

"On Effort"

Newsletter
Summer, 2012

P.O.Box 60753, Savannah GA, 31420
912-657-3927

TDP Board of Directors

PEACH HUBBARD

President, Edu Outreach, Training

DON BENDER

Vice President, Edu Outreach

KRYSTAL GOODWIN

Secretary, Facebook

KAREN STACK

Treasurer

DONNA CALENDINE

SC Liaison

GAYLA JONES

Membership

GEORGE SCUORSO

Events

FRANK SITERA

Surveys

CHERYL TILTON

Merchandise

VIP STAFF

MARGARET ANN BROWN

Atlanta Training

DONNISSA & DOUG BUSCH

Survey Photo Coordinators

DOLORES DYSON ENGLE

Social

HERB JOE

Membership, Survey Logistics

KARLA JOHNSON

Elections

CHARLOTTE KEENOY

Adopt A Dolphin

FRAN LAPOLLA

TDP Advisor

MAUREEN MORALES

Publicity-Greater Atlanta

JOE POWERS

Volunteers-Special Events

*All members in The Dolphin Project are volunteers
and receive no compensation for their services*

FROM THE HELM

WOW! It's been a wild and crazy year so far and it's not over yet!!!Conferences, School programs, Science Fairs, Festivals, Lectures, 'Dolphins and Desserts', Surveys, Grants, Donations... WHEW!

Our Members have been wonderful about helping with all these events and we are most grateful for all your support. This newsletter holds details about what we've been up to this year and upcoming events.

We're looking forward to a relaxing summer with training in July and scheduled surveys every month. Check the website for dates and register for surveys. If you haven't been to a training in a couple years, we urge you to attend again for updated info on dolphins and our revised survey format. We also encourage you to invite your friends to learn about our dolphins.

If you belong to an organization that features speakers, we've got a great dolphin program that is age appropriate. Stipends are appreciated which enhances our Education Outreach Program. We're already booking for fall and 2013, so contact Don in the Atlanta area: Don Bender: donbender76@comcast.net or Peach for coastal programs: gadolphin@comcast.net

Within this newsletter we have some of Krystal Goodwin's highlight notes from the 2012 SouthEast and Mid-Atlantic Marine Mammal Symposium [SEAMAMMS]. Together we traveled to NOVA Southeastern University in Fort Lauderdale in March. Next year SEAMAMMS will be held in Savannah Georgia—a first!. TDP will be helping the 2013 host, Savannah State with the event next spring. It's a great opportunity for TDP members to attend and hear about the latest marine mammal research being conducted on the southeastern seaboard—and beyond.

We're also planning on having a website page featuring recommended books, videos, dolphin tours and aquarium facilities. We're doing a lot of research to make sure the information in these materials and about the venues is accurate. We'll email you when it's up and running.

Have a safe and wonderful summer!

Peach
TDP President

Thanks to our Survey Teams...

Joyce Albrecht
 Don Bender
 Alie Bieliauskus
 Kenny Boggs
 Maureen Boggs
 Margaret Ann Brown
 Donnissa Busch
SKIPPER Doug Busch
SKIPPER Bob Calhoun
 Joni Chastain
 Barbara Conway
 Amanda Coward
SKIPPER Walt Coward
 Carol Crowe
SKIPPER Richard Crowe
 Dee Doss
 Dolores Engle
SKIPPER Mike Estvander
 Kylie Furguson
SKIPPER Ron Goldfarb
 Natalia Guitton
 Peach Hubbard
 Herb Joe
 Charlotte Keenoy
 Linda Kittendorf
 Amy Lewis
 Connie Marcy

Pat McGuire
SKIPPER Barry Moore
 Carole Moore
 Lori Muskat
 Cara O'Rourke
 Rose Padgett

SKIPPER Joe Powers
 Krystal Goodwin
 George Scuzorzo
SKIPPER Frank Sitera
 Michael Tiemeyer
SKIPPER Gary Udinsky

Robert Visconti
 Polly Varhol
 Sandy Workman
 Tom Workman
 Cheryl Yeoman



Team members: Polly Varhol /Michigan, Skipper Frank Sitera/ Savannah, Peach Hubbard/ Richmond Hill, Connie Marcy/ St. Simons

2012 SURVEYS

July 14
 August 11
 September 15 –Dessert Social
 October 13
 November 10 – Dessert Social
SIGNUP & JOIN THE FUN!

2012 TRAINING SCHEDULE

<u>ATLANTA</u>	at REI
July 28	
November 3	
<u>SAVANNAH</u>	at MEMORIAL HEALTH
July 28	HOSPITAL
November 3	Check website for directions

TDP APPRECIATES

The Dolphin Project has been truly blessed this year with grants and donations which have allowed us to purchase much needed software and supplies and enhance our research and education programs:

Ingram Foundation	\$500
Don & Judy Bender	\$5,000
Jolly Foundation	\$500
Savannah Community Foundation	\$190

Dolphins & Desserts...



