Position fixtures so the light source cannot be seen from the beach.
- Aim lights down and away from the beach.
- Apply shields to light fixtures.
- Eliminate fixtures that allow light to shine in many directions. Replace them with fixtures that direct light only to the area where it is needed.
- Recess porch lights into the underside of a structural component, such as a beam, arch, staircase or cornice.
- Lower the mounting height of pole lights.
- Position walkway fixtures close to the ground.
- Plant native vegetation to block light from shining on the beach.
- Replace blue, green and white emitting lights with long wavelength lights that appear yellow, amber and red to the human eye, such as bug lights. Colors at the red end of the spectrum are less visible to sea turtles.
- Replace high-pressure sodium vapor parking and security lights with shielded low-pressure sodium vapor lights.
- Turn off nonessential lights during sea turtle nesting season.
- Eliminate accent lights and decorative fixtures.
- Reduce the number of fixtures used to illuminate the property.
- Reduce the wattage of bulbs used in exterior fixtures.
- Place lights on timers so they are on only when needed.
- Place security lights on motion detection settings so they activate only when someone is on the property.
- Install 45 percent transmittance window tint (saves on energy costs too.)
- Position interior lights away from windows.
- Draw curtains and window shades at night so interior light does not shine to the beach.
- Do not use flashlights and lanterns on the beach at night during turtle nesting season. Bonfires are prohibited on the beach.

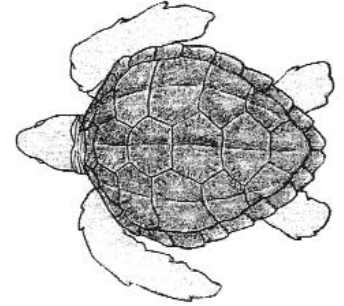
To report disoriented hatchlings at night, please call the Volusia County Sheriff's Office at (386) 248-1777 (Daytona Beach) or (386) 423-3888 (New Smyrna Beach), and press 0 after the recorded prompt.

A reference guide to Volusia County's sea turtles

Loggerhead (*Caretta caretta*)

Length: 38 - 45 inches (96 - 114 centimeters)
Weight: 250 - 350 pounds (113 - 159 kilograms)
Distribution: Subtropical areas, all oceans
Diet: Mollusks and crabs
ESA status: **THREATENED**

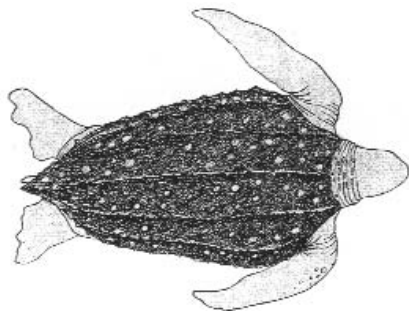
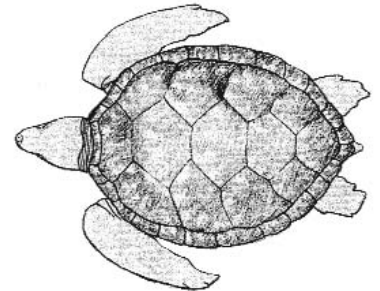
The loggerhead sea turtle is a large, reddish-brown turtle and is the most common sea turtle encountered in the southeastern United States. Loggerheads get their name from the exceptionally large head. This large head and enlarged jaws make it possible to crush the hard shells of their prey.



Green (*Chelonia mydas*)

Length: 25 - 43 inches (63 - 109 centimeters)
Weight: 250 - 400 pounds (113 - 181 kilograms)
Distribution: Tropical and subtropical oceans
Diet: Sea grasses and algae
ESA status: **ENDANGERED** in Florida and the Pacific coast of the Mexico
THREATENED in all other areas

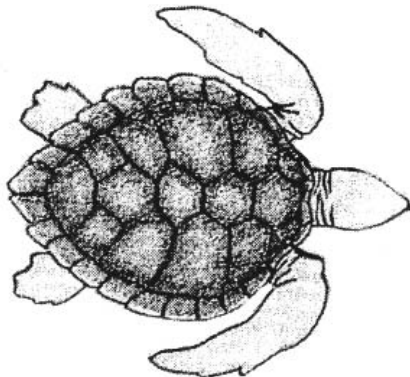
The green sea turtle is a medium to large, greenish-brown sea turtle with a radiating or mottled pattern of markings on its carapace (shell). The bottom edge of the lower jaw is serrated to aid in the grinding of the vegetation they eat. The plants they consume cause their body fat to be green, which is why they are referred to as the green sea turtle.



