

News Splash

The National Marine Life Center, Inc. Newsletter @ www.nmlc.org @ Vol. 12, No. 1, Spring 2008

Canal Water Brings Life to NMLC

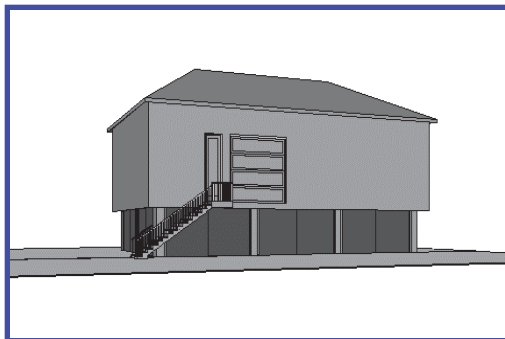
By Brian Moore, Animal Care & Facilities Coordinator

Construction has begun on the underground piping and Life Support System (LSS) that will provide a lifeline of salt water from the Cape Cod Canal to the hospital tanks at the National Marine Life Center (NMLC). The long awaited construction of our LSS Building is finally a reality! This 2,100 square foot structure will allow NMLC to bring salt water in from the canal directly to our hospital rehabilitation tanks so we can better care for ill and injured sea turtles and seals, and eventually dolphins, porpoises, and small whales.

Costing approximately \$1.4 million, the LSS building represents the first phase of construction in NMLC's new marine animal rehabilitation hospital and science education center. Funding for this phase of the project comes primarily from a construction grant received from the Department of Commerce National Oceanic and Atmospheric Administration (NOAA). Congressman William Delahunt and Senators Edward Kennedy and John Kerry were instrumental in securing the funding.

Construction will take place in three stages. The first stage involves horizontal drilling to install the pipes that draw in water from

the canal. This horizontal drilling process proved to be more cost effective than trenching and more environmentally friendly, causing the least amount of disturbance to nearby wetlands. The second stage consists of constructing the LSS building and the final stage is com-



Conceptual drawing by Blue Ridge Design, Winchester, VA.

pleting the interior and installing the specialized LSS equipment.

The interior will consist of three 5,000 gallon tanks, two for holding incoming salt water from the canal and one for discharge water

from the rehabilitation tanks. The discharge tank will be connected to a protein skimmer, which removes organic compounds from the water before they decompose, and an ozone contact chamber, which sterilizes the water prior to releasing it back to the canal. The building features natural lighting via "Solatubes," a type of skylight that amplifies daylight. The project is scheduled to be complete by September 30.

One of the greatest challenges of operating a marine animal hospital is providing clean, chemically correct salt water for our rehabilitation tanks. The completion of the LSS building and piping system represents the first step in the construction of NMLC's new marine animal rehabilitation hospital and science education center. In addition, the completed structure will be used by the Town of Bourne to enhance the adjacent Bridge Park by providing a surface for outdoor movies in the park.

We are very excited to contribute to the revitalization of Buzzards Bay even as we begin realizing our dream of a state of the art marine animal rehabilitation hospital on Cape Cod.

Inside This Issue

Message from the President	2
New Faces	3
Lavender Update	4
Red-Bellied Cooters	5
Under the Microscope	8
Fun Splash	9
Wish List	11
Outreach Programs	12



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Mission Statement

Dedicated to rehabilitating for release stranded whales, dolphins, seals, and sea turtles, and to advancing scientific knowledge and education in marine wildlife health and conservation.

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Message from the President

By Kathryn Zagzebski



Africa. The very name conjures up vast open spaces, endless skies, and an exotic diversity of wild animals. It has always been a dream of mine to visit. Recently I had the opportunity when the Society for Marine Mammalogy held its 17th International Conference in Cape Town, South Africa.

I began my journey in Port Elizabeth, a coastal town in southwest South Africa. Here I had the pleasure of meeting Libby Sharwood, a marine animal rescuer and

founder of the South African Marine Rehabilitation and Education Center (www.samrec.org.za). The organization is building a hospital to rehabilitate for release endangered African Penguins. SAMREC has a compelling mission, a tremendous need for its proposed services, and an excellent location near salt water and near the penguins' largest nesting grounds. Despite these strengths, the organization is facing political and fundraising hurdles. Libby and I swapped stories about the challenges and opportunities of marine animal rehabilitation. It was inspiring to meet a woman living on the other side of the world doing her part to make a difference for the ocean and its inhabitants.