Kris Williams, Caretta Project

February Social - Kris Williams of the Caretta Project had a great program about the sea turtle program on Wassaw Island. She spoke of the hazards and challenges facing the sea turtles on the Georgia coast and opportunities for volunteering. While Georgia is host to mostly Loggerheads, it also sees occasional Green and Leatherbacks. The dessert social concept was a big hit, drawing folks from all over the US who were visiting in the area.

The **May Social** was also a fundraiser for TDP, featuring the inspirational speaker, **Kevin Carroll, VP of Hanger Prosthetics** and a silent auction with art from local and internationally renowned artists. Besides his work with amputees, Carroll is also known for developing a prosthetic tail for Winter the dolphin – as featured in the movie 'Dolphin Tale'. The first half of his program featured his work with military amputees at their 'Boot Camp' where they learned to walk on their 'new' legs. The second half of his program focused on his work with Winter and his advisory role in the making of the movie. His humor, compassion and dedication to his work enthralled all who attended. The auction was a successful fundraiser which afforded TDP to purchase desperately needed laptops and software to use in its research. The desserts and beverages were a huge hit with the crowd.

SEPTEMBER SOCIAL 'DOLPHINS & DESSERTS' will feature

Dr. Bill Savidge who will speak about our amazing and incredible marsh.

WE wouldn't be here without it ...find out why!

Save the date:
September 15th

BIG HUGS to Dolores Engle for all her hard work coordinating our Dolphins & Desserts events.



Kevin Carroll, Karen & Tom Stack

THANK YOU to all our Dolphin & Dessert Auction Donors and especially our Sponsors: Coastal Bank, Dolphin Reef Restaurant, Driftaway Café, Fish Tales Restaurant, Hanger Prosthetics & Orthotics, Wet Willies, Wyland Foundation,

EDUCATION OUTREACH . . .

Education Outreach programs from January through June 2012 hosted by TDP volunteers:

Tiftarea Academy-seniors, Cumberland Is.
Fellowship Christian School-5th grade, Roswell
Richmond Hill High School-Oceanography and Biology (x 4 programs)
Fellowship Christian School-1st & 4th grades, Roswell (x5 programs)
Horizon High School, Atlanta
Ocean Plaza Resort, Tybee Is.
May Howard Elementary School Science Fair
Nature Photography Club of Georgia – Display
Fellowship Christian School-2nd grade, Roswell
Tybee Light Power Squadron
UGA Master Naturalist Class, Sapelo Is.
Fellowship Christian School-Kindergarten, 1st & 3rd grade, Roswell
Chattahoochee Nature Center Earth Day Festival, Roswell
Audubon Society, Savannah
Savannah Earth Day
Baldwin Elementary School-1st grade, (x2 programs) Baldwin GA
Hilton Head Plantation Fishing Club
NOAA booth at Tall Ships Festival, Savannah (4 days)
Richmond Hill Elem. School (8 programs over 2days)
Richmond Hill Middle School Career Day
Effingham County Middle School (x3 programs)
Skull Creek Boathouse, Hilton Head Is.
Isle of Hope School, Cumberland Is.
Hilton Head Photography Club
Girl Scouts from Pennsylvania, Tybee Is.
Wilmington Is. Presbyterian Church Vacation Bible School (5 days)
Richmond Hill Recreation Department Summer Camp—Beach Week



BELOW: George Scuorzo talks about dolphins at Richmond Hill Market Day

MANY MANY THANKS to all our volunteers who helped with Training, Dolphin Programs and Special Events. Special thanks to Don Bender, Cheryl Tilton, Karen & Tom Stack,



Lori, Peach, Anique, Don at Chattahoochee Earth Day



Peach, Sandy, Tom, Joni, Don at Chattahoochee Earth Day



ABOVE: Andrew directs Fin-match game at May Howard Science Fair



Karen explains dolphins at May Howard Science Fair

LEFT: Cheryl with Fin-match game at May Howard Elementary School

BELOW: Natalia and Hub at Savannah Earth Day



LEFT: Cheryl & Pirate at Tall Ship Festival

RIGHT: Donna in TDP booth at Tall Ships Festival



SEAMAMMS 2012 ...SouthEast and Mid-Atlantic Marine Mammal Conference was hosted by NOVA Southeastern University in Ft. Lauderdale FL from March 23-25.

SEAMAMMS is a regional, student-oriented scientific marine mammal meeting. Preference is given to marine mammal research conducted in the mid-Atlantic and southeast US or conducted by students in the same region. It's a great opportunity to hear about current marine mammal research and talk with the researchers.

TDP was represented by Board members Krystal Goodwin and Peach Hubbard. Krystal took the following notes to highlight some of the thesis presentations.

KEYNOTE Speaker: **John Ososky**- Museum Specialist, Smithsonian Institute.

