

# STRANDINGS

Newsletter of the Southeast United States Marine Mammal Health And Stranding Network  
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## CSI Lafayette: Cetacean Stranding Identification

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Imagine you are walking along the beach enjoying a pleasant stroll, picking through seashells, and relaxing with the sound of the waves gently breaking on the shore. When all of the sudden the first whiffs of decomposing flesh flare your nostrils and you look down the beach only to discover the remains of a dead marine mammal. You abruptly turn around, call your local stranding network and stay away from that part of the beach for a few days.



Karen Sayles, NOAA Fisheries Service Beaufort Lab

This animal was initially identified as a pilot whale, but genetic testing later indicated that it was actually a Risso's dolphin.

While all stranding events might not take place exactly as depicted above, what happens once a call comes in is generally the same. The first responders arrive, assess the situation, record important facts, examine and identify the carcass and either dispose of the remains or save them for a later necropsy. However, it is not always easy to identify a dead animal simply by looking at it. Sometimes it is necessary to take a closer look; in these situations genetics can help.

At the Southeast Fisheries Science Center Laboratory in Lafayette, Louisiana, the Marine Mammal Molecular Genetics Lab (MMMGL) is composed of technicians and graduate students utilizing and developing various molecular techniques to help study and understand aspects of cetacean biology, primarily dealing with conservation and management implications. An ongoing project at the MMMGL is to work along with the other NOAA Fisheries labs in both the Southeast and Northeast regions as well as the stranding networks to share and contribute information that is relevant to marine mammal issues in our area of the country. One of the ways we are able to work along with other centers is to use our genetics techniques and lab resources to give an identity to the unknown animals and strange blobs that wash up along the coastal southeastern US.

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## Coordinator's Corner by Blair Mase-Guthrie

Southeast U.S. Stranding Network Coordinator



### Critical Decisions on the Beach



We've all been there before, a dolphin washes up on the beach, it looks like it's in pretty good condition, alert, responsive, no external wounds, and then the crowd slowly amasses firing questions. "How?" "Why?" "Can you save it?" Wide-eyed children are looking at you with their faces full of hope, the press shows up making claims on live television that your organization is going to save the dolphin or whale! The pressure becomes so great that you feel like there is no other option than to take this animal into rehabilitation living up to the expectations of the public, media etc. In some cases the decision to take an animal in for rehabilitation is a good one; it is successfully rehabilitated and released. But in some cases thousands of dollars are spent trying to keep an animal alive that would eventually die, and somewhere in the back of your head you wonder if you should have brought it in for rehab in the first place....

Yes, the public may have certain expectations, but by being transparent in your thought processes and the questions that need to be addressed you can help them understand and ultimately support your decision for that animal whether it is to release, transport, hold for monitoring, or euthanize.

The importance of making critical decisions on the beach cannot be over-emphasized. Asking responsible questions prior to taking an animal to a rehab facility will help avoid possible long-term problems. For example, a dolphin that has been severely maimed and is not likely to be released may be difficult to permanently place later; or a neonatal beaked whale that would not be releasable and may not have an appropriate social network in captivity. Resources are limited for marine mammal rehabilitation efforts; thus, the practical investment of staff and finances into animals, which are the best candidates for release, makes the most sense. Of course, the outcome cannot always be predicted, but setting the stage by addressing the above questions can go a long way.

Prudent decision-making strategies are key when dealing with mass strandings. Addressing the critical question, "Which animals have the highest chance of survivability?" during triage on the beach often in challenging conditions can make those decisions very challenging. Working with veterinarians and coming up with certain health, behavioral, and social parameters beforehand can relieve some stress, and improve effective response on the beach. There are now certain resources which are becoming widely available to us such as iSTAT® machines, which can help in the process by evaluating blood parameters in a timely manner. This item alone can give us some insight and provide us better information when making those tough decisions on the beach.

So the next time you find yourself on the beach faced with those challenging decisions ask yourself the following: what are the long term possibilities for this animal, will it be a possible release candidate, is it a place-able animal, does our organization reasonably have the resources and staff available to care for this animal long term? The answers to these questions can help ensure that you are maximizing your resources and efforts towards an end that will ultimately protect the well being of the animal and populations we are here to safeguard.