Also in Port Elizabeth I met Lloyd Edwards, a marine naturalist, boat captain, and photographer who owns Raggy Charters, a whale watching and marine wildlife tour operation (www.raggycharters.co.za). Lloyd took a group of us out on Alcoa Bay to see the penguin rookeries (nesting grounds), and it was a tremendous privilege to observe these animals in their native environment. Some folks on the boat were lucky enough to see blows from a Bryde's whale, a common but little-seen resident to the area. Lloyd is particularly interested in Bryde's whales and uses his whale watch vessel as a platform for research. He initiated an internship program and seeks students to help him study the marine animals of Alcoa Bay. He, too, is working to make a difference.

As my trip progressed, I saw many amazing animals. South Africa has a strong national parks program ("SANparks"), and in these protected areas I observed endangered mountain zebras, interesting antelope, lively vervet monkeys, basking lizards, endangered dung beetles, millipedes longer than my hand (and under my tent – yikes!), wonderfully social elephants, jackals, hyenas, Cape buffalo, spring hares, dozens of unusual species of birds, and much more. I learned about SANparks programs that employ local people to help restore the environment and protect wildlife. In a country with many challenges both environmental and social, the people at SANparks are making a difference.

The last week of my trip, I attended the Society for Marine Mammalogy conference. Scientists from around the world gathered to present new information, to share conservation successes, to connect with and learn from each other. To make a difference.

Message from the President continued...

The National Marine Life Center is working at the juncture of rehabilitation, science, and education to make a difference in the lives of animals, people, and our community. Recently, however, we've been confronted with a serious challenge. The roof over our animal hospital experienced a structural failure, and further analysis of the building indicated additional structural deficiencies. We were forced to close our hospital just as new patients were due to arrive. We had to transfer our remaining patient from last year, Lavender, to a cooperating facility for care. Like the silver lining to every cloud, this challenge is providing us with significant opportunities to rebuild our hospital and make it better than before. The first phase of our new hospital – the connection to the Cape Cod Canal – is underway. Our next phase will reestablish our sea turtle and seal hospital by demolishing the old warehouse and building a new structure. A future phase will expand the hospital and remodel the Discovery Center. We are working hard to modify plans and raise money. Our goal is to reopen for patients in time for the fall/winter '08 stranding season.

We invite you to join us in making a difference. Thank you

New Development Officer

After two years of productive growth in its development program, the National Marine Life Center is taking the next step forward in organizational growth by bringing our development program in-house. Instrumental in achieving NMLC's development growth, the contract firm of Development Solutions of New England is helping in the transition. After an extensive search, NMLC is pleased to announce that Julie Seligmann has joined our team as our new Development Officer.



Julie most recently worked as Vice President for A Direct Solutions, a company that provides development support to non-profit organizations. From 1997-2003, she worked for the International Fund for Animal Welfare as a Regular Giving/Special Projects Coordinator handling 135 direct mail campaigns annually raising \$11,000,000. Her focus shifted to the program area when she joined Commercial Exploitation and Trade and began working on endangered species campaigns. This experience was a perfect segue into her role as Major and Planned Gifts Officer.

Julie serves on the board of the Barnstable Land Trust. She is an active volunteer with the Barnstable Land Trust's annual Gifts from the Sea event. She has been a volunteer with the Cape Cod Stranding Network for ten years and volunteered her fundraising expertise to the Committee to Preserve Northside Open Space to save Bone Hill Farm in Cummaquid.

Welcome, Julie!

Expanding the Animal Care Staff

The National Marine Life Center welcomes Kerry McNally as our new Animal Care Technician. Kerry has a variety of animal care experience that she is excited to bring to NMLC. The past couple years, Kerry worked in small animal practice, first as a surgery technician at a clinic in Florida and then as an ICU and rehab technician at an emergency and referral practice in North Carolina. While in North Carolina, she spent her spare time volunteering in the education department at the North Carolina Aquarium in Fort Fisher.

