

# Soundings



American Cetacean Society- Monterey Bay Chapter

January 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, January 26, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

Speaker: Steve Webster, Retired Marine Biologist,  
Monterey Bay Aquarium

Subject: My Close Encounters with Minke Whales  
of the Great Barrier Reef...

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It is well documented that many species of baleen whales suffered significantly from the pressures of commercial whaling. Minke whales, perhaps in part because of their smaller size, seemed to have escaped the ravages of past commercial whaling. The future outlook, however, may not be as positive for the minkes. While their world wide population seems generally healthy today, these same numbers make them targets for expanded quotas by modern whaling nations.

Our speaker this month has been diving on and photographing coral reefs for about 50 years, including Pacific coral reefs in Fiji, Niue, West Samoa and Tonga. When invited on a trip to the Great Barrier Reef last July, Steve expected to broaden his familiarity with Pacific coral reefs. He heard he might see some dwarf minke whales near Lizard Island, but being an invertebrate zoologist this didn't make much of an impression. However, those minke whales soon saw to it that his mental frameset and photo library for coral reefs would soon be revised to include these amazing whales.

Please join us for a special first meeting for 2012 during which Steve will share another of his adventures with us. He will tell us about his experiences with two separate sessions with these minke whales and he will relate what is known of the biology and ecology of this unnamed subspecies of the northern(!) minke whale.

Hope to see you there,

Bob Mannix, Chair, ACS MB Programs Committee

# CALENDAR

**Jan 19th:** Lecture Dr. Sarah Mesnick-Sperm Whales:

Kith and Kin-the social life of the worlds largest toothed whale. Cost \$5.00, Location PGMNH 7pm-8pm. For more info call 831-848-5716

## **Hopkins Marine Station Winter Seminars**

**Jan. 13th:** 12-1pm: Ty Hendricks, UNC, Chapel Hill Animal Flight Dynamics: Stability & Maneuverability

**Jan. 20th:** 12-1pm: Shiela Patek Univ. of Mass. End-Permian Mass Extinction in the Ocean. An Ancient Analog for the 21st Century and Beyond

**Jan 21st 9am—5 pm: Whalefest 2012** at Fisherman's Wharf and Custom House Plaza in Monterey. Join us for a day of fun and educational activities all about whales. For a complete schedule, visit [montreywharf.com](http://montreywharf.com). Info: Bob Massaro, 649-6544

**Jan 22nd 8am—10 am : Gray Whales!** Accompany ACS Monterey Bay to view gray whales on their annual migration on Sunday morning Cost of this fundraiser for ACS is \$35 per person, which will be used for research, education and conservation of whales and dolphins. Trip generously provided by Princess Monterey on Fisherman's Wharf. Please mail checks to ACS at PO Box HE, Pacific Grove, CA, 93950. Dress warmly, bring binoculars and cameras, and meet at Princess Monterey on the wharf at 7:40am. More info? Call 831-214-1016 or for reservations and info please call Tony Lorenz at 831-901-7259 or Sally Eastham at 372-6919

**Feb.3rd-4th:** Whale Tales/Whale Quest Ritz Carlton, Kapalua. Presenters will include Bruce Mate, James Darling, Craig Matkin and Flip Nicklin. For more info: [info@whaletrust.org](mailto:info@whaletrust.org) or call 808-572-5700

**Mar. 8-12:** 9th Annual San Francisco Ocean Film Festival. Films will be shown at the Bay Theatre Pier 39 in San Francisco. For more info call 415-501-6251

## **Chapter Elections:**

Chapter elections will be held at the 1/26/12 general membership meeting to accept the following additions to the ACS/MB Board of Directors.

Jerry Loomis, President  
Richard Ternullo, Vice-President  
Jennifer Thamer, Secretary  
Tim Thomas, Historian  
Debbie Ternullo, Member-at-large

**Viva Vaquita Donation:** Thanks to the generosity of our members, ACS Monterey Bay donated \$8000 to CEDO in Puerto Penasco, Mexico. CEDO is working with the indigenous fishermen near the vaquita habitat in Baja California, Mexico, to develop new ways to coexist with the highly endangered cetacean. It gets better! Save the Whales also donated \$8000 to CEDO, and our combined donation of \$16,000 was matched by a Packard Foundation grant, making it possible to give \$32,000 to CEDO for their important work to help save the vaquita. Thank you all! Viva Vaquita!

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## Media Recommendations

Plastic Ocean: How a Sea Captains Chance Discovery Lunched a Determined Quest to Save the Oceans. By Captain Charlie Moore. Algalita Marine Research Group

Ghost Wave: The Discovery of the Cortes Bank and the biggest wave on earth By Chris Dixon.

Once and Future Giants: What Ice Age Extinctions Tell Us About the Fate of the Worlds Largest Animals. By Sharon Levy.

The Tangled Bank: An Introduction to Evolution. By Carl Zimmer

DVD-A Fall From Freedom: The Untold Story Behind The Captive Whale And Dolphin Industry. A Film By Stanely Minasian

## CHILEAN WIND FARM FACES TURBULENCE OVER WHALES

Jimmy Langman For National Geographic News

Published November 29, 2011

Off the northwest coast of Isla Grande de Chiloé in southern Chile (map), cold-temperate waters influenced by the west wind drift pound against the South American continent. This flow, also known as the Antarctic Circumpolar Current, causes nutrient-rich water to collide with land, generating a phytoplankton bloom and an abundance of krill.

It's a veritable buffet for the world's largest mammal, the great blue whale. On average, weighing 200 tons and at 100 feet (30 meters) from head to tail, the blue whale is longer than a regulation-sized basketball court. Despite its tremendous size, it feeds almost entirely on the tiny krill, which makes this area off Chiloé a favorite feeding ground every year from January to April.

These favorable marine currents are matched by air currents on land that the energy industry now is seeking to capture. On Mar Brava beach in Cocotué Bay, about 13 miles north of the town of Ancud, plans are under way to build a large-scale wind-energy park. Although the turbines would be on shore, scientists are worried about the potential impact in the sea, especially for the blue whale, an endangered species that saw its numbers in the Southern Hemisphere reduced by 97 percent over the past century.

Environmental groups and citizens in Chile generally support wind power as an environmentally friendly source of electricity, one that's especially important as the South American nation moves aggressively to diversify its energy supply. But more than a dozen organizations here oppose the \$235 million wind farm project in Chiloé being built by Ecopower of Santiago. They argue that the construction and operation of the onshore turbines sited on 2,471 acres (1,000 hectares) along the coast potentially could harm not just the blue whale, but dozens of migratory birds, penguins, and several other marine species.

"This project needs to file not a declaration of impacts, but a full environmental impact study," says Barbara Galletti, president of Centro de Conservación Cetacea in Santiago, who is leading the opposition.

### DRIVE FOR RENEWABLES

The conflict between wind power and

whales comes as Chile is working to develop alternative energy sources to meet rising demand. With the economy growing at about 6 percent per year, the country projects its energy demand will double by 2025.

More than 80 percent of electricity is used by industry, and mostly for Chile's world-leading copper mining exports. Currently, hydroelectric dams provide nearly half the nation's energy, with the rest from coal and natural gas imports. The government has set a goal that by the end of this decade, at least 10 percent of Chile's electricity should come from geothermal, wind, solar, and other alternative sources.

The Ecopower project could contribute to that effort, with 56 turbines providing 112 megawatts of power, triple Chiloé Island's current needs. It would allow the island to export electricity rather than depend on the mainland.

Julio Albarran, general manager of Ecopower, said in an interview that even though the company was not legally obligated to do so, it conducted several studies, mostly focused on the project's potential effects on migratory birds, and made changes aimed at mitigation.

Albarran firmly refuted criticisms that his company plans could pose a threat to the whales or marine life: "Offshore wind power facilities could harm whales, but there exists no study that says land-based wind power affects whales."

But Ecopower was not required to produce a detailed environmental-impact study. Instead the government determined that sufficient information was contained in a shorter-form environmental "declaration" filed by the company, and that the project was not likely to have the "significant" environmental effects that would warrant a full impact study.

Chile's environmental authorities approved the project in August, but before the end of the year the Chilean Supreme Court is likely to decide on a lawsuit from opposing groups.

Scientific research on the impact of wind farms on whales and other marine species is indeed an emerging field. But scientists say there is enough evidence to suggest that wind farms offshore or on the coast can potentially harm whales and other cetaceans. The scientific committee of the International Whaling Commission (IWC) studied the Chiloé project and recommended last June in its formal

report "the urgent development of an environmental impact assessment in this region and to reconsider locating the wind farm towers further away from coastline."

#### **BOATS AND NOISE**

High on the list of environmentalists' concerns is the fact that construction of wind farms, whether offshore or along coastlines, can mean an increase in boat traffic. At the proposed wind farm on Cocotué Bay, Ecopower proposes building a port to facilitate the construction and maintenance of its wind turbines. Mark Simmonds, international director of science at the Whale and Dolphin Conservation Society, based in Wiltshire, England, says that raises red flags.

"The construction of a new port on the site of an important blue whale habitat, that on its own is enough reason for experts around the world to speak out," said Simmonds. "Perhaps the biggest problem across the seas at the moment for whales is the sheer amount of boat traffic."

Simmonds says whales use low frequency to communicate with each other, and low-frequency noise from boat traffic interferes with their communication. Worldwide, this traffic has increased several times over in recent decades. Whales are often also struck and killed by boats.

Scientists and policymakers who study construction of wind farms offshore or on coasts share a widespread concern about the loud noise generated by turbine installation. Hydraulic hammers are used to drive piles for the turbine foundations into the sea floor or ground below, generating noise levels as high as 300 decibels or more.

Humans can experience hearing loss at 120 decibels. But scientists say whales and other marine mammals are even more sensitive to sounds, in part because they are hearing-centric. For instance, many marine mammals use echolocation, or biosonar, to help them navigate or find food. Sound underwater also travels faster and farther.

"For cetaceans, sound is absolutely fundamental to their existence," said Jason Gedamke, director of the acoustics program for the United States National Oceanic and Atmospheric Association (NOAA).

"Anything that introduces sounds into the ocean needs to be looked at. You would assume that for projects like this that an environmental impact assessment would be done."

Stefan Gsanger, secretary general of the

World Wind Energy Association, said the industry recognizes that precautions need to be taken during the construction of wind farms. "There is major noise during construction of a wind turbine, and offshore wind is still a new technology and requires more study. These issues have to be taken very seriously to determine how these effects can be minimized."

Studies show nearly half of the 363 blue whales documented to frequent the waters off Chiloé's coast regularly congregate in the vicinity of the proposed wind farm. This exceptionally large concentration of blue whales in northwest Chiloé waters makes it the most important habitat for blue whales in the entire Southern Hemisphere.

About 40 percent of the 56 wind turbines planned by Ecopower are located on wetlands close to the Mar Brava shoreline, some as little as 10 meters from the water. Galletti, who has been studying the blue whale off Chiloé's coast for more than a decade, says blue whales in the area have been known to come 400 meters or less from the coast. The critically endangered southern right whale has been seen as close as 5 meters from shore.

Galletti said these unique conditions increase her concern over the potential for chronic noise effects from the operation of wind turbines here. "Planes over whale-watching areas emit about 110 decibels and are known to drive whales away. There will be 56 wind turbines, which according to the company can each emit as much as 121 decibels," said Galletti, emphasizing that the noise would be continuous over the following 25 years. "We ought to follow the precautionary principle in such a fragile habitat," she said.

While studies to date may not conclusively show whether the continuous operation of wind farms on coasts can affect whale habitat; there are few if any wind farms like the one proposed for Mar Brava.

NOAA's Gedamke says, in the worst case, "it is possible that, over a very long time, a particular habitat could be acoustically swamped and cause abandonment."

"If these animals are aggregating right near where these installations are going in, then impacts from operational noise are more of a concern," he said.

## HOPE IN THE AGE OF MAN

By Emma Marris. Peter Kareiva, Joseph Mascaro, and Erle C. Ellis Published: December 7, 2011

Scientists interested in drawing attention to the human transformation of planet Earth have begun calling the current geological epoch the Anthropocene — the age of man. Naming an epoch is serious business — and in this case the new name is well deserved, given humanity's enormous alteration of the Earth. We have acidified the oceans and changed global climate with our use of fossil fuels. We have bent more than 75 percent of the ice-free land on Earth to our will. We have built so many dams that half of the world's river flow is regulated, stored or impeded by human-made structures. We have transported plants and animals hither and yon as crops and livestock and as accidental stowaways.

Some environmentalists see the Anthropocene as a disaster by definition, since they see all human changes as degradation of a pristine Eden. If your definition demands that nature be completely untouched by humans, there is indeed no nature left.

But in fact, humans have been changing ecosystems for millennia. We have learned that ecosystems are not — and have never been — static entities. The notion of a virgin, pristine wilderness was understandable in the days of Captain Cook — but since the emergence of modern ecology and archaeology, it has been systematically dismantled by empirical evidence.