## CSI Continued from page 1

On occasion, the species and sometimes genus of a stranded animal cannot be determined in the field because the animal is in an advanced stage of decomposition upon arrival of stranding responders. Identification of species within a genus can be extremely difficult even for some live or fresh strandings. For example, determining the difference between long-finned and short-finned pilot whales, can be difficult in the field, particularly when the animals are young. The same problem is encountered for beaked whale species in the genus *Mesoplodon*. Also, distinguishing among members of the genus *Stenella* and identifying offshore and coastal forms of *Tursiops* can be difficult because many of these species share similar body shapes and sizes, and some may have similar coloration patterns that can make identification even more difficult. However, cases such as these most often can be positively identified to the species level using genetic techniques.

The MMMGL has been contributing identification data since it was started in 1998 in Charleston, SC (we moved to Lafayette, LA in 2004). Since this time we have received numerous samples from all over the Southeast region. To date, including stranding and rehabilitation events, we have successfully identified 141 of 142 unknown species that were sent to us for the specific purpose of species identification (Table 1).

Table 1.

Table 2.

Location	Number of species ID cases sent to MMMGL	Location	Number of sex ID cases sent to MMMGL
Maryland	5	Maryland	0
Virginia	37	Virginia	1
North Carolina	54	North Carolina	4
South Carolina	8	South Carolina	0
Georgia	5	Georgia	0
Florida	17	Florida	2
Alabama	0	Alabama	0
Mississippi	0	Mississippi	0
Louisiana	1	Louisiana	0
Texas	0	Texas	0
Bahamas	15	Bahamas	0
Total	142	Total	7

The one animal we were unable to positively identify with confidence stranded in 1996 on a beach in North Carolina. In the field it was found moderately decomposed (code 3) and identified as a *Stenella*, with species unknown. Although we were able to determine that the animal's mitochondrial DNA sequence was most similar to the mitochondrial DNA sequence of *Stenella coeruleoalba* (striped dolphin), the similarity was not significant enough to allow for a positive identification. In total we have been able to identify samples collected from 12 cetacean genera and 21 species, with a majority of those identifying as bottlenose dolphins, (Figure 1). Most often the stranded animals we are asked to identify are a code 3 or 4 (65%, Figure 2), but we have also received and successfully identified code 5 animals.

Because of the potential for success with even a code 5 carcass, every stranded animal is worth collecting from. We have also successfully determined the gender for all of the sex ID cases we have received (Table 2). The time it takes for us to complete a species or sex ID case depends mostly on the quality of the DNA, which is typically great with a code 1 and significantly worse with a code 5. Generally if all goes well it would take about two weeks upon initially receiving the sample in the mail to provide conclusive results.

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## CSI Special

## ◀ Interesting Stories From Lafayette ▶



Shark liver

One of the most unique specimens the lab was asked to identify was from a strange mass that had washed up on the shores of southeastern Florida in 2003, sent to us by Ecological Associates, Inc, in Jensen Beach, FL. The specimen was in a state of advanced decomposition and was initially identified as a partial chunk of a liver. We were able to successfully amplify a portion of the mitochondrial DNA with the same protocols and reagents used for marine mammals. We first ran the sequence through our own database of marine mammal sequences and were unable to find any matches. Next we went to an online database (GenBank) containing genetic sequences of all types of animals and the results were very interesting. Based on DNA sequence comparisons, it appeared that the liver did not belong to a marine mammal at all, but with strong support was grouping with various species of sharks. Dr. Thomas Greig from the NOAA Center for Coastal Environmental Health and

Biomolecular Research at Charleston, SC, donated reagents specifically designed for shark species and we were able to positively identify the liver as belonging to a bull shark.

Another unusual identification case arrived in our lab in 2003 sent to us from the SEFSC in Beaufort, NC. Along a North Carolina beach, a local boater discovered and reported what he thought to be decomposing remains of an elephant. Because wild elephants have not been in North America since the Pleistocene about 13,000 years ago, the idea that one had turned up on a beach was rather odd. Upon arrival at the scene the stranding responders were able to quickly determine that the decomposed skeletal remains were not those of an elephant, but a large, severely