Battle of the Smithsonian (evolution of collections)

The Smithsonian Institution was established with funds from James Smithson (1765-1829), a British scientist who left his estate to the United States to found "at Washington, under the name of the Smithsonian Institution, an establishment for the **increase and diffusion of knowledge.**"

Smithson, the illegitimate child of a wealthy Englishman, had traveled much during his life, but had never once set foot on American soil. Why, then, would he decide to give the entirety of his sizable estate—which totaled half a million dollars, or 1/66 of the United States' entire federal budget at the time—to a country that was foreign to him? Some speculate it was because he was denied his father's legacy. Others argue that he was inspired by the United States' experiment with democracy. Some attribute his philanthropy to ideals inspired by such organizations as the Royal Institution, which was dedicated to using scientific knowledge to improve human conditions. Smithson never wrote about or discussed his bequest with friends or colleagues, so we are left to speculate on the ideals and motivations of a gift that has had such significant impact on the arts, humanities, and sciences in the United States. Smithson died in 1829, and six years later, President Andrew Jackson announced the bequest to Congress. On July 1, 1836, Congress accepted the legacy bequeathed to the nation and pledged the faith of the United States to the charitable trust. In September 1838, Smithson's legacy, which amounted to more than 100,000 gold sovereigns, was delivered to the mint at Philadelphia. Recoined in U.S. currency, the gift amounted to more than \$500,000.

After eight years of sometimes heated debate, an Act of Congress signed by President James K. Polk on Aug. 10, 1846, established the Smithsonian Institution as a trust to be administered by a Board of Regents and a Secretary of the Smithsonian. Since its founding more than 164 years ago, the Smithsonian has become the world's largest museum and research complex, with 19 museums, the National Zoo and nine research facilities.

Spencer Baird (curator 1850-87) provided first specimens in Smithsonian collection from his personal collection. He went against much popular opinion and continued to acquire specimen collections. He documented standings and Baird's Beaked Whale was named after him. Patent collection became United States Natural Museum. Several specimens were collected from whalers, explorers, etc. Training was designed for lighthouse keepers to collect/prepare stranding specimens for the museum. Remington Kellogg (curator 1020-62) joined the international whaling organization to promote conservation. 1930's were met with industrial whaling efforts that Kellogg attempted to keep under control. The Kellogg library in museum houses literature on extinct animals. Wm. Perrin increased awareness on dolphin by-catch in (tuna) nets...which led to the Marine Mammal Protection Act of 1972. Charlie Potter, (friend of The Dolphin Project), expert in necropsy, has received several standings; oversaw creation of several museum buildings. Prescott, former tuna fisherman, first described echolocation and received a federal grant for dolphin research. The Dermestid Beetle is used to clean necropsy specimen. The Smithsonian Marine Mammals division also uses compost and flies, along with 95% ethanol solution to clean bones. John offered an open invitation for those visiting the Washington DC area to tour the whale buildings.

Human interaction on Bottlenose dolphins by Rebecca Hazelcorn, Savannah State University

Animal behavior can indicate health, group dynamics, describe how animals learn. What can change behaviors? Predators, new behaviors, environmental changes, etc. Provisional feeding (artificial feeding) can lead to increased aggression, completely alter behavior, etc. Begging is five times more frequent in Savannah than Sarasota. Begging is indicated by side swimming with eye open or open/close mouth approach surface. Beggars foraged for food significantly less frequently and displayed more frequent aggression events. Aggression was present for non-beggars only while foraging, and was more severe.

Rate of interaction of bottlenose with shrimp trawler by Carolyn Kovacs/Savannah State University

Dolphins follow nets to eat discard and stirred up catch. Savannah also has dolphins begging from recreational boats and docks. Carolyn studied behavior of dolphins with different aspects of shrimping. Dolphins associating considered 150m, and close at 10m. Dolphins were not significantly associated with vessel when nets were secure because no nets were in water and traveling fast. Begging occur w/ 10m during haul back and net manipulation. Dolphins may be utilizing food resources differently (trawling vs by catch). *FYI: Carolyn won the third place student prize for her thesis.*

Characteristics of interaction between Bottlenose dolphins and fisheries by Justin Greenman, College of Charleston.

Observed relationship of injuries on dolphins and standings related to shrimp trawl industry on coast of SC. Observed close proximity to gears, biting on nets, biting on lines and dragging underwater, rubbing on lines. Theories include that dolphins enjoy tactile stimulation and can remove lesions on the lines. No entanglement occurred with dolphins on his research. Also received survey data. Shrimpers dump bycatch while traveling; see less begging! Gear modification associated with dolphin death. Dolphin bycatch underreported, 2 reported to NMFS although 12 takes reported on research server in past 5 years.

Interactions between Bottlenose dolphins and blue crab fishery by Ashley Duchette, College of Charleston.

Estuary Charleston stock of bottlenose focus of study for crabbing association. How are these intelligent animals entangling themselves in a single line from pot to buoy? At least one death per year associated with Charleston



*Awesome 3-D mural by Guy Harvey in the Student Center at NOVA Southeastern University.
The school mascot is the shark.*

stock. Pot tipping occurs to open pot and stealing bait. Charleston dolphins have not manipulated this pot door (bungeed closed), but how are they getting food? Hydrophones were set with crab pots to record sounds associated in area. Pots were either baited or not; whistle and echolocation events were recorded. Although infrequent overall, dolphins whistled more frequently at rising tide than other tidal times.