Kerry graduated from Occidental College in Los Angeles with a BA in Biology, marine emphasis. She spent a semester as an animal care and training intern at the U.S. Navy Marine Mammal Program in San Diego, where she worked closely with bottlenose dolphins and California sea lions. She also completed a animal care internship at the Clearwater Marine Aquarium where she gained experience in water quality, life support systems, and husbandry. This internship provided experience with sea turtle rehabilitation and sea turtle nesting field work. Also during college, Kerry volunteered for the Marine Mammal Care Center at Fort MacArthur and participated in marine research by working with the Vantuna Research Group.



Kerry brings great experiences and passion to the NMLC and we are excited to have her as part of our team!

Turtle Troubles: Our Patient Lavender

By Dr. Michele A. Sims and Dr. Sea Rogers Williams

Lavender is a cold-stunned juvenile Kemp's ridley sea turtle who stranded on Barnstable's Sandy Neck Beach in November, 2006. She arrived immunocompromised from extended exposure to cold temperatures and was suffering from pneumonia and flipper tip injuries. She was initially treated at the New England Aquarium and then transferred to the National Marine Life Center on January 16, 2007. When she arrived, she was treated with antibiotics and antifungal medications.

In time, Lavender's flipper injuries healed but radiographs indicated her pneumonia did not appear to be resolving. She was placed on a new course of antibiotics and antifungals in January, 2007. In February, 2007 we decided to have a CT scan of her lungs to better define her lung lesions and monitor their progression. We used a sedative to keep Lavender quiet during the brief procedure and afterwards she recovered rapidly. We also performed a tracheal wash procedure to obtain a fluid sample from her lungs that would help us determine which organism was causing her pneumonia. The tracheal wash revealed that Lavender's pneumonia was caused by a bacteria called *Mycobacteria fortuitum*.

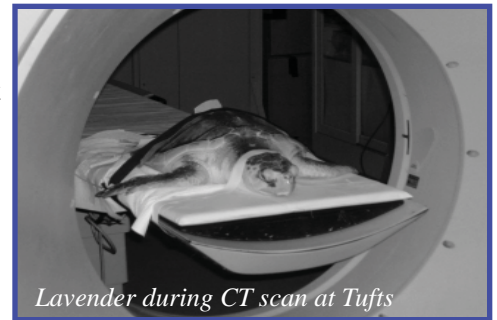


Lavender being admitted on 1/16/07

We've learned that turtles do most things rather slowly, and healing is no exception. During the seven month period between January and July, 2007, Lavender's pneumonia resolved steadily until it reached a point where it no longer showed any signs of improvement. This could have meant one of two things. First, she may have had some permanent scar tissue as a result of her pneumonia or second, the *Mycobacteria* may have become resistant to the type of antibiotics used. We decided to stop antibiotics and recheck her CT scan four weeks later. In August, a new CT scan showed that Lavender's lung lesions had almost doubled in size which suggested that she had a resistant strain of *Mycobacteria*. She was placed on a new combination of antibiotics and antifungal medication and all subsequent CT scans have indicated the pneumonia is resolving.

On January 16, 2008, we took Lavender to Tufts University School of Veterinary Medicine for a sixth CT exam. Dr. Mauricio Solano, a veterinary radiologist at Tufts, assisted us by providing review and interpretation of Lavender's CT series. This latest scan showed overall improvement in the lung parenchyma. The lesions

being monitored are stable, and only one small new area attached to the dorsal plural surface was discovered. This new area likely represents scar tissue, but if it is a new area of inflammation and infection then our current therapy is no longer effective. The decision was made to discontinue medications and repeat her CT scan in four weeks to make a final determination of her status.