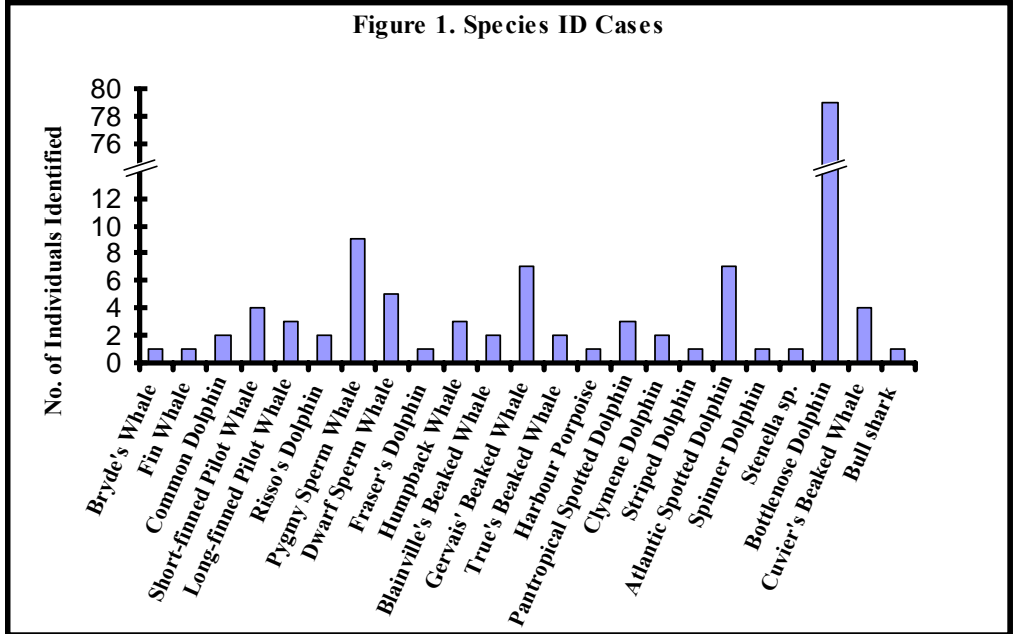


Decomposing fin whale. The whale was first reported by a local boater who thought it might be an elephant washed up on this NC beach.

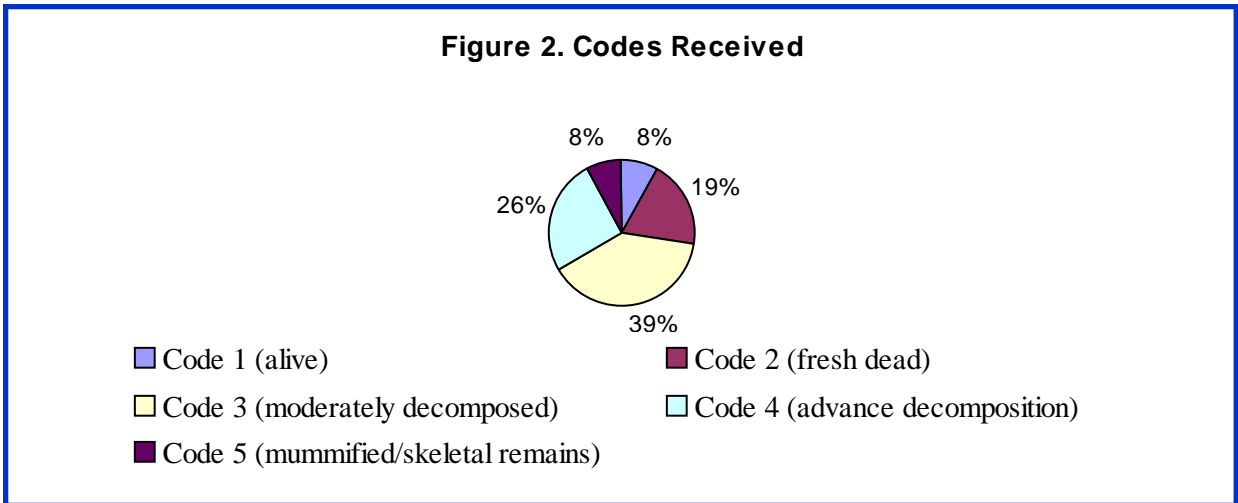
decomposed whale. (See photo) At the lab we were able to ease the fears that wild elephants were roaming free on the secluded shores of North Carolina by positively identifying the specimen as a fin whale.