Yet even scientists are still misled by the idea of an untouched, natural paradise. A paper published in October by a group of scientists at the University of California, Davis, in the journal *Conservation Biology* criticizes the idea of the Anthropocene because it leaves “the impression that nowhere on earth is natural” and because “the concept of pervasive human-caused change may cultivate hopelessness in those dedicated to conservation and may even be an impetus for accelerated changes in land use motivated by profit.”

We defend the term “Anthropocene,” and we do not accept the argument that the concept opens the floodgates of unrestricted development. To assert that without the ideal of pristine wilderness, humanity will inevitably go on ruining our best-loved landscapes is analogous to Dostoyevsky's dictum that without God, everything is permitted.

Yes, we live in the Anthropocene — but that does not mean we inhabit an ecological hell. Our management and care of natural places and the mil-

lions of other species with which we share the planet could and should be improved. But we must do far more than just hold back the tide of change and build higher and stronger fences around the Arctic, the Himalayas and the other “relatively intact ecosystems,” as the scientists put it in their article.

We can accept the reality of humanity's reshaping of the environment without giving up in despair. We can, and we should, consider actively moving species at risk of extinction from climate change. We can design ecosystems to maintain wildlife, filter water and sequester carbon. We can restore once magnificent ecosystems like Yellowstone and the Gulf of Mexico to new glories — but glories that still contain a heavy hand of man. We can fight sprawl and mindless development even as we cherish the exuberant nature that can increasingly be found in our own cities, from native gardens to green roofs. And we can do this even as we continue to fight for international agreements on limiting the greenhouse gases that are warming the planet.

The Anthropocene does not represent the failure of environmentalism. It is the stage on which a new, more positive and forward-looking environmentalism can be built. This is the Earth we have created, and we have a duty, as a species, to protect it and manage it with love and intelligence. It is not ruined. It is beautiful still, and can be even more beautiful, if we work together and care for it.

*Emma Marris is the author of “Rambunctious Garden: Saving Nature in a Post-Wild World.” Peter Kareiva is the chief scientist for the Nature Conservancy. Joseph Mascaro is a postdoctoral associate at the Carnegie Institution for Science and the Smithsonian Tropical Research Institute. Erle C. Ellis is an associate professor of geography and environmental systems at the University of Maryland, Baltimore County.*

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## HAWAIIAN SWORDFISH FLEET SHUTTERED FOR KILLING ENDANGERED SEA TURTLES

The National Marine Fisheries Service (NMFS) has shut down the Hawaiian long-line swordfish fishery through year's end because the fleet captured too many critically endangered leatherback sea turtles as by-catch, called “incidental take.” The swordfish is shipped to the U.S. West Coast and mainland for sale in restaurants and supermarkets.

This is the second time in five years that the Hawaiian swordfish longline fishery has had to shut down after exceeding its “legal” take of critically

endangered Pacific sea turtles. The legally mandated fishery closure provides only a temporary reprieve for the critically endangered leatherback and also loggerhead sea turtles that are caught: the long-line boats and their high-impact gear are prohibited from fishing only through the end of the year.

The fishery will remain closed until 2012, when its “allowable” capture of sea turtles is “reset” to zero. The maximum take in the fishery is 16 Pacific and 17 Pacific loggerheads, which were recently uplisted from threatened to endangered. Critical habitat for leatherbacks was recently delayed by NMFS.

“Longline fishing is nothing more than a massacre of ocean wildlife in a relentless hunt for profit, and the Hawaiian fishery is no exception—killing sea turtles, marine mammals and seabirds,” said Todd Steiner, biologist and executive director of SeaTurtles.org. “It’s bad enough that endangered species are dying—but swordfish is so high in mercury that Americans shouldn’t be eating it anyway.” The answer, Steiner added, is to begin to phase out this and similar high by-catch fishing gears entirely.

The fishery was closed for nearly four years, ending in 2004, with the current rules that require the fishery to close when its allowable take of turtles is reached. The fishing fleet is also required to use special hook and bait designed to protect sea turtles, which has not reduced levels of take that force a closure. The fishery also was closed in 2006 for harming too many Pacific loggerhead turtles.

Incidental take—otherwise known as “by-kill”—describes a destructive consequence of industrial fishing, when “non-target” species such as sea turtles or dolphins are hooked by gear deployed for commercial fish such as tuna or swordfish. These animals often die or are critically injured as a result of being hooked by the quarter-inch thick stainless steel hooks; held underwater by the fishing gear, they are unable to surface and thus drown.

The Pacific leatherbacks killed in the Hawaii longline fishery nest in Indonesia and swim 6,000 miles across the ocean to forage along the U.S. West Coast. The sea turtles often stop-over in Hawaii to rest and feed. The largest of all sea turtles, leatherbacks can grow to be up to eight feet long and weigh up to 1,800 pounds. Pacific leatherback sea turtles have declined more than 95 percent since the 1980s; as few as 2,300 adult female western Pacific leatherbacks remain. SeaTurtles.org’s Leatherback Watch

Program documented over twenty sightings of leatherbacks along the U.S. West Coast this summer alone. The species has survived for 100 million years virtually unchanged; now their kind risks disappearing from the planet.

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## RECORD NUMBER OF BLUE WHALES SIGHTED OFF WASHINGTON COAST

On 8 December 2011, six blue whales were sighted feeding off the Washington coast intermixed with humpback and fin whales. Blue whales are the largest animal that has ever lived and still endangered due to whaling. This is the most blue whales we know of ever being sighted off Washington and only the third confirmed sighting in the last 50 years. One of the previous sightings was also in winter. The other sightings in 2009 were of single animals. Blue whales are more commonly seen off California in summer and fall. This lack of sightings off Washington could in part be because of the lack of survey effort in winter months off the Washington coast, a period where poor weather makes surveys difficult.

The current sightings were part of a new research effort conducted by Cascadia Research in collaboration with Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife and supported by NOAA to learn more about the occurrence of endangered whales off Washington and Oregon. This three-year effort will include surveys, photographic identification, and satellite tagging to learn more about the large whales occurring in this region.

The most recent sightings came about as a result of one of these surveys. A concentration of whales (thought to be mostly humpback and fin whales) had been spotted in the morning of 8 December by the WDFW vessel *Corliss* when it surveyed through an area about 25 miles off the Westport. A smaller inflatable boat operated by Cascadia researchers Greg Schorr and John Calambokidis followed-up these sightings later that morning. They identified and photographed the whales including confirming the presence of at least six different blue whales. These will be photographically compared to Cascadia’s catalog of over 2,000 identified blue whales to search for previous sightings of these individuals.

## WHALE FOSSIL BONANZA IN DESERT POSES MYSTERY

By Eva Vergara, Ian James updated 11/20/2011

*Researchers have begun to unearth one of the world's best-preserved graveyards of prehistoric whales*

SANTIAGO, Chile — More than 2 million years ago, scores of whales congregating off the Pacific Coast of South America mysteriously met their end.

Maybe they became disoriented and beached themselves. Maybe they were trapped in a lagoon by a landslide or a storm. Maybe they died there over a period of a few millennia. But somehow, they ended up right next to one another, many just meters (yards) apart, entombed as the shallow sea floor was driven upward by geological forces and transformed into the driest place on the planet.

Today, they have emerged again atop a desert hill more than a kilometer (half a mile) from the surf, where researchers have begun to unearth one of the world's best-preserved graveyards of prehistoric whales.

Chilean scientists together with researchers from the Smithsonian Institution are studying how these whales, many of the them the size of buses, wound up in the same corner of the Atacama Desert.

"That's the top question," said Mario Suarez, director of the Paleontological Museum in the nearby town of Caldera, about 700 kilometers (440 miles) north of Santiago, the Chilean capital.

Experts say other groups of prehistoric whales have been found together in Peru and Egypt, but the Chilean fossils stand out for their staggering number and beautifully preserved bones. More than 75 whales have been discovered so far — including more than 20 perfectly intact skeletons.

They provide a snapshot of sea life at the time, and even include what might have been a family group: two adult whales with a juvenile between them.

"I think they died more or less at the same time," said Nicholas Pyenson, curator of fossil marine mammals at the Smithsonian's National Museum of Natural History. Pyenson and Suarez are jointly leading the research.

As for why such a great number perished in the same place, Pyenson said: "There are many ways that whales could die, and we're still testing all those different hypotheses."

The scientists have yet to publish their find-

ings about the fossil bed and the extensive remains, which began to emerge in June last year during a highway-widening project that is now on hold.

So far, the fossils have been found in a roadside strip the length of two football fields — about 262 yards long and 22 yards wide.

Pyenson said the spot was once a "lagoon-like environment" and that the whales probably died between 2 million and 7 million years ago.

Most of the fossils are baleen whales that measured about 8 meters (25 feet) long, Pyenson said.

The researchers also discovered a sperm whale skeleton and remains of a now-extinct dolphin that had two walrus-like tusks and previously had only turned up in Peru, he said.

"We're very excited about that," Pyenson said in a telephone interview. "It is a very bizarre animal."

Other unusual creatures found elsewhere in the fossil-rich Atacama Desert include an extinct aquatic sloth and a seabird with a 17-foot wingspan, bigger than a condor's.

Erich Fitzgerald, a vertebrate paleontologist at Museum Victoria in Melbourne, Australia, emailed that the latest find is very significant.

"The fossils are exceptionally well preserved and quite complete — a rare combination in paleontology and one that will likely shed light on many facets of the ... ecology and evolution of these extinct species," Fitzgerald said.

He said it's possible "these fossilized remains may have accumulated over a relatively long period of time."

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SIGHTINGS compiled by Monterey Bay Whale Watch. For complete listing and updates see [www.gowhales.com/sighting.htm](http://www.gowhales.com/sighting.htm)

Date	#	Type of Animal(s)
12/30 a.m.	5	Gray Whales
	30	Risso's Dolphins
12/29 p.m.	10	Gray Whales
	30	Risso's Dolphins
12/29 a.m.	11	Gray Whales
	10	Risso's Dolphins
12/28 p.m.	5	Gray Whales
12/28 a.m.	15	Gray Whales
	5	Killer Whales
12/27 p.m.	7	Gray Whales
12/27 a.m.	10	Gray Whales
12/26 p.m.	6	Gray Whales
12/26 a.m.	12	Gray Whales
12/25		No trip - Christmas holiday
12/24 p.m.	6	Gray Whales
12/24 a.m.	13	Gray Whales

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P.O. Box H E  
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**P.O. Box H E Pacific Grove, CA 93950**

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Email: kmarypaul@gmail.com  
tonylorenz@bigbluebay.com



# Soundings



American Cetacean Society- Monterey Bay Chapter

February 2012

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## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, February 23, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

Speaker: Michael Stocker, Ph.D,  
Director of Ocean Conservation Research

Subject: Marine Bio-Acoustics and Scientific Solutions to the  
Impacts of Human Generated Noise on the Marine Habitat

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Humans use hearing as well as vision and smell to navigate our environment, and because light transmits so efficiently through air many of us depend heavily on our visual sense. Water on the other hand transmits light poorly so animals submerged more than a few hundred feet are always in a dark world – illuminated only by bioluminescence. Fortunately sound transmits very efficiently through water, so most marine life has adapted to their acoustic environment with an amazing array of sound-perceptual mechanisms. The cetaceans, whales, dolphins, and porpoises, have evolved complex bio-sonars that the odontocetes (toothed whales) use to perceive very fine details of their surroundings, and the mysticetes may use to navigate across ocean basins. Because sound is so important to these animals, marine noise pollution from shipping, seismic surveys (for oil and gas), and a growing array of sonars and acoustical communication systems is seriously compromising their bio-acoustic habitat.

Our speaker is a bio-acoustician and Director of Ocean Conservation Research – a research and policy development organization focused on understanding and finding solutions to the impacts of human generated noise on marine animals and their habitats. He will share with us his work and present some of the latest thinking on the bio-acoustic modalities of baleen and toothed whales.

Please join us to learn more about this ever growing problem of noise pollution in the bio-acoustically complex marine environment.

Michael Stocker, Ph. D., Ocean Research Conservation  
Bob Mannix and Donna Beckett, ACS MB Programs Committee

# CALENDAR

**Feb 12:** International Darwin Day: Celebrating Darwin, Science, and Humanity. For more info and Darwin day events go to [www.darwinday.org](http://www.darwinday.org)

**Feb 11th-12:** 10am-5pm Shark Days Celebration at the Monterey Bay Aquarium. Shark artist and conservationist Jim Toomey will be present to sign books and perform art demonstrations.