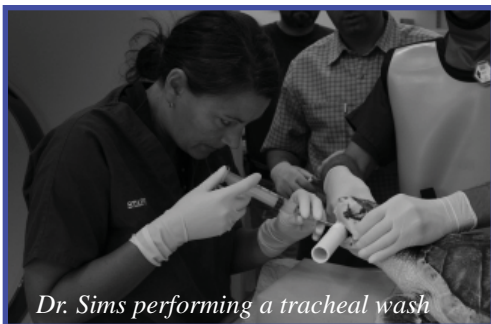


Lavender during CT scan at Tufts

Lavender received her last dose of medication on January 29th, 2008. She continues to do well and we remain hopeful that we have finally beaten the pneumonia. If so, she will wait a "wash-out" period of several weeks to ensure there are no residual medications in her body. We plan to place a satellite tag on her so that we can track her movements once she is released. Stay tuned!

A special thank you to the NOAA Woods Hole Science Aquarium for housing Lavender since February.

Kerry monitoring Lavender's heart rate after a CT scan



Dr. Sims performing a tracheal wash

procedure to obtain a fluid sample from her lungs that would help us determine which organism was causing her pneumonia. The tracheal wash revealed that Lavender's pneumonia was caused by a bacteria called *Mycobacteria fortuitum*.

Headstarting Red-Bellied Cooters

By Kerry McNally, Animal Care Technician

The National Marine Life Center is proud to continue participating in a Headstart program to save northern red-bellied cooters. The Headstart program was initiated by the Massachusetts Division of Fisheries and Wildlife in 1985 to protect this endangered species of freshwater turtle.



As their name implies, the plastron, or under shell, of red-bellied cooters is a brilliant red color. Originally called the Plymouth red belly turtle, they are now only found in Plymouth County, Massachusetts, more than 250 miles from their closest relatives in the mid-Atlantic coast. The majority of Massachusetts' present cooter population is found in Federal Furnace Pond and several surrounding



ponds in Plymouth.

In the early 1980's, the Massachusetts population of red-bellies drastically declined to about three hundred turtles, causing

them to be placed on the state and federal endangered species list. Many factors contributed to this decline including habitat loss, habitat fragmentation, and pesticide exposure. A major factor is also the small size of the hatchlings, which typically are just over an inch in length and weigh only five to eight grams. This size makes the hatchlings more susceptible to being preyed upon and to hypothermia in the cold winter. Close to one hundred percent of wild Northern red-bellied cooter hatchlings do not survive their first year.

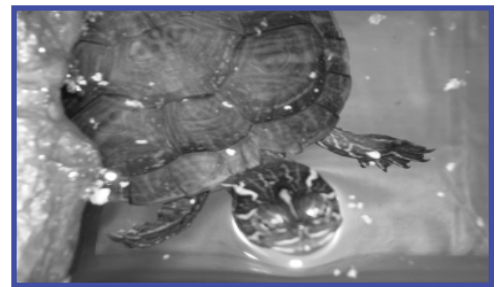
As part of the Headstart program, hatchlings are taken from their nest each fall and raised over the winter in warm aquariums. Program participants, including the state, wildlife facilities, and local schools, help accelerate the turtles' growth to two to six times the size of similar-aged turtles in the wild. This growth is accomplished by offering the turtles an unlimited food supply consisting of fresh romaine lettuce and Reptomin® sticks. The larger size provides an advantage by increasing their chances to avoid predators such as birds, bull frogs, fish, and raccoon after they are released.

The survival rate for turtles that spend nine months in the Headstart program is about ninety-five percent. Although the red-bellied cooters remain on the endangered species list, the population continues to increase with the assistance of the caring participants of the Headstart program.

Along with headstarting, other

strategies for protecting the red-bellied cooters involve habitat protection. Nesting and basking sites are important for turtle survival. Biologists have been clearing vegetation to provide sunnier conditions and additional nesting opportunities. Cranberry growers have been supportive in research and recovery efforts by maintaining open spaces suitable as nesting habitat and allowing biologists access to private lands.

As part of the recovery effort, six red-bellied cooters arrived at NMLC on September 28, 2007, each weighing an average of 8.23 grams. The turtles have a healthy appetite and seem to enjoy their temporary home at NMLC. Thanks to our wonderful volunteers and staff, the turtles currently weigh an average of 120 grams and are well on their way to being competitive and healthy for their release in early June.