Environmental factors in FL manatee by Jaime Goldman, NOVA Southeastern University Oceanographic Center.

Threats: anthropogenic, cold stress syndrome (below 68F/20C). This study looks at population in PPE power plant. Discharge canal is 15 degrees warmer than surrounding waterways. There remains no food in canal, but provides temperature refuge.

Behavioral Diagnosis for domoic acid in *Zalophus californianus* (California Sa Lions) by Christiana Wittmaack, NOVA Southeastern University Oceanographic Center

Looking at abnormal behavior: drinking sea water, swaying uncontrollably, head weaving, dragging hind flippers, muscle fasciculations. Findings indicate that dragging hind flippers and hypervigilance only seen in DA positive toxicosis. Muscle fasciculations can be seen as an early diagnosis as it statistically significantly displayed on beach. Bloodwork and urine not accurate diagnosis because water soluble and metabolized rapidly. DA is a neurotoxin that damages hippocampus and affects short term memory, etc.

Brevotoxicosis on manatee by Lauren Pacholec, Florida Fish and Wildlife Conservation Commission.

Red tide bloom of dinoflagellate causes contact AP activity of Na channels. This can be inhaled or ingested.

Death occurs due to inability of breathing from inability to raise head. Symptoms: lip fasciculations, dyspnea, incoord, breathing difficulty, seizure, paralysis. Video taken post resume on transport

Home range and kernel density estimates of Bottlenose dolphins by Jaime Brusa, Coastal Carolina University.

Home range based upon creation of polygon from sightings. Prey availability can be greatest location determine factor. Three ecotype dolphins exist: estuary, coastal and open ocean. Are these inlet, estuary dolphins interbreeding? 87 dolphins used in population studies. Sample size of fewer than 100 indicate high risk for extirpation. Future study includes genetic relatedness.

Comparative analysis of cetacean vital rates by Dr. Edward Keith/NOVA Southeastern University.

All life stages of the female dolphin are important for overall population of Bottlenose species, whereas other cetaceans have typically adult or juvenile populations as most significant group for population survival. Other math technique shows that older female survival most vital. Also no safe threshold of noise for marine mammals, rather every level has negative effects.

Revealing secrets of marine mammals using stable isotopes by Dr. Amy Hirons, Farquhar College of Arts & Sciences/NOVA Southeastern University.

Many elements have a stable isotope that can be measured (one extra neutron). This can be used as a tracer in food webs, migration, etc. the most common isotope is H, C, N, O, S. it is represented in parts per thousand. It is a slightly heavier form of element, as it is carrying that extra neutron. This research looks at the ratio of heavier form compared to normal. Increase in C can indicate increase in production and decrease in foraging behavior-creating decrease in N isotope. The inverse is historically true.

Diel & Sex Based difference/time spent feeding in FL manatee by Megan Flora, NOVA Southeastern University

Specific amount of time must be spent on breeding, social behavior, feeding, etc. There is an increased feeding in winter due to decreased nutrient density. DTAG recorded all sounds and depth data. Chewing sounds and, boat noises were recorded. Manatee feeding tends to end right at high tide through low tide with no feeding.

SEAMAMMS 2013 – will be at Savannah State University. TDP has offered to help Dr. Tara Cox and her students with the event. SEAMAMMS has never been held in Savannah before and should be very well attend for that reason as well as its central location. As soon as a date is chosen, we will inform you so you can mark your calendars. TDP will be helping Savannah State on this wonderful weekend. We encourage TDP members to attend and participate in this special event.

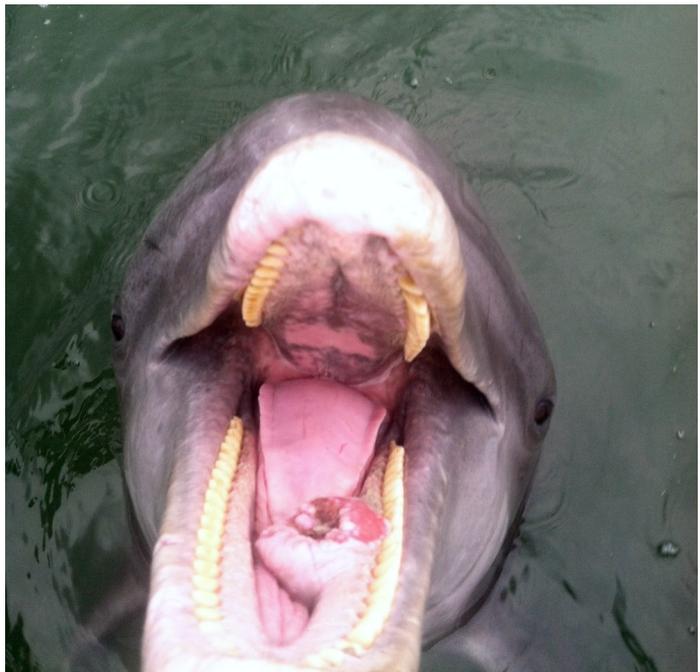
Dolphin Strandings

TDP routinely receives stranding reports from GA-DNR. Currently we do not receive these reports from South Carolina. These reports are not reflective of all the dead dolphins in Georgia - just the ones that are found. Due to the extreme tides and marshes in Georgia and South Carolina not all sick, dying and dead dolphins are seen or found. The tides carry them up into the marsh but rarely do they come back out again. The following reports which were recorded since January 2012 represent a fraction of the actual number of dead dolphins.