**Mar. 8-12:** 9th Annual San Francisco Ocean Film Festival. Films will be shown at the Bay Theatre Pier 39 in San Francisco. For more info 415-501-6251

**April 12-13:** 9am-5pm Moss Landing Marine Laboratory Open House. Itinerary will include lectures, open labs, sea lion presentations, puppet shows, marine themed art projects and much more. For more info [openhouse.mlml.calstate.edu](http://openhouse.mlml.calstate.edu)

**April 14:** MBNMS Sanctuary Currents Symposium: From Lions to Luminescence. Linking Land to Sea Conference to be held at CSUMB. For program schedule go to [montereybay.noaa.gov/currsymp2012](http://montereybay.noaa.gov/currsymp2012)

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**May 22-June 3:** Marine Mammal and Seabird Behavioral Ecology of New Zealand. Class will be taught in Kaikoura, New Zealand with marine mammalogist Bernd Wursig. 13 days immersion in marine mammal and seabird ecology and behavior. For more info go to [wuersig@sbcglobal.net](mailto:wuersig@sbcglobal.net)

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## Media Recommendations

Sharks and Rays of Australia by P.R. Last and John Stevens

Field Notes on Science and Nature by Michael Canfield. Forward by Edward O. Wilson.  
2011 Harvard University Press

The Sounding of the Whale: Science and Cetaceans in the Twentieth Century By Dr. Graham Burnett  
University of Chicago Press

**DVD-Charles Darwin and the Tree of Life:** by David Attenborough (DVD) 2009 BBC Earth

## Message from ACS

### Executive Director

After many months of planning, it gives me great pleasure to unveil our newly-redesigned website! Knowing that you depend on ACS for critical information that advances the protection of whales, dolphins, and porpoises worldwide, we've rebuilt our site to make it much easier to find and share resources. Check it out at: [www.acsonline.org](http://www.acsonline.org)

In addition to smart navigation and a clean, contemporary look, we've added stunning images contributed by some of the world's most renowned marine photographers, made it easier to join, donate, and purchase merchandise, included a gallery of beautiful images contributed by our members and supporters, and shared strategic organizational and governance documents that will guide us toward a bright, highly-effective vision for the future.

That's a lot, but there's much more to come, including 2012 conference updates, Action Alerts, advocacy campaigns, whale watch trips... *and more!* And while the website is 'live', we're continually perfecting the content, so be sure to check the site frequently to see what's new.

2012 is going to be our best year yet, and I'll share a sneak preview with you. If you enjoyed the last issue of *Whalewatcher*, devoted to killer whales, then you're going to *love* the next issue, dedicated entirely to sperm whales. Featuring Dr. Hal Whitehead as our guest editor, it promises to be one of the very finest editions we've produced. *Enjoy it...* and tell your friends about this wonderful publication, recently nominated for a 2012 Maggie Award by the Western Publishing Association, and an exclusive benefit of membership in the American Cetacean Society.

In this 45th anniversary of our founding, we continue to be inspired by the passion and dedication we see in our members, volunteers, conservation practitioners, and researchers – all working on behalf of cetaceans everywhere! We hope that you, too, will join us and be inspired to act on behalf of the whales, dolphins, and porpoises you care about.

Thank you for your support -tell a friend about us!

*Cheryl*

Cheryl M. McCormick, Ph.D.  
Executive Director  
American Cetacean Society  
[www.acsonline.org](http://www.acsonline.org)  
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## WANDERING ALBATROSS ALTERS ITS FORAGING DUE TO CLIMATE CHANGE

Wandering albatrosses have altered their foraging due to changes in wind fields in the southern hemisphere during the last decades. Since winds have increased in intensity and moved to the south, the flight speed of albatrosses increased and they spend less time foraging. As a consequence, breeding success has improved and birds have gained 1 kilogram. These are the results of the study of an international research team published in the latest issue of the *Science* journal. However, these positive consequences of climate change may last short if future wind fields follow predictions of climate change scenarios, researchers warn.

For this study, biologists had combined data on the duration of foraging trips and breeding success over the last 40 years, as well as foraging and body mass over the last 20 years of wandering albatross (*Diomedea exulans*) breeding in Crozet Islands. This archipelago lies approximately in the heart of the southern Indian Ocean (halfway between Madagascar and Antarctica). It belongs to the French Southern Territories and it is located in the windiest part of the Southern Ocean. The new findings are the result of an international research team from the French National Centre for Scientific Research (CNRS-CEBC) and the German Helmholtz-Centre for Environmental Research (UFZ).

Thanks to miniaturized tracking devices, researchers were able to track the foraging movement of albatrosses at a distance of 3500 kilometers from the colony. They found that albatross have altered their search patterns following changes in wind conditions over the past two decades. Females used increasingly more poleward and windy areas for foraging. As a consequence their travel speed increased while the total distance covered during foraging flights did not change. “This means that they spend less time at sea while incubating the egg and thus the breeding success increases” explains Dr. Henri Weimerskirch of the French National Centre for Scientific Research (CNRS-CEBC). Researchers were surprised that both females and males have increased their body mass in one kilogram, which corresponds approximately to one tenth of their total body weight. This could be not only a result of shorter incubation periods on the nest, but also an adaptation to windier conditions.

“The wandering albatross Crozet population has decreased as a result of adult mortality on long-



line fishing in subtropical waters, especially females since they favor warmer subtropical waters in the north compared to the more southerly distribution of males” says Dr. Maite Louzao Arsuaga, who has been modeling albatross movement from 2009 to 2011 at the UFZ. “Due to the changing wind conditions, females are now foraging in more southward areas where such fishing is not that widespread”. However, the positive effects of changing environmental conditions of the last decades will not last in the future. Climate scenarios predict that westerly winds will move even further south by 2080 and wandering albatrosses might have to fly further to find optimal conditions for flying.

The total population of the wandering albatross is currently estimated at around 8,000 breeding pairs. All populations have shown a decrease at some stage over the last 25 years. This endangered species is threatened primarily by incidental catch in fisheries, especially longline fishing at sea, whereas the introduction of alien species (such as rats or cats) are a key conservation threat for the species on breeding colonies. Additionally, the accumulation of anthropogenic debris such as plastic and fishing hooks on albatrosses have negative effects on their populations. Thus, it is important to continue with monitoring programs of population trends and distribution at sea, as well as to undertake effective conservation measures. The foraging habitat of wandering albatrosses is managed by more than one Regional Fisheries Management Organizations, which makes it difficult to implement conservation measures for the species.

The wandering albatross has fascinated people for centuries. With a wingspan of over three meters and a half, it is the largest seabird in the world, surpassing just the Andean condor

(*Vultur fulvus*). This elegant sailor, which spends most of its life flying, breeds on remote sub-antarctic islands over the Southern Ocean. They travel thousand of kilometers searching for fish and cephalopods like squids, often following ships and feeding on offal. The plumage of wandering albatrosses is variable, whitening with age. The maximum known age is 55 years old. Since the rearing of chicks takes a whole year, they breed only every second year.

Apart from the study published in the latest Science issue, the research team has identified the key marine areas for the conservation of wandering albatrosses in the southern Indian Ocean published in 2011 in the Journal of Applied Ecology. This study provided the first map to support the future development of a network of priority protected areas in the southern part of the Indian Ocean, which are based on habitat predictions. "Because the species has no natural enemies and is at the top of the food web, it is particularly well suited as an indicator of the health of marine ecosystems," says Dr. Thorsten Wiegand from the UFZ, who supervised the work of Dr. Maite Louzao. "This could help not only a single species, but the underlying biodiversity associated with pelagic key habitats to protect Southern Ocean. Moreover, we have developed methods of habitat modeling broadly applicable and can be used to assess changes in species distribution within the current global change scenario."

**Publications:** Henri Weimerskirch, Maite Louzao, Sophie de Grissac, Karine Delord (2012): Changes in Wind Pattern Alter Albatross Distribution and Life-History Traits. *Science*. 335: 221. 13 January 2012

DOI: 10.1126/science.1210270

<http://dx.doi.org/10.1126/science.1210270>

<http://www.sciencemag.org/cgi/content/full/335/6065/211/DC1>

Louzao, M., Pinaud, D., Péron, C., Delord, K., Wiegand, T., Weimerskirch, H. (2011): Conserving pelagic habitats: seascape modeling of an oceanic top predator. *J. Appl. Ecol.* 48 (1), 121 – 132

<http://dx.doi.org/10.1111/j.1365-2664.2010.01910.x>

The investigations were funded e.g. by the French Polar Institute (IPEV), the Prince Albert II of Monaco Foundation, the Spanish Ministry of Education and Science as well as a Marie Curie Fellowship of the EU.

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## MARINE MAMMALS ON THE MENU IN MANY PARTS OF WORLD

ScienceDaily (Jan. 24, 2012) — The fate of the world's great whale species commands global attention as a result of heated debate between pro and anti-whaling advocates, but the fate of smaller marine mammals is less understood, specifically because the deliberate and accidental harvesting of dolphins, porpoises, manatees and other warm-blooded aquatic denizens is rarely studied or monitored. To shed more light on the issue, researchers from the Wildlife Conservation Society and Okapi Wildlife

Associates have conducted an exhaustive global study of human consumption of marine mammals using approximately 900 sources of information.

The main finding: since 1990, people in at least 114 countries have consumed one or more of at least 87 marine mammal species. In addition to this global review, Wildlife Conservation Society scientists work in remote countries around the world to assess and actively address the threat to dolphin populations with localized, applied conservation efforts. The new global study appears in the most recent edition of *Biological Conservation*. The authors include: Dr. Martin D. Robards of the Wildlife Conservation Society; and Dr. Randall R. Reeves of Okapi Wildlife Associates.

"International bodies such as the International Whaling Commission were formed specifically to gauge the status of whale populations and regulate the hunting of these giants," said Robards, lead author of the new study. "These species, however, represent only a fraction of the world's diversity of marine mammals, many of which are being accidentally netted, trapped, and -- in some instances -- directly hunted without any means of tracking as to whether these harvests are sustainable."

In order to build a statistically robust picture of human consumption rates of marine mammals around the world, Robards and Reeves started with records on small fisheries focused on small whales (i.e. pilot whales), dolphins, and porpoises from 1975 and records of global marine mammal catches between 1966 and 1975. From there, the authors consulted some 900 other sources and consulted with numerous researchers and environmental managers, an exhaustive investigation that took three years to complete. The team only counted information with actual evidence of human consumption of marine mammals, omitting instances where marine mammals were caught (either intentionally or not) for fishing bait, feed for other animals, medicines, and other uses.

The list of marine mammals killed for human consumption includes obscure species such as the pygmy beaked whale, the South Asian river dolphin, the narwhal, the Chilean dolphin, the long-finned pilot whale, and Burmeister's porpoise. Seals and sea lions are on the list as well, including species such as the California sea lion and lesser known species such as the Baikal seal. The polar bear (a bear that is considered a marine mammal) also makes the list. Three species of manatee and its close relative the dugong,

considered a delicacy in some parts of the world, are also widespread targets of human consumption.

Overall, the historical review reveals an escalation in the utilization of smaller cetaceans, particularly coastal and estuarine species since 1970, often caught as accidental "bycatch" in nets meant for fish and other species. Once caught, however, small cetaceans are being increasingly utilized as food in areas of food insecurity and/or poverty, what the authors call "fishing up the food chain."

"Obviously, there is a need for improved monitoring of species such as the Atlantic and Indo-Pacific humpback dolphins and other species," said Dr. Howard Rosenbaum, Director of WCS's Ocean Giants Program. "In more remote areas and a number of countries, a greater immediate need is to understand the motivations behind the consumption of marine mammals and use these insights to develop solutions to protect these iconic species that lead to more effective management and conservation."

WCS's Ocean Giants Program works in a number of seascapes of critical importance to small cetaceans in particular. These efforts are focused on the local level to address local impacts on coastal dolphin populations, providing on-the-ground practical conservation actions to compliment the global investigative work highlighted above.

In Congo, Gabon, and Madagascar, WCS conservation scientists Dr. Salvatore Cerchio and Tim Collins are conducting scientific studies to assess the status of impacted dolphin populations, and work with local communities of traditional fishermen to reduce accidental bycatch and deliberate hunting of dolphins. In these regions, the scientists are documenting a worrying trend in increased captures and use of dolphins for food, and they are sometimes also being sold in markets better known for their association with terrestrial bushmeat.

In response, Cerchio and the WCS Madagascar team have worked with local communities to establish a local conservation association composed of fishermen, local traditional laws protecting dolphins, and development of community-based whale and dolphin watching as an alternative livelihood. On the other side of the African continent, the coasts of Gabon and Congo represent one of the last strongholds for the rare Atlantic humpback dolphin. Catches by fishermen in Gabon are extremely rare, but groups of dolphins that cross the border (a finding of recent WCS work) risk capture in coastal gillnets set by artisanal fisherman. "The Atlantic humpback dolphin may well be the

rarest mammal in the Congo basin region," said Tim Collins. "Unfortunately, few have ever heard of it, least of all the fisherman eating them out of existence."