References:

- ~U.S. Fish & Wildlife Service, Northern red-bellied cooter.
- ~Amaral, Michael, 1994. Plymouth Red Bellied Turtle Recovery Plan.
- ~Graham, Terry, 1991. *Pseudemys rubriventris* (LeConte), redbelly turtle. Catalogue of American Amphibians and Reptiles, 510:1-4.




Mermaid Ball

*Here's the tale of the Mermaid Ball!
We had feast and frolic for one and all,
Pirates bold and mermaids fair.*



*We had auctions and dancing, and all who entered
Sought to benefit the National Marine Life Center.
And here's why we had this social affair....*

*Cold-stunned sea turtles, stranded seals,
We tend to them and help them heal,
Then send them home to ocean lair.*

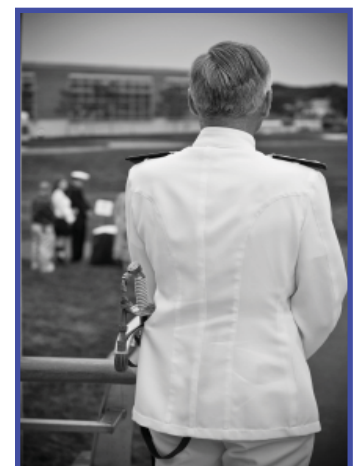
*Through careful science we discover
Ways to help the ocean recover.
And with our colleagues we do share.*

*Through arts and crafts and children's tales,
We teach about turtles, seals, and whales,
To help kids learn and grow and care.*

*So that's a bit about what we do.
I'd like to add a warm Thank YOU
To pirates bold and mermaids fair.*

*With deep appreciation,
Kathy Zagzebski
President & Executive Director
National Marine Life Center*

*P.S.: SAVE THE DATE!
Mermaid Ball 2008
Friday, August 15
at the Massachusetts Maritime Academy
in Buzzards Bay*





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THE NATIONAL MARINE LIFE CENTER
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THE MERMAID BALL A GREAT SUCCESS**

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Our Lovely Mermaids

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Kristen Folino
Emma Kristine Greeson
Sarah MacLeod
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Susan Davies Studio
Sunset Grill at the Brookside Club
Terramia Ristorante
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The Courtyard Restaurant
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Westport Wineries
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Windfall Market
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Woodruff Gallery
Woods Hole Theater Company
Worcester Sharks Hockey Team
Kathryn Zagzebski
Captain Kenneth Zeghibe

Under the Microscope

By Dr. Sea Rogers Williams

NMLC's Science Program is progressing at an exciting pace. I started the new year completing a draft of a scientific paper describing the pathology and parasites of cold stunned Kemp's ridley sea turtles, along with a team from the New England Aquarium and the University of Connecticut. This manuscript is ready for submission to the *Journal of Zoo and Wildlife Diseases*. The project led to a

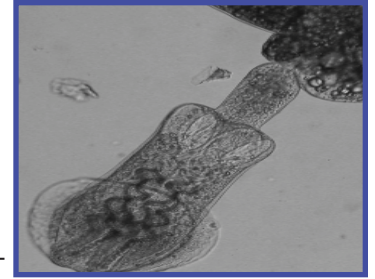
years by a team from Australia and New Caledonia. The parasite was originally discovered in the green sea turtle in 1842, and later in fish, but the adult form had never been described. All the parasites in this class live as adults in the digestive tract of sharks, lending support to the already known fact that sharks eat sea turtles. Be careful out there folks, "it's a jungle" - or a reef - or something similarly dangerous!