Unless otherwise indicated, the causes of deaths are unknown upon first sighting.

- February 8th Cumberland Island.** Dead neonate (newborn) being pushed by adult (assumed to be mother)
- February 22nd Cumberland Island.** Juvenile male, 159cm. Decomposition=moderate. Intestinal issues.
- March 1st Brunswick area.** Male, 202cm. Decomp= moderate. Organs diseased.
- March 5th 5 miles east of Wolf Island.** Male, 256cm. fresh dead. Captured in cannonball jelly fishery net.
- March 11th Tybee.** Sex=?, 272cm. Decomp=moderate
- March 13th Savannah/SE Skidaway Island.** Dead neonate with placenta – being pushed by ‘mother’.
Male, 88cm
- March 19th St. Simons Island.** Sex=?, 240cm. Decomp=advanced
- March 26th St. Simons Island.** Female, 206cm. Decomp=moderate
- April 8th Brunswick area.** Male, 260cm. Decomp=advanced
- April 15th Ogeechee River/Pooler.** Female, 247cm. Decomp=moderate
- April 29th Midway.** Dead calf being pushed by ‘mother’. Male, 117cm est. Decomp=moderate
- May 10th Jekyll Island.** Sex=?, 177cm. Decomp=mummified
- May 11th Thunderbolt.** Dead calf being pushed by ‘mother’. Sex=? 60cm est. Reported by TDP skipper Frank Sitera. TDP Skipper Andrew Zeigler sighted same mother/calf on May 13th but by then the calf had been scavenged by sharks and only the front half of the calf remained.
- May 20th Savannah/Hayners Creek** Male 245cm. Decomp=moderate
- May 25th Savannah River.** Female 246cm. Decomp=moderate
- May 31st Altamaha River.** Manatee carcass. Female 359cm. Boat collision. Decomp=advanced
- May-June Calibogue Sound, SC** Live dolphin with serious mouth tumor sighted by friend of TDP

This dolphin was sighted numerous times in Calibogue Sound by Greg Vittetoe of HHI. He photographed it and reported it to TDP. We passed on the information to NOAA/Charleston and GA-DNR. Apparently it has been repeatedly fed by humans. As stated by Wayne McFee of NOAA/Charleston: “This dolphin probably wouldn’t have that tumor if people didn’t feed it”



Dolphin rescue on Brazilian beach: <http://elcomercio.pe/player/1384898>. *The lifeguards seem familiar with this sort of event so it's possible that the dolphin may do this on an irregular basis. Maybe they're following fish into the shallows and get stuck?*

Shark Bites No Match For Dolphins' Powers Of Healing

by MAUREEN LANGLOIS

Nari, a dolphin bitten by a shark in February 2009, was almost completely healed one month later. Dr. Michael Zasloff, a surgeon and researcher at Georgetown University, is famous for discovering compounds in the skin of frogs and sharks that can fight disease in humans. Now, he's tapping another animal to mine the secrets of its immune system. It turns out dolphins have a remarkable ability to heal quickly—and seemingly painlessly—from severe shark bites. Zasloff hopes that learning how dolphins resist infection and use stem cells to rebuild missing tissue will provide some insight into how to help injured humans. To do this research, Zasloff reviewed the "clinical histories" of a few dolphins who recently succumbed to shark bites. He also interviewed all the dolphin experts he could find. His results appeared in a letter in the online version of the *Journal of Investigative Dermatology*. I caught up with Zasloff last week to learn more about his adventures in dolphin biology.

Q: OK, so imagine a human and a dolphin both being bitten by a shark. How would the healing process differ between the two?

Well, the dolphin wouldn't hemorrhage...or have any infection, which is miraculous. And despite having sustained massive tissue injury, within about month the animal will restore its normal body contour. There'll be some surface markings, but a chunk of tissue maybe the size of a football will have been restored with essentially no deformity. And what is equally amazing is that handlers who know these animals will tell you that they observe absolutely no indications in the animal's behavior that it's in pain.

Q: And the human?

Even if it was a tiny bite, we would die of sepsis, or infection, within three or four days if we weren't given antibiotics because sharks have a lot of dangerous bacteria in their teeth. Then we'd have to make sure all the [infected tissue] was removed. If we were lucky and got it all, we'd still have this massive hole, which you may or may not be able to fill.

Q: Why are dolphins so good at healing?