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## A WHALE'S VIRTUAL REALITY

by Elizabeth Pennisi

Charleston, South Carolina—A surfacing whale is a sight to see, but it would be even more dramatic to watch one ply the ocean depths. Researchers have taken a step closer to doing just that with sophisticated radio-tagging technology and a new computer program that uses the data to recreate a whale's path underwater. The results, presented at the annual meeting of the Society for Integrative and Comparative Biology, are helping scientists understand how the school bus-sized beasts are able to take in enough food to sustain their great girth, and how underwater noises, such as sonar, might affect their well-being.

Comparative physiologist Jeremy Goldbogen of the Cascadia Research Collective in Olympia, Washington, studies feeding in blue fin and other so-called rorqual whales. For almost a decade, he and his colleagues have been attaching suction cup radio tags onto the backs of the cetaceans. The tags record depth, sound, and other parameters as the whales swim. After a set amount of time, they fall off, float to the surface, and send out a radio signal so they can be retrieved and their data analyzed.

The work showed that in one giant gulp, a blue whale—the biggest creature on Earth—takes in 125% of its body weight in water and krill. During their dives, the cetaceans ram into patches of krill, opening their mouths wide and wrapping their jaws around prey-laden water, a move that stops them short. Next, they close their mouths and push water through their baleen, a system of plates that filter out the food, then speed up for another feeding bout.

But details about this feeding strategy had been lacking. This past summer, Goldbogen monitored several blue and fin whales with new tag technology that detects the changes in the whales' orientation in space, much like smart phones "know" whether they're held in a horizontal or vertical position and adapt screens accordingly. For the 6 to 24 hours they are attached to the whale, the tags also record depth and sound; from the loudness of the water rushing past a diving whale, researchers can calculate its speed. "We use these sensors to reconstruct what the whales are doing," Goldbogen said.

The new tags show that as they gulp, the whales often twirl around like a corkscrew with surprising agility, Goldbogen reported at the meeting. They also will lunge from all different angles, not just horizontally, as previously thought. "We see these amazing maneuvers," Goldbogen said.

He showed those maneuvers to the audience using video animations made possible by new software from Colin Ware, a computer scientist at the University of New Hampshire in Durham who specializes in visualizing very large amounts of information. The program, "Track Plot," incorporates the tag data and approximates the path of the whale underwater. In the video, a tagged blue whale dives twice over the course of 19 minutes. The movie shows the whale moving at about 50 times its cruising speed. The first dive, to about 15 meters, takes about 2.5 minutes in real life; the second one, which includes feeding bouts, lasts more than 12 minutes and reaches down to 180 meters, where the whale lunges five times in quick succession, as if it were on a roller coaster.

"It's great that they are doing this," says Douglas Altshuler, an integrative biologist at the University of British Columbia, Vancouver, in Canada. But Altshuler has reservations about the accuracy of the computed paths because there is a dearth of positional data to confirm the whales' course. Goldbogen points out, however, that the course does incorporate GPS coordinates recorded when the whale does surface.

Goldbogen and his colleagues are now using the same approach to better understand whales' responses to sonar, which some believe disorients the animals, causing them to strand on beaches. With a grant from the U.S. Navy, they tag a whale, expose it to simulated military sonar frequencies and another noise within the same frequency band, and watch the whale's reaction, Goldbogen explained.

Preliminary data indicate that the "ping" can make a feeding whale stop its lunge, turn toward the sound, then move away from it, Goldbogen reported. But the effect is temporary, and soon the whale is back prowling for krill, suggesting the animals adapt quickly. "Many experiments will have to be done to determine whether the Navy's use of sonar has an impact," says Michael Dickinson, a neuroscientist at the University of Washington, Seattle. "But the infrastructure is in place that they can gather more data."

## **WEST COAST WATERS PROTECTED FOR ENDANGERED PACIFIC SEA TURTLES**

**NEW SAFE HAVEN PROTECTS FEEDING AREAS BUT NOT MIGRATORY ROUTES TO CALIFORNIA, OREGON, AND WASHINGTON**

SAN FRANCISCO— Nearly 42,000 square miles of ocean along the coasts of California, Oregon and Washington that are critical feeding grounds for the endangered Pacific leatherback sea turtle were granted new protections by the National Marine Fisheries Service. The final federal regulation establishes critical habitat where leatherbacks feed on jellyfish after swimming 6,000 miles across the ocean from nests in Indonesia. This is the first permanent safe haven for leatherbacks designated in continental U.S. waters and is the largest area set aside to protect sea turtle habitat in the United States or its territories. The new protections take effect Feb. 26, 2012.

Any new wave energy, offshore drilling or coastal projects in the designated critical habitat would require the Fisheries Service to assess and prevent harm to leatherback feeding areas and jellyfish. Species with critical habitat protected under the Endangered Species Act are twice as likely to be recovering as those without.

"Leatherbacks finally have a safe haven along our coast, but still face extinction due to growing threats from fisheries, pollution and ship strikes," said Teri Shore, program director at SeaTurtles.org in West Marin, California. However, the 41,914 square miles of ocean designated for protection covers far less than the 70,000 square miles originally proposed for critical habitat. Today's rule covers 16,910 square miles along California's coast from Point Arena to Point Arguello out to a depth of 3,000 meters. The remaining area stretches from Cape Flattery, Washington to Cape Blanco, Oregon seaward to 2,000 meter depth contour.

The final rule overlooks the need to protect migratory pathways from commercial fishing, water pollution and marine vessel traffic. The new regulation excludes any protections for the turtles' migratory pathways leading into these habitats; it excludes any consideration of fishing impacts, such as mile-long drift nets used to target swordfish off California.

"Though it is commendable that critical ocean habitats along the west coast are now being protected for the leatherback sea turtle, it fails to recognize the laborious journey these animals travel,"

said California Assemblyman Paul Fong, who authored the state’s new shark fin ban. “In order to better educate the public and bring awareness to the conservation efforts needed to protect these remarkable creatures, I will be introducing legislation that will name the Pacific Leatherback Sea Turtle as California’s State Marine Reptile.”

“Habitat protections are vital to the survival of leatherbacks. We urgently need migration safeguards for these ancient animals as they make the longest, most epic journey of any creature on the planet to get to our West Coast every year,” said Catherine Kilduff with the Center for Biological Diversity in San Francisco.

“This is a major decision to protect feeding hotspots for endangered leatherback sea turtles, but the federal government failed to acknowledge that the turtles need safe passage to get there,” said Ben Enticknap, Oceana’s Pacific project manager.

This final protection comes in response to a petition submitted in 2007 by SeaTurtles.org, Oceana and the Center, followed by two years of delay by the agency, missing multiple legal deadlines specified in the Endangered Species Act.

Mile-long drift gillnets and longline gear used to catch swordfish, sharks and tunas are the two types of fishing gear most commonly known to capture and kill leatherback sea turtles. While current regulations restrict fishing to protect these sea turtles, the Fisheries Service is currently developing proposals to expand the use of these fishing gears into areas important to the leatherback.

The largest of all sea turtles, leatherbacks can grow up to nine feet long and weigh up to 2,000 pounds. Pacific leatherback sea turtles have declined more than 95 percent since the 1980s; as few as 2,300 adult female western Pacific leatherbacks remain. The species dates from the time of the dinosaurs, having survived for 100 million years virtually unchanged; now their kind risks disappearing from the planet.

The leatherback sea turtles feeding off the U.S. West Coast make the longest known migration of any reptile, across the Pacific Ocean where they nest on beaches in Papua, Indonesia. They make this great migration to feed on jellyfish in the productive ocean waters of the American Pacific. They are generally found off the West Coast in the summer and fall months.

SeaTurtles.org (Turtle Island Restoration Network) is an international marine conservation organization headquartered in California whose 35,000 members and supporters work to protect sea turtles and ma-

rine biodiversity in the United States and around the world. For more information, visit [www.SeaTurtles.org](http://www.SeaTurtles.org).

The Center for Biological Diversity is a national, nonprofit conservation organization with more than 320,000 members and online activists dedicated to protecting endangered species and wild places. For more information, please visit [www.biologicaldiversity.org](http://www.biologicaldiversity.org).

Oceana is the largest international advocacy group working solely to protect the world’s oceans. Oceana wins policy victories for the oceans using science-based campaigns. Since 2001, we have protected over 1.2 million square miles of ocean and innumerable sea turtles, sharks, dolphins and other sea creatures. More than 500,000 supporters have already joined Oceana. Global in scope, Oceana has offices in North, South and Central America and Europe. To learn more, please visit [www.oceana.org](http://www.oceana.org).

**SIGHTINGS** Compiled by Monterey Bay Whale Watch. For Complete listing and updates see [gowhales.com/sighting.htm](http://gowhales.com/sighting.htm)

Date	#	Type of Animal(s)
1/25 a.m.	10	Gray Whales
1/24 p.m.	2	Gray Whales
1/24 a.m.	8	Gray Whales
	8	Dall's Porpoise
1/22 a.m.	2	Gray Whales
	20	Risso's Dolphins
1/20 a.m.	13	Gray Whales
1/19 a.m.	10	Gray Whales
1/18 a.m.	15	Gray Whales
	5	Risso's Dolphins
1/17 p.m.	6	Killer Whales
	20	Harbor Porpoise
1/17 a.m.	25	Gray Whales
	200	Risso's Dolphins
1/16 p.m.	6	Gray Whales
1/16 a.m.	40	Gray Whales
	12	Risso's Dolphins
1/15 p.m.	15	Gray Whales
1/15 a.m.	45	Gray Whales
	200	Pacific White-sided Dolphins
	300	Long-beaked Common Dolphins
	500	Risso's Dolphins
1/14 p.m.	23	Gray Whales
	5	Risso's Dolphins
1/14 a.m.	21	Gray Whales
	40	Risso's Dolphins
1/13 p.m.	13	Gray Whales
1/13 a.m.	25	Gray Whales
	150	Long-beaked Common Dolphins
1/12 p.m.	12	Gray Whales
1/12 a.m.	5	Gray Whales
1/11 a.m.	14	Gray Whales
	15	Risso's Dolphins

American Cetacean Society  
Monterey Bay Chapter  
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Email: kmarypaul@gmail.com  
tonylorenz@bigbluebay.com



# Soundings



American Cetacean Society- Monterey Bay Chapter

March 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, March 29, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

Speaker: Mark Shelley, Executive Producer,  
Director of Photography & Executive Director of  
Sea Studios Foundation &

Katie Pofahl, the Main "Human" Character in Otter 501

Subject: Otter 501, A Behind the Scenes Look

*When an adventuresome young woman discovers a sea otter pup stranded on the beach and in desperate need of a second chance, an entire species' survival gets personal....*

A visionary, and a passionate advocate for issues affecting our planet's health, Mark Shelley's lifelong ambition has been to harness the power of film-making to spotlight some of the most pressing issues of our times. Otter 501 is a shining example of Mark realizing his vision.

Katie Pofahl came to this area from Wisconsin, where she was given an early start on environmental ethics. She has a strong passion for animals. She can't contain her enthusiasm to know more about the creatures she meets living in Pacific Grove, California. In Otter 501 Mark tells the story of the challenges faced by Southern Sea Otters through the experiences of Katie's character.

Otter 501 was produced by The Sea Studios Foundation, a non-profit team of award-winning filmmakers, respected scientists and communication experts who work together to raise public involvement in solving the major threats to our planet's health.

ACS MB is an official sponsor of Otter 501.

Please join us for a special behind the scenes look at the making of Otter 501 during which Mark and Katie will share some of their filmmaking adventures.

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Hope to see you there,

Bob Mannix, Chair, ACS MB Programs Committee

Donna Beckett, ACS MB Programs Committee

## CALENDAR

**Mar. 8-12:** 9th Annual San Francisco Ocean Film Festival. Films will be shown at the Bay Theatre Pier 39 in San Francisco. For more info 415-501-6251

**Mar. 24:** ACS/ LA's Ultimate Whale Watch 8am-5pm San Pedro, CA Cost \$61.00. This trip will head toward Catalina Island in search of Gray Whales, Fin Whales, Humpback Whales, Dolphins, and Marine Birds. For more info go to [ACSLA.ORG](http://ACSLA.ORG)

**April 12-13:** 9am-5pm Moss Landing Marine Laboratory Open House. Itinerary will include lectures, open labs, sea lion presentations, puppet shows, & marine themed art projects. For more info: [openhouse.mlml.calstate.edu](http://openhouse.mlml.calstate.edu)

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**May 26- May 28:** ACS Memorial Day Wildlife Weekend: Spend 3 days aboard the Searcher in search of Blue Whales, Dolphins, Sea Turtles, Pinnipeds, and Marine Birds. This trip will include a cruise past the Los Coronados Islands. Cost is \$450. For more info please call 619-226-2403 or [ASC.org](http://ASC.org)

### Summer Classes at Moss Landing Marine Lab

1. Techniques and Theories of Animal Training:  
Bio 348 (July 9-15) Tuition \$585
2. Working with Marine Mammals:  
Bio 347 (July 23-29) Tuition \$585

Completion of both courses will earn the student a Certificate of Completion in Beginning Marine Mammalogy. Class instructor will be Dr. Jenifer Zeligs. For more info and class registration call 831-582-4500

**Aug. 4:** Monterey Bay Chapter ACS Summer Whale Watch "Search For The Great Blue Whale". Join us aboard the Sea Wolf 2 in search of the largest animal the world has ever known. Monterey Bay is one of the foremost locations in the world to observe blue whales. For more info please call Tony Lorenz at 831-901-7259 (more info to follow).