Leatherback (*Dermochelys coriacea*)

Length: 60 - 100 inches (152 - 254 centimeters)
Weight: 710 - 1,300 pounds (322 - 590 kilograms)
Distribution: Nests in tropic and subtropics, wanders to temperate, even sub-Artic, water
Diet: Jellyfish
ESA status: **ENDANGERED**

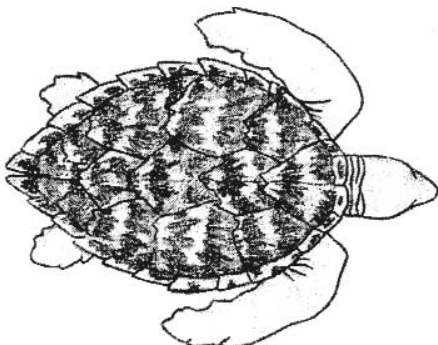
The leatherback sea turtle is the largest of all sea turtles and is black with white blotches. The carapace lacks scutes (shell scales) and is covered by firm, rubbery skin with seven longitudinal ridges or keels.



Kemp's Ridley (*Lepidochelys kempi*)

Length: 23 - 26 inches (58 - 66 centimeters)
Weight: 80 - 100 pounds (36 - 45 kilograms)
Distribution: Gulf of Mexico and North Atlantic
Diet: Crabs and mollusks
ESA status: **ENDANGERED**

The Kemp's Ridley is the smallest and most endangered sea turtle. The broadly oval-shaped carapace is usually olive-grey, or charcoal for the younger ones. Kemp's Ridelies are daytime nesters and occasionally nest in Volusia County.



Hawksbill (*Eretmochelys imbricate*)

Length: 28 - 36 inches (71 - 92 centimeters)
Weight: 80 - 100 pounds (36 - 64 kilograms)
Distribution: Tropical oceans near coral or rocky reefs
Diet: Invertebrates, vegetation and sponges
ESA status: **ENDANGERED**

Hawksbills are small to medium-sized sea turtles with a very attractively covered carapace of thick, overlapping scutes – the source of the “tortoise shell.” The Hawksbill is named for its distinctive hawk-like beak.



Leatherback sea turtle

Photo provided by Cathy Thompson of the Volusia Sea Turtle Society

Internet resources

Volusia County Sea Turtle Program:
www.volusia.org/environmental/natural_resources
Archie Carr Center for Sea Turtle Research: <http://accstr.ufl.edu>
Caribbean Conservation Corporation: www.cccturtle.org
Canaveral National Seashore: www.nps.gov/cana/cturtle.html
Department of Environmental Protection: www.dep.state.fl.us
Environmental Protection Agency: www.epa.gov
Florida Fish and Wildlife Conservation Commission:
www.floridaconservation.org
Florida Marine Research Institute: www.floridamarine.org
International Dark-Sky Association: www.darksky.org
National Marine Fisheries Service: www.nmfs.noaa.gov
Nature Conservancy: www.nature.org
Ocean Conservancy: www.oceanconservancy.org
U.S. Fish and Wildlife Service: www.fws.gov
Volusia County Marine Science Center: www.marinesciencecenter.com
Volusia Turtle Patrol: www.turtlepatrol.com
Volusia Sea Turtle Society: www.volusiaseaturtlesociety.org

Be a volunteer... You can make a difference. EnviroNet needs you.
If you have an interest in helping the environment, please call us at (386) 736-5927. You also can volunteer online at www.volusia.org/environmental

Printed on recycled paper.

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Volusia County's efforts

Writing, adopting and implementing the first federal Habitat Conservation Plan for sea turtles. The plan outlines all aspects of sea turtle conservation and research applicable to our beach habitat and our unique marine turtle nesting population.

Limiting beach driving during nesting season (May 1 - Oct. 31), 8 a.m. - 7 p.m. This allows time for the staff and volunteers to identify the nests and place protective barriers around them in the early morning. Daytime driving also allows time for the hatchlings to reach the water safely and females to lay their eggs at night.

Removing vehicle ruts in front of nests that are due to hatch. This allows the tiny hatchlings clear passage from their nests to the water.

Maintaining and enforcing a conservation zone east of the sand dunes, permitting upland structures to enhance dune formation, vegetative growth and habitat preservation.

Implementing and enforcing lighting rules that restrict illumination on the beach. This is so nesting turtles are not deterred by lights and the hatchling turtles can find the ocean by crawling toward the brightest open horizon, as they would on a natural undeveloped beach.



Green sea turtle