Dolphin blubber makes compounds like organohalogens that act as natural antibiotics and keep the tissue from getting infected. The next mystery is the recovery of contour [of the body]. When the animal restores its wound, it regenerates the complex structure of blubber. It doesn't create a scar; it produces a sort of patch that ultimately is woven back into the surrounding tissue. What is exciting is that there must be great numbers of stem cells [involved], and by looking at these stem cells, we would probably be able to identify what they are and possibly even the hormones or proteins that are involved in their expansion. And if we looked for comparable cells in man,

(Shark Bites No Match For Dolphins' Powers Of Healing *continued...*)

these might be the very cells that we would want to use to promote healing of complex wounds in us.

Q: So what are the next steps for research?

Identification of the antimicrobial agents, which have to be in those tissues. All you'd have to do is take some dolphin blubber, extract it, and start looking for stuff that would kill bacteria. And with the pain issue, it's the same thing. You would take the blubber or the regenerating tissue, you'd isolate stuff—purified components or crude—and you'd administer it to mice. And lo and behold, you may find, in the regenerating tissue or the decomposing blubber, the long-sought natural morphine that we've been looking for.

Q: You've gone through the process of drug development with some of the compounds you've found in the tissue of other animals—frogs, for instance. How long before we see dolphin-inspired therapies?

I wish I could work on this, but I don't have access to dolphins. So I'm just putting this out there for other researchers to see. Once you appreciate that this is kind of a miracle, it isn't terribly hard to come up with ideas [for how to do the research]. The hardest part is to realize that there's a miracle in your midst.

Dolphins 'Talk' Like Humans, New Study Suggests

Jeanna Bryner, LiveScience Managing Editor

Dolphins "talk" to each other, using the same process to make their high-pitched sounds as humans, according to a new analysis of results from a 1970s experiment. The findings mean dolphins don't actually whistle as has been long thought, but instead rely on vibrations of tissues in their nasal cavities that are analogous to our vocal cords. Scientists are only now figuring this out, "because it certainly sounds like a whistle," said study researcher Peter Madsen of the Institute of Bioscience at Aarhus University in Denmark, adding that the term was coined in a paper published in 1949 in the journal *Science*. "And it has stuck since." The finding clears up a question that has long puzzled scientists: How can dolphins make their signature identifying whistles at the water's surface and during deep dives where compression causes sound waves to travel faster and would thus change the frequency of those calls.

To answer that question, Madsen and his colleagues analyzed recently digitized recordings of a 12-year-old male bottlenose dolphin (*Tursiops truncatus*) from 1977. At the time, the researchers had the dolphin breathe a mixture of helium and oxygen called heliox. (Used by humans, heliox makes one sound like Donald Duck.) The heliox was meant to mimic conditions during a deep dive since it causes a shift up in frequency. When breathing air or heliox, the male dolphin, however, continued to make the same whistles, with the same frequency. Rather than vocal cords, the dolphins likely use tissue vibrations in their nasal cavities to produce their "whistles," which aren't true whistles after all. The researchers suggest structures in the nasal cavity, called phonic lips, are responsible for the sound.

The dolphins aren't actually talking, though. "It does not mean that they talk like humans, only that they communicate with sound made in the same way," Madsen told LiveScience. "Cetean ancestors lived on land some 40 million years ago and made sounds with vocal folds in their larynx," Madsen said, referring to the group of mammals to which dolphins belong. "They lost that during the adaptations to a fully aquatic lifestyle, but

(Dolphins 'Talk' Like Humans, New Study Suggests *continued...*)

evolved sound production in the nose that functions like that of vocal folds." This vocal ability also likely gives dolphins a broader range of sounds. "Because the frequency is changed by changing the airflow and the tension of the connective tissue lips in the nose, the dolphin can change frequency much faster than if it had to do it by changing air sac volumes," Madsen said. "That means that there is a much bigger potential for making a broader range of sounds and hence increase information transfer."

A must read:

A Review of the Scientific Justifications for Maintaining Cetaceans in Captivity. By Sue Mayer, BSc BVSc PhD MRCVS

http://www.wdcs.org/submissions_bin/capmayerscijustifications.pdf

The Navy Is Depending on Dolphins to Keep the Strait of Hormuz Open *By John Hudson | The Atlantic Wire – Fri, Jan 13, 2012*

If Iran closes the Strait of Hormuz, the U.S. Navy has a backup plan to save one-fifth of the world's daily oil trade: *send in the dolphins.*

The threat of Iran closing the strait has reached a fever pitch, reports today's *New York Times*, with U.S. officials warning Iran's supreme leader that such moves would cross a "red line" provoking a U.S. response. Iran could block the strait with any assortment of mines, armed speed boats or anti-ship cruise missiles but according to Michael Connell at the Center for Naval Analysis, "The immediate issue [for the U.S. military] is to get the mines." To solve that problem, the Navy has a solution that isn't heavily-advertised but has a time-tested success rate: mine-detecting dolphins.