## Media Recommendations

Petrels, Albatross, and Storm Petrels of North America. A Photographic Guide. By Steve N.G. Howell. 2012 Princeton University Press

Shifting Baselines: The Past and Future of Ocean Fisheries. By Jeremy B.c. Jackson, Karen Alexander, and Enric Sala. 2011 Island Press

Beaches and Parks from San Francisco to Monterey 2012 U.C. Press Author (California Coastal Commission)

The Magic of Reality: How We Know Whats Really True. By Richard Dawkins. Illustrated by Dave McKean. 2011 Bantam Press

Hello American Cetacean Society friends!

I want to let you know of the exciting formation of the San Francisco Bay branch of the American Cetacean Society Student Coalition by Cara Gallagher.

With the support of the main San Francisco chapter and the National Student Coalition based out of Indiana, we are well on our way to creating a fully functioning group of students working towards the betterment of our oceanic world! Cara, as a young scientific researcher, understands the importance of mixing science and activism to produce effective education. She plans on following the lead of the National Student Coalition and starting out with focus directed on educating the public on how to eat sustainable and healthy seafood through the Monterey Bay Aquarium's Seafood Watch program. Once the Coalition is fully established, she plans on working on other issues such as education on the whaling of the Faroe Islands in Denmark and possibly even the debris that has been coming our way from Japan's tsunami in March of 2011. There will be many trips and activities such as group beach/river cleanups, documentary/movie nights, and special activities for Earth Day and California Coastal Cleanup Day!

The majority of meetings are going to take place on the CSU East Bay campus in Hayward, California and she plans on having meetings every other week with events and activities happening usually between meetings. If you or anyone you know is interested in joining the SF branch of the ACS Student Coalition they can contact Cara at [cgallagher3@horizon.csueastbay.edu](mailto:cgallagher3@horizon.csueastbay.edu). She is very excited to be able to assemble a group of young, ambitious people to help pave the way to a better future for the world's cetaceans!

On behalf of SF Bay ACS chapter a big welcome and congratulations to Cara!

For students and teachers in the bay area, but not the CSU area, it is not a problem to join the coalition and work together from your area. If you need further information re: San Francisco Bay American Cetacean Society chapter, becoming involved, or developing the student coalition branch in your area please contact:

Lynette R. Koftinow  
President San Francisco Bay American Cetacean Society  
[lklifeart@sbcglobal.net](mailto:lklifeart@sbcglobal.net)  
[www.acs-sfbay.org](http://www.acs-sfbay.org)

## WHALES AND DOLPHINS 'SHOULD HAVE LEGAL RIGHTS'

*Campaign for intelligent marine mammals to have right to life, which would protect them from hunters and captivity*

Campaigners who believe that dolphins and whales should be granted rights on account of their intelligence are to push for the animals to be protected under international law.

A group of scientists and ethicists argues there is sufficient evidence of the marine mammals' intelligence, self-awareness and complex behaviour to enshrine their rights in legislation.

Under the declaration of rights for cetaceans, a term that includes dolphins, whales and porpoises, the animals would be protected as "non-human persons" and have a legally enforceable right to life.

If incorporated into law, the declaration would bring legal force to bear on whale hunters, and marine parks, aquariums and other entertainment venues would be barred from keeping dolphins, whales or porpoises in captivity.

"We're saying the science has shown that individuality, consciousness and self-awareness are no longer unique human properties. That poses all kinds of challenges," said Tom White, director of the Centre for Ethics and Business at Loyola Marymount University in Los Angeles.

"Dolphins are non-human persons. A person needs to be an individual. And if individuals count, then the deliberate killing of individuals of this sort is ethically the equivalent of deliberately killing a human being. The captivity of beings of this sort, particularly in conditions that would not allow for a decent life, is ethically unacceptable, and commercial whaling is ethically unacceptable," White said.

The group spoke at the annual meeting in Vancouver of the American Association for the Advancement of Science, to raise support for the declaration among scientists and the visiting public. The 10-point declaration sets out a framework to protect cetaceans' "life, liberty and wellbeing", including rights to freedom of movement and residence in their natural environment, and protection against "disruption of their cultures".

"The next step is taking the science and advocating for law in different places, from a regional point of view, from a national point of view, and eventually from a multi-national and international view," said Chris Butler-Stroud of the Whale and Dolphin Conservation Society.

Decades of research on cetaceans, and dolphins in particular, has revealed that their brains, while markedly different from humans, are large, complex and capable of sophisticated behaviour. Observations of dolphins have shown that they can recognise themselves, use tools and understand symbols and abstract concepts.

In 2001, Lori Marino of Emory University in Atlanta, who is promoting the declaration, tested whether dol-

phins recognised themselves by drawing temporary marks on different parts of their bodies and watching them check the mark by swimming up to an immersed mirror. "When we did that with two dolphins they passed with flying colours," she said.

Orcas off Patagonia displayed a seemingly extraordinary act when an aged member of the group suffered jaw damage and could no longer eat properly. The whale's companions kept the animal alive by feeding it. "The animal, we would say, was past its sell-by date, an older creature. They must have conceptualised that if it wasn't fed, something would have happened to it, and they were able to work out what was needed to keep it alive," said Butler-Stroud.

At the Institute for Marine Mammal Studies in Mississippi, a dolphin named Kelly outwitted its human keepers and passed on some of its tricks to its offspring. Dolphins at the centre were rewarded with fish if they collected litter from their tanks and carried it in their mouths to the staff but Kelly found a weakness in the scheme. When people dropped paper into her tank, she hid it under a rock on the bottom. When a keeper next approached, she swam down and tore a small piece off, and returned to the surface to claim her reward. She worked out that a small piece of paper earned the same reward as a big piece, and so maximised her meals.

Then one day, Kelly managed to grab a gull that flew into the tank. When she delivered it to her keepers, she got an especially large fish reward. The next time Kelly was fed she hid the fish at the bottom of the pool, and later brought it to the surface to lure more gulls into the pool. The strategy proved so successful that she taught her offspring, who went on to teach others.

Though much of the declaration is intended to bring pressure on whaling nations and venues that keep cetaceans in captivity, the document has major implications for conservation programmes and environmental assessments that impinge on communities of dolphins, whales and other cetaceans.

As an early step, the special rights for cetaceans are being considered by the UN as part of its convention on migratory species, which aims to protect migrating species over their entire ranges.

Enshrining the rights in law could be some time, though. "If we are lucky it could take 10 years," said White. "We are at the stage of climate scientists 20 years ago. This is the first step."

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## Endangered Turtles and Sharks Sacrificed for Swordfish Eco-labeling

*The End of Sustainable Seafood and the Marine Stewardship Council's Credibility*

Two back-to-back eco-certifications of Atlantic longline fisheries for swordfish that capture and kill thousands of sharks and endangered sea turtles by the Marine

Stewardship Council (MSC) is a death knell for the credibility for the industry-funded sustainable seafood eco-labeling scheme. Ocean conservation groups are now calling on seafood retailers and restaurateurs to stop offering unsustainable longline-caught swordfish.

"The eco-labeling of longlined swordfish dupes well-intentioned seafood lovers into unknowingly consuming fish caught in ways that sacrifice sea turtles and sharks," said Teri Shore, Program Director at Sea-Turtles.org. "It spells the end of sustainable seafood schemes since none can be fully trusted."

Last week the MSC dismissed an objection to the sustainable certification of the Canadian Atlantic longline fishery for swordfish filed by three major marine conservation organizations, allowing the eco-labeling to go ahead with only minor technical changes in the assessment document. Read more here.

This followed in the wake of the eco-certification of the Florida longline swordfish fleet, which targets swordfish and accidentally captures sea turtles from the same populations as the Canadian fishery, without any consideration of cumulative impacts. The Florida swordfish fishery captured an estimated 147 endangered leatherbacks and loggerheads from 2005 to 2009.

At the same time, the MSC's credibility has been undermined by several major Alaskan fisheries vacating the program in favor of self-certification, which will further undermine the credibility of eco-labeling and sustainable seafood marketing.

The MSC assessment of the Canadian longline fishery recognized that two sharks die for every swordfish caught and that the fishery captures 1,200 endangered sea turtles every year and operates without measures that protect sea turtles. Neither fact will prevent the newly-certified fishery from selling swordfish marked with MSC's 'blue check mark' as of March 2012.

Longline-caught swordfish is listed on Canada's SeaChoice Red 'Avoid' list, the Monterey Bay Aquarium Seafood Watch Red 'Avoid' list, and Greenpeace International's Seafood Red List. These assessments are based on the best science available, include strict conservation criteria, and are not paid for by industry clients, unlike the Marine Stewardship Council.

Giant retailers that want to profit from rising demand for sustainable seafood are triggering the false eco-labeling of fish caught with destructive gear such as the two longline swordfish fisheries.

Even worse, the U.S. government warns women of child-bearing age (18 to 45) never to eat swordfish due to high mercury levels (as well as shark, mackerel and tilefish). No certification scheme considers mercury or other toxins in fish. Read more about mercury at [www.GotMercury.org](http://www.GotMercury.org)

## ICONIC MARINE MAMMALS ARE 'SWIMMING IN SICK SEAS' OF TERRESTRIAL PATHOGENS

ScienceDaily (Feb. 21, 2012) — Parasites and pathogens infecting humans, pets and farm animals are increasingly being detected in marine mammals such as sea otters, porpoises, harbour seals and killer whales along the Pacific coast of the U.S. and Canada, and better surveillance is required to monitor public health implications, according to a panel of scientific experts from Canada and the United States.

UBC scientists Stephen Raverty, Michael Grigg and Andrew Trites and Melissa Miller from the California Department of Fish and Game, presented their research Feb 21 at the Annual Meeting of the American Association for the Advancement of Science (AAAS) in Vancouver, Canada.

They called for stronger collaboration among public health, coastal water policy and marine mammal health research sectors to reduce land-sea transfer of pathogens and toxins. These terrestrial sourced pollutants are killing coastal marine mammals and likely pose risks to human health.

Between 1998 and 2010, nearly 5,000 marine mammal carcasses were recovered and necropsied along the British Columbia and Pacific Northwest region of the U.S., including whales, dolphins and porpoises, sea lions and otters.

"Infectious diseases accounted for up to 40 per cent of mortalities of these marine animals," says Stephen Raverty, a veterinary pathologist with the Animal Health Centre in the British Columbia Ministry of Agriculture and Lands, and an adjunct professor in UBC's Marine Mammal Research Unit.

"In many cases, the diseases found in these marine mammals have similar or genetically identical agents as those infecting pets and livestock. We don't yet know how these diseases are affecting the health of marine mammals" says Raverty.

For example, researchers recently identified the first case of *Neospora caninum* in sea otters. The parasite is known to cause infectious abortions in dairy cattle and muscular and bone diseases in dogs. *Cryptococcus gatti*, a fungus typically associated with dead and decomposing eucalyptus trees in tropical regions, has been found in some harbour and Dall's porpoises.

"The marine mammals that died of severe brain disease were infected with two common parasites, Toxoplasma and Sarcocystis, which are shed in the feces of feline and opossum hosts," says Michael Grigg, a researcher with the U.S. National Institutes of Health's Laboratory of Parasitic Diseases and adjunct professor in UBC's Marine Mammal Research Unit.

"Expansion of host range for the opossum and climate change may be important factors contributing to the increased incidence of infection from these land-based

pathogens."

"We can expect increased health risks for humans, pets and marine mammals sharing the same polluted marine habitat -- including along the shorelines right here in downtown Vancouver," says Andrew Trites, director of UBC's Marine Mammal Research Unit. "In a way, marine mammals are the canary in the coal mine -- we must consider ourselves warned and take appropriate action.

The team recommends better management of urban pest populations, maintaining wetland marshes, reducing run-off from urban areas near the coast, and monitoring water quality to prevent pathogens and toxins from entering the marine food chain. Collaboration amongst coastal regions and countries is also crucial.

"Marine mammals recognize no borders, and neither do pathogens and parasites," says Raverty.

---

## RESEARCHERS: SHARKS BLAMED AS NUMBER OF DEAD SEA OTTERS RECOVERED HITS HIGH; 'TASTE-TESTS' TAKE TOLL

Underwatertimes.com News Service

SANTA CRUZ, California -- The California or southern sea otter (*Enhydra lutris nereis*) appears to be experiencing an unprecedented increase in mortality from attacks by sharks, according to federal and state scientists.