CSI Continued from page 3



It is important to be able to identify animals to the species level for many reasons. Combining species identity with the cause of the stranding is essential to determine which species are being affected by biotic factors such as harmful algal blooms or a morbillivirus outbreak. It is also important to identify which cetacean species are being incidentally impacted by human or fisheries interactions. During the 2005 Unusual Mortality Events that struck both the western Florida coast and the panhandle, it became important to identify not only the species and sex of every stranded animal but also the morphotype of the bottlenose dolphins so that the extent and severity of the event could be accurately assessed. Knowing whether or not coastal or offshore morphotypes were affected would aid in recognizing the scope of the stranding event. Also, knowing *Tursiops* morphotype may also aid decisions concerning releasing a rehabilitated animal so that upon release it can be taken to the habitat that will maximize its chances for survival. Finally, genetic identifications or confirmations of animals stranding out of their normal range can help further our understanding of habitat use or changes in distributions.



**CSI Continued from page 5**

The cooperation and coordination of those in the field, behind the desk and in the lab is necessary to find answers to questions that arise with each stranding event. The collaboration between SEFSC laboratories, including the MMMGL, and the stranding network is providing data and information that is important and essential to gaining a better understanding of the current and future status of marine mammals in the southeastern US.

**◀ Tips for Collecting Samples for Genetic Analysis ▶**

In addition to using samples collected from strandings in ongoing research projects on marine mammal population structure, relatedness and evolutionary history, the SEFSC Marine Mammal Molecular Genetics Lab also strives to archive tissues (mainly skin) and DNA for future research projects. DNA quality is correlated with the degree of decomposition, but we view every carcass, regardless of its condition, as a potential source for genetic information. Successful use of a sample can be enhanced by:

- Avoiding cross-contamination of samples. Always use a new, clean blade for sampling each animal.
- Collecting from the least decomposed looking area on the body.
- Collecting from the underside, or an area that has been in the least direct sunlight.
- Never preserve samples in formalin for DNA analysis.
- Collect skin or other tissue samples, (2 or 3 strips 0.5 x 3 cm), and place in labeled vial with 20 % dimethylfoxide (DMSO) in saturated NaCl. Soft tissues may also be frozen.
- It is not necessary to collect blubber samples for genetic testing; as little blubber as possible is preferred.
- Blood has value when collected from live or freshly dead animals. Heart, muscle, kidney and liver are useful from code 2-3 animals. Skin and bone can be useful years after death.
- Label all tubes carefully with field number.
- If a tissue sample is frozen, do not allow it to thaw and make sure to ship it overnight on dry ice.

For more information, to request collection vials, or to submit samples, please contact NOAA Fisheries Southeast Region Science Center, Lafayette Lab at (337) 291-2123, or by fax at (337) 291-2106. Mail samples to NOAA Fisheries 646 Cajundome Blvd. Rm. 234, Lafayette, LA 70506-4291.



## Southeast Region Stranding Summary

### June 1, 2006 to November 30, 2006

Species	AL	FL	GA	LA	MS	NC	SC	TX	PR	Total
Hooded seal <i>Cystophora cristata</i>		3				3			1	7
Pygmy Sperm whale <i>Kogia breviceps</i>		1	1			7		1		10
Dwarf Sperm whale <i>Kogia sima</i>		2				2				4
Melonheaded whale <i>Peponocephala electra</i>						1				1
Harbor seal <i>Phoca vitulina</i>						1				1
Sperm whale <i>Physeter macrocephalus</i>		1								1
Striped dolphin <i>Stenella coeruleoalba</i>		1								1
Spinner dolphin <i>Stenella longirostris</i>									1	1
Atlantic Spotted dolphin <i>Stenella frontalis</i>						1	1			2
South American Sea Lion <i>Otaria flavescens</i>									1	1
Bryde's whale <i>Balaenoptera edeni</i>		1								1
Rough-toothed dolphin <i>Steno bredanensis</i>								1		1
Bottlenose dolphin <i>Tursiops truncatus</i>	3	78	2	4	1	31	20	20	1	159
Blainville's beaked whale <i>Mesoplodon densirostris</i>						1				1
Unknown cetacean		3				1				4
<b>Total</b>	<b>3</b>	<b>90</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>48</b>	<b>21</b>	<b>22</b>	<b>4</b>	<b>196</b>

Southeast Regional News



Alabama

Alabama had three bottlenose dolphin strandings between June and November. Two of those, one male and one female, were on Dauphin Island. One male stranded dead in Mobile, AL.

Florida

Florida had a total of 90 strandings between June and November. 78 of those strandings were bottlenose dolphins. Other species include a 51 ft. sperm whale that stranded alive on Big Pine Key, and 3 hooded seals.