Some of our samples will be sent to Dr. Palm (an expert on this type of parasite) and hopefully we can contribute to solving this mystery. Dr. Bridget Dunnigan and I responded to a report of a dead stranded leatherback sea turtle on Martha's Vineyard at the request of the New England Aquarium. I assisted an Aquarium team with the necropsy, coordinated the stranding report, collected parasites, and supervised a CT of the skull which revealed the likely cause of this sea turtle's death. The skull had received multiple sharp blows that shattered bone and caused significant damage. While the wounds did not kill the turtle outright, as considerable healing had occurred, the animal may have been disoriented, failed to migrate south, and

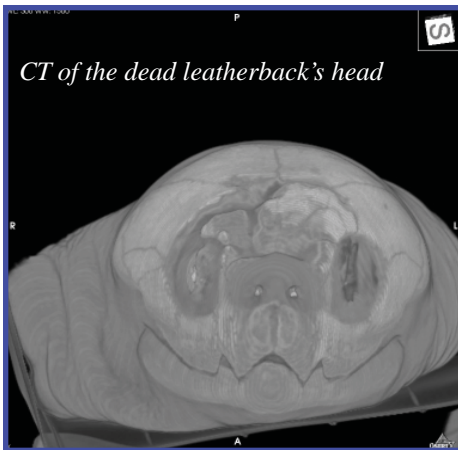
floundered in the cold New England coastal waters. Some interesting

findings on the heart valves suggest endocardiosis, a common age related change in small breed dogs. Samples of tissues were sent the University of Connecticut for further study.

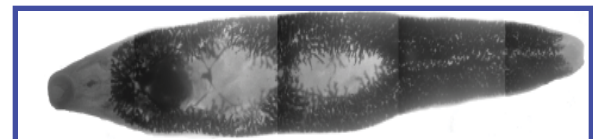
After a mass stranding of Atlantic white-sided dolphins in mid-January, I assisted Cape Cod Stranding Network, a project of the International Fund for Animal Welfare, with necropsies to look for a cause of these distressing and all too common events. I collected parasite samples that will serve as the beginning of a guide to the parasites of Atlantic white-sided dolphins. I spent some time at the Marine Biological Laboratory's Lilly Library doing the necessary book work and literature review of these parasites.



O. cysticum like parasite from Kemp's ridley turtle



fascinating series of revisions and discussions with parasitologists from Massachusetts to Germany. It seems that *Otobothrium cysticum*, a larval parasite suspected from the serosal surfaces of many organs of Kemp's ridleys found in Cape Cod, had its very taxonomic existence questioned after some 150



Trematode from an Atlantic white-sided dolphin

Local Community Support

By Julie Seligmann

During my second week on the job as the new Development Officer for the National Marine Life Center, I had the privilege to see how committed the people of Buzzards Bay are to seeing this organization succeed. Karl, a member of the "Canal Rats" fishing club came into the office to present Kathy Zagzebski, our President, a check for \$200. He told us stories about the Canal Rats and told us why they felt the work we do here were deserving enough for them to make a donation. On behalf of the staff and the animals we care for – thank you!

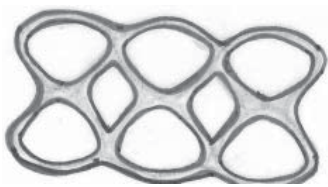
Fun Splash

Just For Kids!

By Lauren Deweese

Marine debris is litter in the ocean or on the beach that pollutes the environment and can harm wildlife. See if you can match these common items with the threat they pose to marine life... (Look for clues from the animals!)

The culprits:



6-pack ring



plastic bag

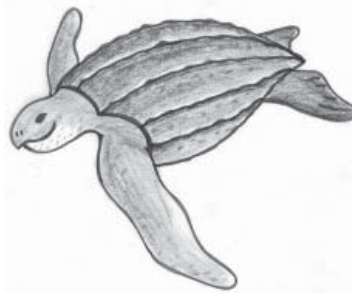


ribbon with balloon

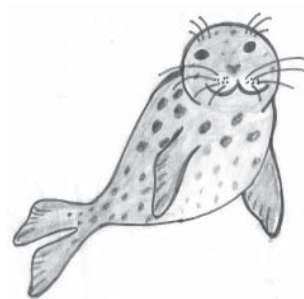


fishing line

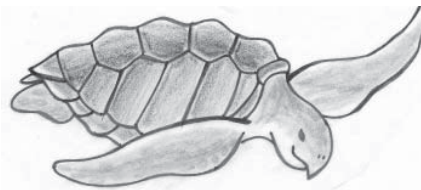
The victims:



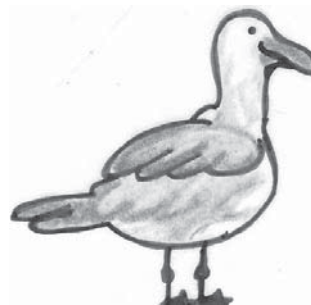
I am a **leatherback sea turtle**. My favorite food is *jellyfish*! I can mistake this *translucent* piece of debris for a tasty meal.