Since 1968, biologists and veterinarians at the U.S. Geological Survey and California Department of Fish and Game have documented and examined all reported sea otter "strandings" — counting the number of dead, sick or injured sea otters recovered along California's coast each year.

"The southern sea otter, once hunted to the brink of extinction, is staging a comeback but still faces multiple challenges on its road to recovery," explained USGS director Marcia McNutt. "Careful scientific detective work can help us understand which threats are in our power to mitigate and which are inevitable risks of living in the wild for this beautiful animal, often considered a bellwether for ocean health."

Shark bites have always ranked among the causes of mortality, accounting for approximately 8% of recovered carcasses in the 1980's and early 1990's.

"But we're starting to see a perplexing trend suggesting increased shark attacks on sea otters," says Tim Tinker of the USGS Western Ecological Research Center, who co-leads the California Sea Otter Stranding Network with colleague Brian Hatfield. "Shark bite deaths accounted for 15% of recovered carcasses by the late 1990's, and this has risen to approximately 30% of recovered carcasses in 2010 and 2011."

Tooth fragments and other distinguishing characteristics of the wounds suggest that most of these bites are from white sharks (*Carcharodon carcharias*). But, strangely there is no evidence that white sharks are actually consuming the otters.

"The nature of the bite wounds we see on sea otters suggest these events are investigative bites, or 'taste-tests' so to speak. We don't see any indication of tissue removed from these bitten otters," says Michael Harris, a sea otter biologist with CDFG. "Our guess is that otters are being mistaken for the sharks' preferred prey of seals and sea lions, but otters are not consumed because they lack the high-calorie, thick blubber layer found in seals and sea lions. Unfortunately, even a taste test by a white shark usually proves fatal for a sea otter."

There are other reasons for concern beyond the increase in numbers.

"The most disturbing part of this trend is the growing proportion of female otters killed by shark bites, since female deaths will have much greater impacts on population growth," says Tinker.

Females used to represent just 17% of shark-bites, but they comprise 35% of all shark-bitten carcasses in 2011. The increase in shark bites has been especially notable in the southern third of the sea otter's range, from Cayucos and southward, where females are more common. Tinker cautions despite these dramatic increases, it is difficult to put these shark bite mortalities in perspective, let alone speculate on the reasons behind the increase in bites. "Stranding numbers only account for sea otter carcasses that people find," says Tinker. "Past research indicates that only about 50% of sea otters that die in the wild end up on the beach, so our stranding data at best provide only an index of trends in population mortality."

In 2011, a total of 335 sea otters stranded — a record high. Causes of death besides white shark bites included mating trauma, emaciation, parasites and infectious diseases, bacterial infections, heart disease, harmful algal toxins, boat strikes, and gun-shot wounds.

The stranding tallies offer helpful reference points in the overall population recovery of southern sea otters, a federally listed threatened species. USGS monitors the southern sea otter population annually and provides these data to the U.S. Fish and Wildlife Service, which determines the sea otter's progress toward population recovery and whether the species is ready for delisting under the Endangered Species Act. The last official population index reported for the species was 2,711 — still short of the 3,090 threshold that would begin federal consideration for delisting.

"We are interested in understanding all factors influencing the recovery of southern sea otters," says Lilian Carswell, Southern Sea Otter Recovery Coordinator for the U.S. Fish and Wildlife Service. "We will continue to work with our research partners to understand the implications of this apparent trend in shark-related mortality."

About the California Sea Otter Stranding Network: Since 1968, there has been an effort to document all sea otter strandings in California. USGS, CDFG, Monterey Bay Aquarium, USFWS, The Marine Mammal Center, California Academy of Sciences, Santa Barbara Museum of

Natural History, various city beach clean-up crews and others contribute to the survey by reporting carcasses that wash ashore. The CDFG-Marine Wildlife Veterinary Care and Research Center conducts the detailed necropsies on a subsample of the fresh dead sea otter cases, and a team of biologists examines most of the cases in the field. Live sea otters that strand ashore in California are reported to and retrieved by the Monterey Bay Aquarium or The Marine Mammal Center.

## MYSTERIES OF KILLER WHALES UNCOVERED IN THE ANTARCTIC

*Two of the world's leading experts on the world's top marine predator are now in Antarctica, tagging and photographing a creature whose remarkably cooperative hunting behavior and transmission of knowledge across generations may be rivaled only by humans.*

By Fen Montaigne

On the afternoon of January 10, at the tip of the Antarctic Peninsula, whale researchers Robert L. Pitman and John W. Durban stood on the bridge of a cruise ship, peering through binoculars for signs of killer whales. The Weddell Sea, where English explorer Ernest Shackleton and his men were locked in the sea ice nearly a century ago, was calm and studded with icebergs. It was raining, an increasingly common occurrence in summer in this rapidly warming part of Antarctica.

Around 3 p.m., Pitman spotted several of the distinctive triangular dorsal fins of killer whales two miles ahead. Soon, roughly 40 killer whales appeared on all sides of the cruise ship, the National Geographic Explorer, delighting the nearly 150 passengers on board.

Pitman and Durban stepped into a rubber Zodiac driven by a ship's naturalist and cruised slowly toward the whales. Two large female killer whales approached, rolled on their sides, and "took a long look at us with wide open eyes as they passed a few feet under the Zodiac," Pitman later recalled. One of the females surfaced next to the boat, and Durban, cradling a black crossbow, fired a satellite tag onto the middle of the whale's dorsal fin. When the second female rolled on the surface, Durban fired a dart that would provide a tissue sample for scientific analysis. "Our skin donor," Pitman said later.

Thus began more than a month of killer whale research in the Antarctic, conducted by two of the world's leading experts on these top predators, whose killing power, Pitman says, "probably hasn't been rivaled since dinosaurs quit the earth 65 million years ago." I was a lecturer aboard the *Explorer*, and was able to watch the pair work for more than a week in the Antarctic.

As many as 50,000 killer whales roam the world's oceans today, and roughly half of them are believed to live in Antarctic waters. Yet though killer whales may be the most recognizable creatures in the marine world, a great deal about them remains a mystery, especially in the Antarctic, and Pitman and Durban are now gathering basic

information about their behavior and feeding habits. This baseline data is particularly important since climate change and other human impacts, such as overfishing and the accumulation of toxic chemicals, are rapidly altering the whales' habitats and their prey.

Scientists worldwide are still sorting out how many species and sub-species of killer whales — also known as orcas — exist in places like Alaska, the Pacific Northwest of the U.S. and Canada, and the North Atlantic. In Antarctica, Pitman and Durban — who work for the U.S. National Marine Fisheries Service in La Jolla, Calif. — have played a role in identifying three main types of killer whales in Antarctic waters and a fourth in the sub-Antarctic. The populations — likely separate species — differ in their distinctive black, white, and gray patterning; in the shapes of their dorsal fins and heads; in their geographic range; and in their food and foraging habits. Each individual has unique markings on the saddle behind the dorsal fin, and Pitman and Durban — who have amassed a collection of 40,000 photos of killer whales from Antarctic waters — have gotten to the point where they can recognize individuals and extended families.

But what has driven the men to pursue killer whale research is not the minutiae of markings or migration routes, but rather the extraordinary culture and habits of these cetaceans, whose cooperative hunting behavior and intergenerational transmission of knowledge is rivaled only by humans, Durban and Pitman contend.

Killer whales — *Orcinus orca* — are long-lived, with females surviving for up to 90 years or more. The whales travel in extended family groups, with offspring generally remaining with their mothers their entire lives. Stable groups of whales join together in pods composed of different matriline (a dominant female and her offspring), and these related whales all communicate in a distinct dialect using an array of clicks, whistles, and pulsed calls. Killer whales — which gestate for 17 months — are believed to recognize their mother's calls *in utero* and are born with the ability to immediately communicate.

As many as four generations of killer whales will travel together, passing on astonishingly sophisticated group hunting behavior from one generation to the next.

"You've got individuals that are spending 50, 60, 80 years together, and you can do a lot of things when you're spending a lot of time with your family and related individuals," Pitman told me in an interview. "You can hunt cooperatively. You can make sacrifices that other animals wouldn't make. If you kill 50,000 seals in your lifetime, you get pretty good at it. And if you learn a few things you pass them on to your offspring. It makes them quite remarkable and very human-like in the things they do."

"We have grandmothers, great-grandmothers, and great-great-grandmothers traveling in groups together with younger whales, imparting cultural knowledge," added Durban.

Three years ago, farther south along the western Antarctic Peninsula, Pitman and Durban spent three weeks observing such behavior among a group of pack ice killer whales, also known as large type-B Antarctic killer whales. The men studied a hunting technique known as “wave-washing,” in which a pod of whales moves through ice floes, its members lifting their heads out of the water — a behavior known as “spy-hopping” — looking for their preferred meal: fat, fish-eating Weddell seals. Once they spotted a seal on an ice floe, the whales called in reinforcements and, two to seven abreast, swam toward the floe and washed the seal off the ice by creating a large wave with powerful strokes of their tails. Pitman and Durban then observed what they call the “butchering” of seals, with the whales first drowning the seals and then meticulously stripping off their skin to get at the choice flesh.

“It was shocking to see,” said Pitman. “You’re not used to animals doing things that are so canny.”

Pitman and Durban are now aboard the 331-foot *Explorer*, where they will remain until mid-February, as guests of Lindblad Expeditions and National Geographic Expeditions. As visiting scientists, they use the ship as a research platform, and even rely on passengers to help take close-up photos of the killer whales’ distinctive markings, an example of the “citizen science” that has helped identify hundreds of individual killer whales in hot spots such as Alaska and the Pacific Northwest. Pitman, 62, who has a sweeping mustache, has worked in the Antarctic for more than two decades and has studied killer whales for the past 15 years. Durban, 35, a burly Englishman with a black beard, first worked with killer whales as a 16-year-old assistant to a pioneering whale researcher in Washington state.

The 40 whales the men encountered in the Weddell Sea likely comprised three matriline and belonged to an “ecotype” — or possibly new species — of Antarctic killer whale they refer to as a “small type-B”, related to the larger type-B “wave-wash” hunters. But little is known about the small type-B’s; Pitman and Durban have occasionally seen them feeding on gentoo and chinstrap penguins, but never on seals, and one of the goals of this year’s research is to get a better sense of what the small type-B’s are eating. The small type-B’s are roughly half the mass of a larger Antarctic killer whale, the type-A, which is found in more open water and hunts minke whales. Type-A males can grow to nearly 30 feet in length and weigh up to 10 tons.

In the three weeks since the female killer whale was tagged, she and her pod have traveled many hundreds of miles in the Weddell Sea, sometimes skirting the pack ice. Durban and Pitman have tagged 15 Antarctic killer whales with the 1.4-ounce satellite transmitters over the last three years, and the results have greatly expanded knowledge of their habits, preferred habitats, and migrations. Six of the tagged type-B killer whales made rapid migrations, following a nearly identical northerly trajectory,

past the Falkland Islands and beyond to the Atlantic Ocean off Brazil. One of the whales made a 6,000-mile round-trip journey from the Antarctic Peninsula to Brazilian waters and back again in just 42 days. Durban and Pitman believe the whales make these previously unknown migrations for one main purpose: shedding and renewing their skin, something they would be unable to do in frigid Antarctic waters because they would lose too much heat.

Four days after the scientists tagged the whale in the Weddell Sea, the *Explorer* was off the western Antarctic Peninsula, in the Gerlache Strait, a breathtaking passage flanked on both sides by glaciated mountains. There, the scientists encountered some old friends — an extended family group of roughly 70 small, type-B killer whales that spend much of their time in the strait.

Durban and Pitman photographed nearly all of the whales, and Durban — who possesses a photographic memory for killer whale markings — recognized many of the individuals from earlier encounters. Durban was unable to get positioned for a tagging shot with the crossbow, but 10 days later, on the following cruise, he managed to shoot a \$2,500 satellite tag, as well as a \$4,500 dive-depth tag, onto two killer whales in the Gerlache Strait. The depth tag would reveal some information on feeding habits they had long been looking for.

This is the kind of work that scientists worldwide are doing as they intensify research into a marine mammal long thought of as one species but that likely, in fact, comprises several distinct species. Genetic testing, for example, shows that so-called transient, mammal-eating killer whales in the Pacific Northwest diverged from the resident, fish-eating whales a half-million years ago and should perhaps be recognized as a distinct species, despite being found now in the same waters. This is not a purely academic matter, as distinct species, evolved to live in certain regions and eat certain prey, may be more vulnerable to environmental change.

That change is happening rapidly. Many groups of these apex predators have accumulated extremely high levels of PCBs and other toxic chemicals, with potentially harmful effects on development and reproduction. Global warming is also altering their world and that of their prey. As Arctic summer sea ice melts, for example, what will become of the predator-prey relationship between gray whales and killer whales as they gray whale migration extends deeper into the Arctic Ocean?