"We've got dolphins," said retired Adm. Tim Keating in an interview with NPR. Keating commanded the U.S. 5th Fleet in Bahrain during the run-up to the Iraq war. He sounded uncomfortable with elaborating on the Navy's use of the lovable mammals but said in a situation like the standoff in Hormuz, Navy-trained dolphins would come in handy:

KEATING: They are astounding in their ability to detect underwater objects.

NPR's TOM BOWMAN: Dolphins were sent to the Persian Gulf as part of the American invasion force in Iraq.

KEATING: I'd rather not talk about whether we used them or not. They were present in theater.

BOWMAN: But you can't say whether you used them or not.

KEATING: I'd rather not.

The invasion of Iraq was the last time the minesweeping capability of dolphins was widely-touted. "Dolphins - -



(The Navy Is Depending on Dolphins to Keep the Strait of Hormuz Open *continued....*)

which possess sonar so keen they can discern a quarter from a dime when blindfolded and spot a 3-inch metal sphere from 370 feet away -- are invaluable minesweepers," reported The San Francisco Chronicle. In 2010, the Seattle Times reported that the Navy has 80 bottlenose dolphins in the San Diego Bay alone. They are taught to hunt for mines and drop acoustic transponders nearby. The photo above shows a dolphin with a tracking device attached to its fin. According to a report in 2003, the dolphins only detect the mines. Destroying them is left up to the Navy's human divers. Still, the mammals are large enough to detonate a live mine, a prospect that doesn't delight animal rights groups.

FYI: Trained captive dolphins owned by the US Navy are used protect the submarine base in St. Mary's GA

Harnessing the military power of animal intelligence By Kaj Larsen, CNN

Editor's note: CNN's Kaj Larsen served as an active duty member of the U.S. Navy SEALs for five years and was trained in combat diving.

San Diego (CNN) -- In a little-known part of the counter-terrorism world, one of the most effective detection systems is a 600-pound animal that works for about 20 pounds of fish a day.

Since the 1960s, the United States and a handful of other countries have trained dolphins and sea lions to detect sea mines and swimmers, and to recover inert torpedoes and testing objects used in Naval exercises. Program officials estimate that the sea lions in the Marine Mammal Program have recovered millions of dollars of U.S. Naval torpedoes and instrumentation dropped on the sea floor. The U.S. Navy kept its Marine Mammal Program a secret until the 1990s, and (last) spring CNN became one of only a handful of media outlets to see firsthand how the program works. [Watch Kaj take part in U.S. Navy marine mammal exercise: <http://www.cnn.com/video/#/video/us/2011/07/26/larsen.beasts.of.war.cnn>]

The program trains about 75 Pacific bottlenose dolphins, with natural biosonar that tracks better than any manmade device; and 35 California sea lions, with superb underwater eyesight. Not only do these trained marine mammals track and retrieve millions of dollars in U.S. military equipment, they are also helping to save lives. The Navy won't disclose whether the dolphins and sea lions have effectively intercepted terrorists attempting to do harm to any U.S. facilities. Either way, "it serves as a deterrent effect," says Christian Harris, operations supervisor for the program.

WHEN ANIMALS PROTECT...

The mammals can be deployed via C-130 cargo aircraft to perform their missions anywhere in the world within 72 hours. They have been used in exercises from Alaska to Hawaii, operating in great temperature and environmental ranges. They also have the capability to operate off vessels. Dolphins most recently were deployed in the Iraq war, performing mine detection and clearance operations in the Persian Gulf to ensure safe passage for humanitarian ships delivering aid. Some of these Iraq war "veterans" are now back home, tasked with a new mission: guarding nuclear submarines in their homeports of Bremerton, Washington, and

(Harnessing the military power of animal intelligence *continued...*)

Groton, Connecticut.

A key part of the training program is teaching these mammals how to intercept potentially hostile swimmers. There is an entire domain of port and harbor security devoted to anti-combat swimmer or swimmer defense. Combat diving or swimming is practiced by a small contingent of special operations forces around the world. Using an underwater breathing apparatus, at night, is a very stealthy way to come upon a target unannounced and inflict violence of action with the element of surprise. The German Kampfschwimmers, Israel's Shayetet 13, and the U.S. Navy SEALs are generally considered the premier units that train and conduct combat swimmer operations around the world. The Marine Mammal Program was conceived to defend against these kinds of attacks from hostile nations. The program is also positioned to defend against lone swimmer terrorist attacks as well. In 2002, classified reports from the intelligence community, gleaned from interrogations of suspects in Afghanistan, warned that al Qaeda was planning on using scuba divers to attack U.S. Navy vessels in port or at anchor.