I am a **harbor seal**. I spend about 85% of the day diving! When I am swimming *I might not see this debris* in the water and I can get tangled in it.

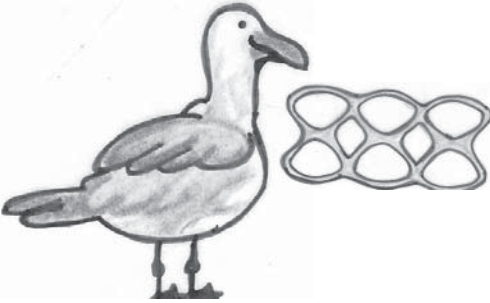
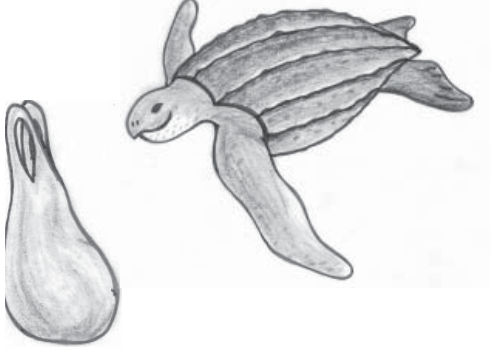
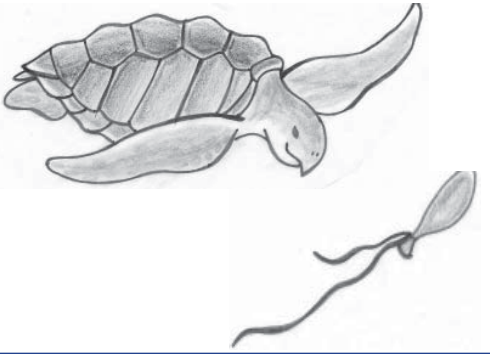
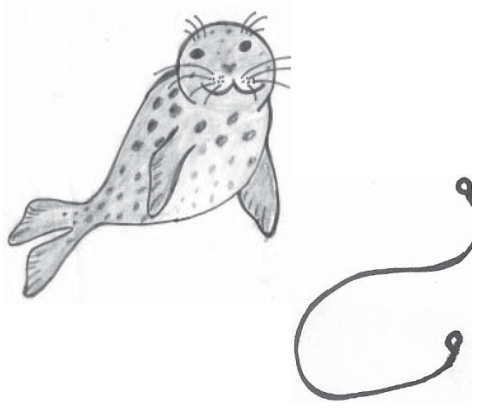


I am a **Kemp's Ridley sea turtle**. Sometimes I like to eat squid. I might mistake this debris for the *tentacles* of a squid (yum!)



I am a **Seagull**. When I am searching for food in the water, I might not see this piece of debris and it *can get caught around my neck*.

Turn over for the answers and information about how you can help save marine life...