Meanwhile, in Antarctica, Pitman and Durban continue to unlock mysteries of killer whales. Last week, the depth tag they affixed to a killer whale in the Gerlache Strait showed that the whales were repeatedly making deep, nighttime dives of up to 1,900 feet off the western Antarctic Peninsula, an indication — for the first time — that these whales were most likely eating fish and squid on or near the sea floor.

American Cetacean Society  
Monterey Bay Chapter  
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# Soundings



American Cetacean Society- Monterey Bay Chapter

April 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, April 26, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speaker: Captain Jim "Homer" Holm**

**Subject: Monetizing Plastic Debris in the Ocean**

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Did you know that there is an unfathomable quantity of waste, in particular plastics, in our oceans?

Non-biodegradable plastic accumulates in sea current-locked areas known as gyres. The North Pacific Gyre is a garbage patch twice the size of Texas, and it is not the only one! There has been extensive media coverage about the "garbage patch" over the past several years. In truth, a "gyre" is simply a large-scale circular feature made up of ocean currents that spiral around a central point creating a whirlpool effect that pushes water and marine plastic debris to its center. Plastics photo-degrade, they do not biodegrade, which simply means they break down into smaller and smaller pieces, but do not decompose. Hence, they remain forever in the environment and the food chain. It kills many marine animals and is found in the systems of nearly all marine and near-marine animals.

As Co-founder and Director of Operations for "The Clean Oceans Project", Captain Jim "Homer" Holm is tasked with identifying and developing the technologies that will play a key role in removing destructive plastic marine debris from the world's oceans. Captain Holm feels extremely fortunate to reside on the beautiful central coast of California where an abundance of marine education resources and an awareness of environmental issues has provided him the perfect platform to share his knowledge and passion for the health of the sea.

Please join us for a special presentation on how Captain Jim "Homer" Holm developed a solution to the plastic problem and how this technology will monetize plastic debris in the ocean.

Hope to see you there,  
Donna Beckett, ACS MB Programs Committee

## CALENDAR

**April 14:** MBNMS Sanctuary Currents Symposium: From Lions to Luminescence. Linking Land to Sea Conference to be held at CSUMB. For program schedule go to: [montereybay.noaa.gov/currsymp2012](http://montereybay.noaa.gov/currsymp2012)

**April 19:** Earth Day. ACS/MB Display at Naval Post-graduate School in Monterey 10am-2pm.

**April 21-22:** 9am-5pm Moss Landing Marine Laboratory Open House. Itinerary will include lectures, open labs, sea lion presentations, puppet shows, & marine themed art projects. For more info: [openhouse.mlml.calstate.edu](http://openhouse.mlml.calstate.edu)

### Hopkins Marine Station Spring Seminars: Fridays 12 noon-1 pm

**April 20th:** -Tony Farrell, Department of Zoology, University of British Columbia. Local Adaptations of Salmon Populations in an Era of Global Warming: Migrations and Mitigations

**April 27th:** Micheli Fiorenzi: Mediterranean Sea Ecosystem

**May 21-24:** 63rd Tuna Conference Lake Arrowhead, CA. Natural and Anthropogenic Effects on Highly Migratory Fish Populations. For more info go to [tuna.conference.org](http://tuna.conference.org)

**May 22-June 3:** Marine Mammal and Seabird Behavioral Ecology of New Zealand. Class will be taught in Kaikoura, New Zealand with marine mammalogist Bernd Wursig. 13 days immersion in marine mammal and seabird ecology and behavior. For more info go to [wuersig@sbcglobal.net](mailto:wuersig@sbcglobal.net)

**May 26- May 28:** ACS Memorial Day Wildlife Weekend: Spend 3 days aboard the Searcher in search of Blue Whales, Dolphins, Sea Turtles, Pinnipeds, and Marine Birds. This trip will include a cruise past the Los Coronados Islands. Cost is \$450. For more info please call 619-226-2403 or [ASC.org](http://ASC.org)

### Summer Classes at Moss Landing Marine Lab

1. Techniques and Theories of Animal Training:  
Bio 348 (July 9-15) Tuition \$585
2. Working with Marine Mammals:  
Bio 347 (July 23-29) Tuition \$585

Completion of both courses will earn the student a Certificate of Completion in Beginning Marine Mammalogy. Class instructor will be Dr. Jenifer Zeligs. For more info and class registration call 831-582-4500

**Aug. 4:** Monterey Bay Chapter ACS Summer Whale Watch "Search For The Great Blue Whale". Join us aboard the Sea Wolf 2 in search of the largest animal the world has ever known. Monterey Bay is one of the foremost locations in the world to observe blue whales. For more info please call Tony Lorenz at 831-901-7259 (more info to follow) .

**Aug 11:** ACS Nat'l Fundraiser- Blue Whales: Behemoths

of the Deep, Santa Barbara. Boat-Condor Express. Cost \$95 includes a Continental Breakfast. For reservations and info please call Kaye Reznick at 310-548-6279

**CAMP SEA LAB: Science, Education and Adventure**  
2012 Sea Camps Include- School of Sharks, Flukes and Flippers, Journey to the Abyss, Girls and Science, Between the Tides and much more. For more info please call Chris at 831-582-3681

**MAHALO MONDAYS IN MAY:** Patronize Hula's Island Grill, 622 Lighthouse Ave, Monterey, any Monday in May after 4pm, and 10% is donated to Viva Vaquita!

## Media Recommendations

Return to the Sea: The Life and Evolutionary Times of Marine Mammals By Annalisa Berta. 2012 U.C. Press

Global Perspectives on the Biology and Life History of the White Shark by Michael L. Domeier. 2012 CDC Press

The Social Conquest of Earth by Edward O. Wilson  
2 time Pulitzer Prize Winner

Across Atlantic Ice: The Origin of American Clovis Culture by Dennis J. Stanford and Bruce A. Bradley

Whales and Dolphins of the European Atlantic by Dylan Walker and Graeme Creswell

Lily A Gray Whales Odyssey by Captain Dave Anderson  
(Captain Dave's Dolphin Safari)

**SIGHTINGS** Compiled by Monterey Bay Whale Watch. For Complete listing and updates see [gowhales.com/sighting.htm](http://gowhales.com/sighting.htm)

<u>Date</u>	<u>#</u>	<u>Type of Animal(s)</u>
3/30 p.m.	11	Gray Whales
3/30 a.m.	15	GrayWhales
	600	Pacific White-sided Dolphins
3/29 p.m.	3	Gray Whales
3/29 a.m.	3	Gray Whales
	200	Pacific White-sided Dolphins
	200	Risso's Dolphins
3/28 p.m.	2	Gray Whales
	10	Pacific White-sided Dolphins
	100	Risso's Dolphins
3/28 a.m.	3	Gray Whales
	10	Risso's Dolphins
3/27 a.m.	18	Gray Whales
	10	Pacific White-sided Dolphins
3/26 p.m.	15	Gray Whales
	1	Elephant Seal
3/26 a.m.	16	Gray Whales
	300	Pacific White-sided Dolphins
	5	Bottlenose Dolphins
3/25 p.m.	20	Gray Whales
	5	Pacific White-sided Dolphins
	75	Risso's Dolphins

## GENETIC SURVEY OF ENDANGERED ANTARCTIC BLUE WHALES SHOWS SURPRISING DIVERSITY

ScienceDaily (Mar. 7, 2012) — More than 99 percent of Antarctic blue whales were killed by commercial whalers during the 20th century, but the first circumpolar genetic study of these critically endangered whales has found a surprisingly high level of diversity among the surviving population of some 2,200 individuals.

That, says lead author Angela Sremba of Oregon State University, may bode well for their future recovery.

Results of the study have just been published in the open-access journal, PLoS ONE. As part of the study, the researchers examined 218 biopsy samples collected from living Antarctic blue whales throughout the Southern Ocean from 1990 to 2009, through a project coordinated by the International Whaling Commission.

The genetic survey revealed a "surprisingly high" level of diversity that may help the population slowly rebound from its catastrophic decimation by whalers.

"Fewer than 400 Antarctic blue whales were thought to have survived when this population was protected from commercial hunting in 1966," noted Sremba, who conducted the research as part of her master's degree with the Marine Mammal Institute at OSU's Hatfield Marine Science Center. "But the exploitation period, though intense, was brief in terms of years, so the whales' long lifespans and overlapping generations may have helped retain the diversity." "In fact," she added, "some of the Antarctic blue whales that survived the genetic bottleneck may still be alive today."

Prior to whaling, Antarctic blue whales were thought to number about 250,000 individuals -- a total that dwindled to fewer than 400 animals by 1972 when blue whales were last killed by illegal Soviet whaling. Blue whales are thought to be the largest animals ever to have lived on Earth, said OSU's Scott Baker, associate director of the Marine Mammal Institute and an author on the study -- and the Antarctic blue whales were even larger than their cousins in other oceans.

"These animals are very long-lived -- maybe 70 to 100 years -- and they can grow to a length of more than 100 feet and weigh more than 330,000 pounds," he said. "There is a jawbone in a museum in South Africa that takes up most of the lobby. This is

one reason they were so intensively exploited; they were the most valuable whales to hunt."

Despite their history of exploitation, little is known about modern-day movements of Antarctic blue whales, which are considered a separate subspecies -- differing in size and habitat use -- from the smaller "pygmy" blue whales, which live in more temperate regions of the Southern Hemisphere.

Through "microsatellite genotyping," or DNA fingerprinting, the PLoS ONE study was able to track some of the movements of individual Antarctic blue whales.

"We documented one female that traveled from one side of Antarctica to the other -- a minimum distance of more than 6,650 kilometers over a period of four years," said Sremba, who is now continuing her studies as a Ph.D. student in the Department of Fisheries and Wildlife at OSU. "It is the first documentation of individual movements by Antarctic blue whales since the end of the commercial whaling era." Baker said the long distance movement of a few individuals was "somewhat surprising" in comparison to the evidence for genetic differences between areas of the Southern Ocean. On one hand, it is apparent that individual Antarctic blue whales are capable of traveling enormous distances in search of food.

"On the other hand," Baker said, "there seems to be some fidelity to the same feeding grounds as a result of a calf's early experience with its mother. This 'maternally directed' fidelity to migratory destinations seems to be widespread among great whales."

There is much, however, which scientists still don't know about Antarctic blue whales, Baker pointed out.

"This is a poorly understood species of whales, despite its history of exploitation," Baker said. "Only now are we developing the technology to study such a small number of whales spread across such a vast habitat."

The biopsy samples were collected during more than two decades of research cruises supervised by the International Whaling Commission, and with international scientists joining research vessels from the Japanese Ministry of Fisheries.

Now that their population is slowly recovering, future studies may focus on Antarctic blue whales' migration patterns, and the locations of their breeding and calving grounds.

## TEAM TRACKS A FOOD SUPPLY AT THE END OF THE WORLD

By Susan Moran (March 12, 2012)

One recent morning at the bottom of the world, Kim Bernard spotted two humpback whales gorging in the Southern Ocean not far offshore. Dr. Bernard, a biological oceanographer, was spending the austral summer at Palmer Station, the United States research outpost on an outcropping off the western Antarctic Peninsula.

Dr. Bernard and her team, known at Palmer as “The Psycho Krillers,” are studying the feeding patterns of Antarctic krill, the small, bug-eyed shrimplike crustaceans that are the central diet for whales, penguins, seals and seabirds. She is one of a growing number of scientists concerned about the effects of a kind of gold rush, as fishing companies race to the Southern Ocean to catch krill and turn it into animal feed and lucrative omega-3 dietary supplements.

The former Soviet Union began fishing krill in the ocean in the 1960s, but it was not until the 1990s that Luc Rainville, a graduate student at the University of Victoria in British Columbia, discovered that the omega-3 fatty acids in Antarctic krill were readily absorbed by the human body. In 2002 he helped found a company, Neptune Biotechnologies and Bioresources, to bring krill oil to the market as a supplement.

The annual krill harvest is still well within the limits set by the Convention on the Conservation of Antarctic Marine Living Resources, which regulates fishing in the Southern Ocean. Some scientists say the Antarctic krill fishery is the world’s most underexploited marine resource.

But fishing is not the only threat to the krill population. The creatures, especially in their larval and juvenile stages, feed on algae that live on the underside of sea ice — which is retreating as the climate warms.

And while no one argues that Antarctic krill are currently threatened or overfished, scientists and environmental groups fear that as more companies deploy more vessels — especially huge factory ships — fishing and climate change could prove a double blow to krill and the delicate Antarctic food web that depends on them.

“I’m not worried at current levels of the fish-

ing effort,” said Deborah K. Steinberg, a biological oceanographer at the Virginia Institute of Marine Science in Gloucester Point who oversees Dr. Bernard’s krill research at Palmer Station. “But I do worry about the future if the industry really starts to take off. We have to keep a close eye on it.”

The western Antarctic Peninsula is warming faster than most of the rest of the earth. Winter tem-



peratures have shot up roughly 11 degrees Fahrenheit over the past 60 years, reducing sea ice cover. Those and other effects of climate change have caused Antarctic krill populations to plummet 40 to 80 percent in the last three decades around the South Shetland Islands near the tip of the peninsula, according to research published last May in *The Proceedings of the*

*National Academy of Sciences*.