The sperm whale was euthanized by administering large doses of sedatives. The carcass was too large to haul onshore in order to perform a necropsy, so it was towed out to the Gulf Stream. Three days later it washed up to rest just north of the west end of the Seven Mile Bridge outside Marathon. There was an extreme amount of poaching, but the majority of the stolen bones were recovered by NOAA Fisheries law enforcement in the Keys, and the skull was sent to Florida State University.



Stranded sperm whale.

Two of the hooded seals that stranded in Florida were taken in and cared for by the Harbor Branch Oceanographic Institution.

The seals have recuperated sufficiently enough to endure a trip via a donated private jet to Brigantine Marine Mammal Stranding Center, a facility that is equipped to care for cold water animals, located in NJ. The seals were successfully released to the wild on January 10, off the coast of Rockport, Massachusetts. The third seal was taken to Sea World Orlando, where it later died.



Hooded seal being captured near West Palm Beach where it was found.

Harbor Branch Oceanographic Institute 2006

The "Protect Wild Dolphins" license plate program generated \$330,000 in 2006, \$30,000 of which has been designated for reimbursement of SEUSMMSN members.

Clearwater Aquarium conducted the successful release and post release monitoring of two bottlenose dolphins "Mandy" and "Troy." The two dolphins were cared for by Clearwater Aquarium staff for two months after being rescued from a very shallow canal nearby.



Mandy and Troy swim off together after they were successfully rehabilitated and released by Clearwater and HBOI staff.

NOAA Fisheries

Florida Keys Marine Mammal Rescue Team 2006



## Georgia

Between June and November of 2006, Georgia had 2 bottlenose dolphin strandings, and one pygmy sperm whale stranding.

Georgia Department of Natural Resources hosted an Atlantic Large Whale Disentanglement Network refresher course on November 26th, 2006. Training was led by Greg Krutzikowsky of the Provincetown Center for Coastal Studies. Staff from Florida Fish and Wildlife Conservation Commission and Georgia Department of Natural Resources practiced buoy attachment techniques.

The Georgia Marine Mammal Stranding Network will be working with Dr. Daniel K. Odell to age sperm whales and bottlenose dolphins that stranded on the Georgia Coast. Tooth samples from 25 Georgia animals were recently transferred to Dr. Odell for tooth aging.

## Louisiana

Louisiana had four strandings between June and November, two of which were live strandings. The first live stranding was a bottlenose dolphin caught behind a levy. It was captured and released into the Gulf of Mexico. The second live stranding was also a bottlenose dolphin that was captured and brought to a rehabilitation facility.

NMFS SEFSC Lafayette requests that tissue samples (skin, muscle, kidney), be sent to them from every stranding responded to. Tissue can be placed in the preservative solution of saturated salt (NaCl) and 20% DMSO (which they can provide).

## Mississippi

Mississippi had 2 bottlenose dolphin strandings between June and November of 2006.

The Pascagoula Lab was severely damaged by hurricane Katrina. The building has been demolished, and rebuilding efforts are expected

to begin this year. Until then, the lab and its staff are being housed in a collection of FEMA supplied trailers. This arrangement is expected to be in place for the next two years.

## North Carolina

In early September, there was a mass stranding of 7 pygmy sperm whales. The stranding spanned beaches between Frisco and Corolla, NC; a distance of about 90 miles. A multi-agency response was mounted by the Duke Marine Lab, the National Park Service in Cape Hatteras, NOAA Fisheries Service in Beaufort, North Carolina State University Veterinary School, the University of North Carolina at Wilmington, and the Virginia Aquarium.



Dr. William McLellan, with the assistance of Duke Marine Lab students, UNCW students, and NOAA Fisheries Beaufort Lab staff, conduct a necropsy on one of 6 pygmy sperm whales that stranded along the NC coast.

Bruce Ferrier, the Outer Banks responder for the NOAA Fisheries Beaufort Lab received Level 3 whale disentanglement training from the Center for Coastal Studies. Dr. Sentiel Rommel has joined the faculty at the University of North Carolina Wilmington. He will be teaching comparative anatomy, working with graduate students and assisting with the stranding program.

Southeast North Carolina hosted a number of live manatees that were monitored in the late fall. They also captured an out-of-habitat hooded seal that was transferred to the Virginia Aquarium and Marine Science Center.