	<i>Answers</i>	<i>What can you do to help?</i>
	Seagulls and other seabirds often get 6-pack rings caught around their necks, making it difficult to fly, swim or dive for food. The rings can strangle the animal or cut its skin and cause an infection.	Look for products with photodegradable rings, which break down more quickly in the environment. Remember that trash sometimes ends up in the ocean even if we dispose of it properly so always cut each ring until there is no space left for an animal to get caught.
	Leatherbacks may confuse plastic bags with jellyfish. Unfortunately, Leatherbacks have weak digestive tracts due to their diet (jellyfish are about 98% water!) and cannot digest the plastic.	Use alternatives to plastic whenever possible. Bring reusable shopping bags to the store and buy products with minimal packaging to reduce waste. Always recycle plastic bags when you are done with them, or return them to the store.
	A ribbon in the water may look like the tentacles of a squid to a hungry Kemp's Ridley. Unfortunately, those ribbons are often attached to a balloon, which can become trapped in the animal's stomach once ingested.	We really need your help with this one! Kids love balloons but might not realize that loose balloons often make their way to the ocean. Make sure that balloons are securely tied down when outside and never release a balloon into the sky. At your next birthday party encourage your friends to be environmentally responsible, too!
	Seals and other marine animals can become entangled in fishing line, which is nearly invisible in the water. Monofilament line is very strong and takes 600 years to break down in the ocean! The line can cut into the animal's skin and cause an infection or even amputate a flipper or tail.	If you fish, never cut your fishing line or discard it into the water. Fishing line, nets and traps are great for catching fish and crabs, but if abandoned in the water this gear can trap the wrong animals! Remember that marine mammals, sea turtles and birds all need air to breathe and an entangled animal may be unable to surface. If you find an entangled animal call the Cape Cod Stranding Network, a project of IFAW, at 508 743-9548.

* Always dispose of trash properly

* Pick up trash you find on the beach

* Organize a beach cleanup in your community or contact NMLC to join us for a beach cleanup this summer!

* If you see someone littering, encourage him or her to think about the animals that make their homes in the ocean!

Thank You!

July 1, 2007-December 31, 2007

The following supported the National Marine Life Center's marine animal rehabilitation and science education programs with a gift of \$50 or more during the 3rd and 4th quarters of 2007. On behalf of the trustees, staff, volunteers, visitors, pupils, and marine animal patients of NMLC, *thank you for your generosity!*

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Wish List

Your in-kind gifts help us direct more of our resources into our rehabilitation, science, and education programs. To donate any of these items, please contact Brian Moore, Animal Care & Facilities Coordinator, at 508.743.9888 or bmoore@nmlc.org. Tax receipts available. Thank you!

~Laproscopy equipment
 ~Autoclave to sterilize surgical tools
 ~Portable ultrasound machine
 ~Digital x-ray machine
 ~Medical microscope
 ~Gas anesthesia machine
 ~Rubbermaid storage cabinets
 ~Rolling handcarts (Rubbermaid)
 ~Hand trucks (standing and collapsible)
 ~Latex and latex substitute exam gloves
 ~Stainless or plastic boat hook
 ~Flat screen TVs to monitor patients
 ~Bookshelves
 ~Metal storage cabinets
 ~Lockers
 ~Arts and crafts supplies
 ~Gift cards from: Home Depot, PetCo, PetSmart, Walmart, Shell, Exxon, Citco, Stop & Shop, Trader Joes, A.C. Moore, Oriental Trading Company, Staples

Birthday Parties

Are you looking for a fun place for your child's birthday celebration? Consider the National Marine Life Center! We will tailor your child's party with marine animal-themed activities. Call Joanne at 508 743-9888 to set up a party. Themes and decorations can be discussed when you call. Prices for a two-hour party (one hour of games, one hour on your own) are \$10 per child for non-members, \$8 per child for members.

Birthdays are a great way to give back to the community. Sierra, Isabella and Molly Powers asked for donations to the National Marine Life Center in lieu of gifts on their birthday. THANK YOU, SIERRA, ISABELLA and MOLLY, and HAPPY BIRTHDAY!!



Outreach Coordinator Joanne Nicholson teaches about water quality. (photos by Phyllis Russell, Jr. Tech council)

Education & Outreach

In 2007, the National Marine Life Center presented over 175 education programs, lectures, birthday parties, and afterschool programs. More than 3,200 kids and adults participated in these programs. NMLC offers a variety of education programs tailored to a group's age and number of participants. To schedule a program, call Joanne at 508 743-9888.

We partnered with the Cape Cod Jr. Tech Council to deliver a three day workshop for 5th-8th graders. The kids were introduced to our staff who showed them how we operate a marine animal hospital, how to test for water quality, how the veterinarians develop a treatment plan for our patients, and how parasites impact marine animals.

Dr. Sea Rogers Williams teaches about sea turtles and parasites.



www.nmlc.org

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Caring for Stranded Marine Animals



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