HOW THE PROGRAM STARTED

In the 1960s, the U.S. Navy began studying the hydrodynamics of a Pacific white-sided dolphin in an effort to improve torpedo performance. The Navy quickly realized that the incredibly efficient biosonar of the dolphin was excellent for detecting hard-to-find objects -- and people -- underwater. For the next quarter-century, the U.S. Navy secretly honed the technique of using mammals to find both underwater objects, detect mines and combat swimmers. The Navy deployed dolphins to Vietnam and the Persian Gulf to perform the swimmer interdiction mission. In the 1990s, the U.S. military declassified the Marine Mammal Program and since then, it has been headquartered at the Point Loma Naval Base in San Diego. The program is managed jointly by the Naval Warfare Systems Center Pacific and military explosive experts, who are the backbone of the program. In addition, civilian marine biologists, veterinarians, scientists and handlers are involved in the program. Researchers from institutions like Sea World to UC San Diego regularly collaborate with them for research purposes.

The program has an annual operating budget of \$20 million, according to Marine Mammal Program director Mike Rothe who expressed confidence that the program's future funding is not at risk. "We don't anticipate any impacts to our budget based on current issues in D.C.," Rothe said. Dogged by accusations of animal mistreatment and conspiracy theories that the animals are used for offensive operations like mine placement and swimmer attack, the U.S. Navy has been slowly allowing access to the program. In April 2011, CNN got a rare opportunity to witness firsthand how accurate these animals are at detecting possible threats.

TRYING TO OUTSMART A DOLPHIN

Armed with an inert limpet mine, I dove into the chilly waters of San Diego bay to perform five mock attacks on an experimental Navy ship docked to a pier to see how well these dolphins can find potential attackers in the water. "I hope that one day [new technology] makes the mammal program obsolete. But right now, this is the best thing out there. --Mike Rothe, director of U.S. Navy marine mammal program.

Both as a surface swimmer and using scuba gear, my experience was identical. I'd progress toward the ship and out of the murky waters of the bay I would feel an aggressive bump -- sort of like getting hit by a battering ram -- indicating the dolphin had marked me and that security forces were on their way to my location. Despite all my efforts at concealment, I was an easy target for the dolphin in its natural environment. Later, I was intercepted by a sea lion who attached a clamplike device to my leg -- allowing the security boat to reel me in.

Dolphin News..

(Harnessing the military power of animal intelligence *continued...*)

The final score of my day of training in the bay: mammals 5, combat swimmer 0. While it seems strange that in this digital era, there's such a seemingly lo-fi approach to guard the Navy's most sophisticated and expensive assets. But according to Rothe, nothing in today's hi-tech world can compete with these mammals' biosonar abilities.

"I hope that one day there is a robot or a UUV [unmanned underwater vehicle] that makes the mammal program obsolete," he said. "But right now this is the best thing out there."

NOTE: THE ARTICLES ON CAPTIVE DOLPHINS DO NOT SUGGEST ENDORSEMENT OR SUPPORT OF CAPTIVE DOLPHINS AND DO NOT REFLECT THE MISSION OR OPINION OF 'THE DOLPHIN PROJECT'. THE MATERIAL IS OFFERED FOR INFORMATIONAL AND EDUCATIONAL PURPOSES ONLY.

BALLOON BAN

While celebrating her birthday during a vacation in August 2010, 7-year old Cameron Koporc of Roswell GA had a life changing experience - she discovered sea turtles. Now she's dedicating time and energy to help raise money for those who work to protect them. Her discovery began with a surprise sea turtle adoption from her parents. Cameron and her family were met by a Volusia/Flagler Turtle Patrol volunteer on a Flagler County FL beach. They were taught about seaturtles as the volunteer dug through mounds of sand at the site of a nest that had hatched just days earlier . Cameron realized she wanted to help these majestic creatures too so she learned all she could about seaturtles, their environment and the dangers they face. She had fundraisers: <http://www.news-journalonline.com/news/local/flagler/2011/09/03/girls-fundraisers-help-save-turtles.html>

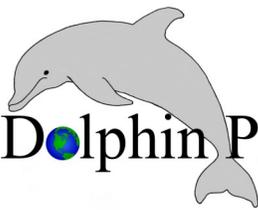
Cameron has also started a petition to have the Georgia legislature put into law a ban on the mass release of balloons. What goes UP— eventually comes DOWN! Not only do balloons pollute the environment (an obvious reason to stop the mass release of balloons), they also maim and kill wildlife including birds, dolphins, seaturtles and various sealife. To help Cameron pass this law for Georgia, please go to <http://www.change.org/petitions/georgia-politicians-make-mass-balloon-releases-illegal>

For more information on this petition, read: <http://www.savannah.com/what-goes-up-comes-downand-its-not-good/>

I-GIVE for dolphins

Do you order items over the internet? Here's a way you can do that and donate to The Dolphin Project at the same time at no additional cost to you! There is no cost for registering and TDP will automatically get \$5 if you do. TDP will also get \$5 when you make your first purchase. After that, any purchases you make from your favorite stores will give a percentage of the sale to TDP. It's beneficial to TDP and painless for you! Win-Win!

<http://www.igive.com/>



The Dolphin Project

LOVES OUR SPONSORS



WYLAND FOUNDATION



Hanger™

Empowering Human Potential

PROSTHETICS & ORTHOTICS



THE | COASTAL | BANK