## South Carolina

There were 20 bottlenose dolphin strandings in South Carolina between June and November. Five of the 20 bottlenose dolphins were dead neonates. Four of these neonates were found floating and three of them were being pushed around by an adult dolphin.

Four of the 20 animals showed signs of human interaction. One of which was caught in a South Carolina DNR shrimp trawl, and another was struck by a boat. The two others were disentangled from crab pot buoy lines.

One Atlantic spotted dolphin stranded alive in North Myrtle Beach, South Carolina. Stacey Doty, DVM provided a quick response and assessment of this animal, for which we would like to express our gratitude.



NOAA/NOS/CCEHBR 2006, NOS and MIST

Scientists collect Level A data from a spotted dolphin that stranded alive in North Myrtle Beach, SC.

South Carolina would like to welcome James Powell to the Marine Mammal Strandings and Life History Program at NOAA/NOS/CCWHBR, and congratulations to Christina Smar for successfully completing her Masters Degree from the College of Charleston [Thesis: Age estimation and life history of the pygmy sperm whale (*Kogia breviceps*)].

NOS/CCEHBR has completed the second phase of the NMFS funded crab pot buoy line project, by collecting data of buoy line types using DST milli-loggers. A report will be available by June 2007.

Wayne McFee of the NOS/CCEHBR requests that the following information from animals entangled in crab pot buoy lines be documented:

- 1) distance from the dolphin to the buoy and/or trap;
  - 2) length of buoy line;
  - 3) type of buoy line;
  - 4) water depth of entanglement (if known);
  - 5) body location of entanglement (flukes, head, etc.);
  - 6) number of wraps of line around the body; and
  - 7) if it was from a commercial or recreational fishery.
- The information can be faxed to Wayne McFee at: (843) 762-8700, or contact him directly at: (843) 762-8592.

## Texas

Texas had 22 strandings, 20 of which were bottlenose dolphins. On June 13, 2006, a pygmy sperm whale was reported in the Port O' Connor region. It was classified as fresh dead upon initial observation. Unfortunately, a complete and early examination was not possible due to a live rough-toothed dolphin stranding on the same day.

The Texas Marine Mammal Stranding Network currently has a wide selection of bottlenose dolphin tissues/samples. Researchers interested in obtaining samples should call the Texas Marine Mammal Stranding Office at 409-740-4455 with specific questions.

## Puerto Rico

Puerto Rico Department of Natural and Environmental Resources (PR-DNER) responded to four strandings between June and November. Stranded species included one South American sea lion, one hooded seal, one bottlenose dolphin, and one spinner dolphin.

A Marine Mammal Stranding Workshop was held at the Puerto Rico Zoo. The workshop was made possible through the combined efforts of the Commonwealth of PR-DNER, NOAA Fisheries, the US Fish and Wildlife Service and the Commonwealth of Puerto Rico National Park Agency. The goal of the workshop was to train PR-DNER personnel as well as other interested groups on all matters related to marine mammal strandings in order to develop the PR-DNER Marine Mammal Response Program. Subjects covered during the workshop included data collection, permits, species ID, and necropsies.

## Network Member Spotlight

### Megan Stolen



Megan Stolen has been an active participant in the Southeast Region's Stranding Network since 1992 when she began her work with Dr. Daniel Odell as a consultant for SeaWorld. After graduating from the University of Central Florida with a Masters degree in Biology, Megan made a transition to the Hubbs-SeaWorld Research Institute where she currently works as a research biologist.

What Megan enjoys most about her job is the fact that it allows her the variation of working outside, and in a laboratory setting. She also likes the unpredictable nature of being a stranding responder, where she never knows what challenges the next day might bring.

Megan's current responsibilities at Hubbs-SeaWorld Research Institute include working in the Life History Lab where marine mammal teeth are sent for age analysis, and reproductive organs are examined to determine the reproductive status of stranded marine mammals. Much of her work is focused on the Indian River Lagoon where she is studying and collecting data on recreational fishing interactions with marine mammals in the area.

In her free time, Megan enjoys caring for her two children who love going to the beach and making frequent visits to the park. Megan, we commend you for your years of service and hard work with the Southeast Marine Mammal Stranding Network. You are truly an asset to our community!

## Recent Publications

- Burdett, L.G., Adams, J.D., and W.E. McFee. 2006. The use of geographic information systems (GIS) as a forensic tool to predict sources of marine mammal entanglement in fisheries. *Journal of Forensic Science*. *In press*.
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