The research, led by Wayne Z. Trivelpiece of the National Oceanic and Atmospheric Administration, also showed that populations of Adélie and chinstrap penguins, which rely heavily on krill, declined more than 50 percent in the northern peninsula, where krill fishing vessels concentrate.

Marine scientists are working hard to make sure the Antarctic krill fishery does not collapse as many others, like Atlantic cod, have. At a meeting in November in Hobart, Australia, an international science advisory committee called for a more active approach to fisheries management.

“We’d rather not have a krill fishery,” said John Hocevar, director of Greenpeace USA’s Oceans Campaign, who represented the United States at the meeting. “But this is the world we live in. The fact that they’re in the Southern Ocean is as much an acknowledgment of the failure of fisheries management on a global scale.”

New krill-harvesting technology introduced by Aker BioMarine of Norway, the largest krill fishing company in the South Atlantic, has made it economically feasible to send vessels to the punishingly icy waters at the bottom of the world. These factory ships continuously vacuum up krill (Aker calls it “eco-harvesting”) and process it immediately on the ship. Last year Aker, which started harvesting krill in 2006, bought a second factory ship.

Many major retailers, including CVS, Costco and Walmart, sell krill oil capsules along with other omega-3 supplements. Most come from krill oil pro-

cessed by Aker BioMarine and its main rival, Neptune.

Whole Foods Market pulled krill oil from its shelves in May 2010, citing a decline in predatory sea animals — whales, penguins and seals — in areas where krill are fished.

But Aker has gained two important allies. Its krill oil was approved by the Marine Stewardship Council, a global program that issues labels certifying seafood products as sustainable, despite objections from some scientists and environmental organizations. And Aker has joined forces with WWF-Norway, an arm of the international environmental organization WWF, paying it an undisclosed amount to help Aker make its fishing practices more sustainable. Aker also provides data on krill populations to WWF-Norway and scientists studying krill and its predators.

“Krill is one of the more sustainable fisheries today,” said Matts Johansen, head of marketing at Aker BioMarine. “Compared with fish oil it’s very sustainable. And it comes from the cleanest waters on earth, with no pollutants.”

Wael Massrieh, vice president of scientific affairs at Neptune, said the company was also applying for eco-certification and was awaiting regulatory approval in the United States for a drug based on krill oil. Because “krill is at the bottom of the food chain,” he said, “it doesn’t accumulate as many heavy metals” as fish-based oils.

Vegetarian alternatives, particularly algae-based omega-3 oil made by the Netherlands company Royal DSM N.V., are also gaining ground. Altogether, sales of omega-3 supplements reached more than \$1 billion in 2009 in the United States alone, up from \$40 million in 1995. The claimed benefits include improving heart, brain and vision health.

Back at the bottom of the world, Dr. Bernard was thinking much more about krill health than human health on a recent morning as she plunged an echosounder from her rubber Zodiac boat into the Southern Ocean, its water just 31 degrees Fahrenheit.

The reading looked good. “There was a massive influx!” she wrote by e-mail. “I had never seen so much krill on the echogram before.”

She collected nearly 1,000 krill in a plankton net. A whale nearby was ready to grab the ones Dr. Bernard missed; it can eat four tons of krill each day. Dr. Bernard attributed the abundance to a healthy buildup of sea ice last winter. But the long-term trend is less certain, she said, and that does not bode well for krill or the larger creatures that depend on them.

On a good day just a year earlier, she noted, she had caught a mere 10 lonely krill.

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## WHAT’S IN A WHISTLE?

### *NEW STUDY EXAMINES HOW TRANSIENT KILLER WHALES COMMUNICATE*

For transient killer whales on the hunt, making the slightest sound can mean the difference between a hard-won meal and an empty stomach. Their marine mammal prey—mostly seals and sea lions—have finely tuned hearing that quickly alerts them to danger. As a result, transient killer whales have complex rules around the audible clicks, whistles and pulsed calls they make. While echolocation clicks are primarily used for navigation and prey detection, pulsed calls and whistles are important social signals that help members of a group to recognize one another, stay together, and coordinate behaviors.

In a recent study published in the journal *Behavioral Ecology and Sociobiology*, Consortium scientists conducted the first-ever investigation into how transients use whistles compared to their fish-eating cousins, the resident killer whales.

“Here, we investigated the whistling behavior of mammal-eating killer whales and, based on divergent social structures and social behaviors between residents and transients, we expected to find differences in both whistle usage and whistle parameters,” write co-authors Dr. Volker Deecke of the Marine Mammal Research Unit at the University of British Columbia, and Dr. Rüdiger Riesch of the Department of Biology at North Carolina State University.

Riesch and Deecke had hypothesized that transient killer whales should use whistles preferentially over pulsed calls in many contexts because whistles are higher in frequency and therefore not audible to other species over the same distances as pulsed calls. However, they found no support for their hypothesis. Instead of switching from calls to whistles, transient killer whales seem to go completely mum—presumably because even the less detectable whistles can still reduce hunting success by alerting their potential prey to their presence.

### **The Strong, Silent Type**

Riesch and Deecke painstakingly analyzed approximately 60 hours of recordings of West Coast transients ranging from Monterey Bay, California to Glacier Bay, Alaska. Using real-time spectrographic analysis, they searched the recordings for whistles, then analyzed the acoustic profile of each whistle and classified it as stereotypical (frequent and recurring) or



variable (infrequent or unique).

Their results showed that West Coast transient killer whales whistled only after making a kill or when they were engaged in social activities, as indicated by tail- and fin-slaps, breaches and spy-hops, and they were almost completely silent during all other activities. All West Coast transients seem to share a population-specific repertoire of stereotypical whistles that is clearly distinct from and less complex than that of resident killer whales.

The acoustic profiles of transient whistles showed properties more consistent with a “public” broadcast communication than a “private” one designed to avoid eavesdroppers. Transient whistles generally have lower dominant frequencies, narrower frequency ranges, a shorter duration and fewer frequency modulations—making them more similar to the public whistles of resident killer whales.

### Why Whistle?

Does this mean that transient killer whale whistles serve an entirely different purpose than resident whistles? The authors speculate that while the acoustic profiles of resident and transient whistles were very different, they could share a similar function in instances such as food sharing after a kill. In these types of activities, the rate of transient whistles increased. In instances such as foraging, it appears that transients prefer not to communicate at all than risk alerting their prey.

“Hence, the main strategy of transients to minimize detection by potential prey is to limit vocal communication to certain behavioral contexts, making detection based on whistle recognition by prey impossible during foraging, regardless of a potential receiver’s hearing capabilities,” write Riesch and Deecke. “This in turn seems to have relaxed the selection on making whistles acoustically private.”

In the complex underwater world of transient killer whales, a whistle can be a dead giveaway to potential prey. Whistles are only welcome after a kill is made and there is no longer a need for stealth,

which may explain why the behavioral context of resident and transient whistles are so different.

## SOME GULF DOLPHINS SEVERELY ILL AFTER GULF OIL SPILL

ScienceDaily (Mar. 26, 2012) — Bottlenose dolphins in Barataria Bay, Louisiana, are showing signs of severe ill health, according to NOAA marine mammal biologists and their local, state, federal and other research partners.

Barataria Bay, located in the northern Gulf of Mexico, received heavy and prolonged exposure to oil during the *Deepwater Horizon* oil spill.

Based on comprehensive physicals of 32 live dolphins from Barataria Bay in the summer of 2011, preliminary results show that many of the dolphins in the study are underweight, anemic, have low blood sugar and/or some symptoms of liver and lung disease. Nearly half also have abnormally low levels of the hormones that help with stress response, metabolism and immune function.

Researchers fear that some of the study dolphins are in such poor health that they will not survive. One of these dolphins, which was last observed and studied in late 2011, was found dead in January 2012.

### Investigation of Dolphin Strandings in the Northern Gulf Continues

Since February 2010, more than 675 dolphins have stranded in the northern Gulf of Mexico (Franklin County, Florida, to the Louisiana/Texas border)—a much higher rate than the usual average of 74 dolphins per year, prompting NOAA to declare an Unusual Mortality Event (UME) and investigate the cause of death for as many of the dolphins as possible. The vast majority of stranded dolphins have been found dead; however, 33 have stranded alive and seven have been taken to facilities for rehabilitation.

In the spring, it is typical to see some newborn, fetal and stillborn dolphins strand, and there has been an increase in strandings of this younger age class during this UME in 2010 and 2011. Yet all age classes continue to strand at high levels. NOAA is working with a team of marine mammal health experts to investigate the factors that may be contributing to the dolphin mortalities.

### Gulf Seafood Safety

Since the 2010 oil spill, the Food and Drug Administration, NOAA and the Gulf Coast states have used an agreed-upon protocol to test seafood and ensure that it is free of harmful oil and dispersant resi-

dues. NOAA opened federal waters to fishing after extensive testing, and the Gulf states continue to use the protocol to routinely test finfish and shellfish to ensure all seafood reaching the consumer is safe. Some waters in the northern Barataria Basin, a larger area that includes Barataria Bay, remain closed to commercial fishing, as visible oil is still present along the shoreline where the closures are in place. The joint protocol directs seafood safety testing to begin only after visible oil is gone.

NOAA and its state and federal partners are researching multiple ways Gulf dolphins may have been exposed to oil, including through ingestion, inhalation or externally. Dolphins could have routinely ingested oil from sediments or water while feeding or by eating whole fish, including internal organs and fluids such as liver and bile, which can harbor chemical contaminants. These are not likely routes of exposure for most people.

NOAA and its local, state and federal partners started the Barataria Bay dolphin study in 2011 as part of the Natural Resource Damage Assessment (NRDA), the process for studying the effects of the *Deepwater Horizon* oil spill.

NOAA is sharing the preliminary results from the study so that stranding responders and veterinarians can better care for live stranded dolphins and look for similar health conditions.

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## CARMEL MIDDLE SCHOOL RECOGNIZED BY NOAA

### *TWO CARMEL SCHOOLS AMONG FIVE LOCALLY HONORED BY NOAA*

Carmel Middle School and Carmel River School were among five schools on the Monterey Peninsula that were honored Tuesday (Sept. 6) by Congressman Sam Farr and the National Oceanic and Atmospheric Administration (NOAA) for their work to preserve and protect local waters.

Each of the schools was saluted as being a NOAA "Ocean Guardian" School.

NOAA pointed out that "each school has shown a commitment to protecting the world ocean by participating in reduce/reuse/recycle activities to limit the amount of waste that goes into our landfills, banning latex balloons on school campus and reducing single-use plastics in school lunches."

Rep. Farr, a graduate of Carmel High School, joined Seaberry Nachbar of NOAA in presenting banners to representatives from each of the schools.

Other schools represented, in addition to the pair

from the CUSD, were Pacific Grove Middle School, Monterey Bay Charter School and Ord Terrace Elementary School.

Rep. Farr, whose granddaughter attends Carmel River School, told the gathering of Carmel River School students and others, "When we put trash into the ocean, it has all kinds of bad effects. . . . We want to celebrate the amazing Ocean Guardian program."

He said that in just the past school year over 6,000 Ocean Guardian students in this state prevented 47,000 pounds of waste from ending up in a landfill or the ocean through recycling and composting efforts.

Carmel River School Principal Jay Marden led the ceremonies, which were held in the multi-purpose room at his school. Others present included CUSD Superintendent Marvin Biasotti and CUSD Board members Amy Funt and Annette Yee Steck.

Each school received a \$6,000 grant from NOAA. It was the second such award for Carmel Middle School, which has now received \$12,000. Funding was provided by NOAA's Office of National Marine Sanctuaries.

Schools qualified for consideration by making a commitment to be an "Ocean Guardian" by proposing a school or community-based conservation project.

- Schools were honored for various projects:
- Students at Carmel Middle School are working to make the campus "green" and to reduce impacts on the local watershed by eliminating single-use plastics and increasing usage of reusable water bottles.
  - Carmel River School students formed a "Blue Crew" that makes monthly presentations to all students about single-use plastic, marine debris, recycling and how the students can meet the goal of zero-waste lunches at the school. (Blue Crew members were presented with Ocean Guardian T-shirts by their school Tuesday.)
  - At P.G. Middle School, the Ocean Guardian Club oversees and advises a school-wide drive in which students pledge to change their own behavior to benefit the ocean.
  - Monterey Bay Charter School students are working in their local watershed on a community-based restoration project.
  - Ord Terrace Elementary School students have a project that focuses on the design and implementation of a dune habitat garden at the school.

American Cetacean Society  
Monterey Bay Chapter  
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**Monterey Bay Chapter  
Officers & Chairs, 2011**

Jerry Loomis, *President*  
Richard Ternullo, *Vice President*  
Randy Puckett, *Past Chapter President*  
Diane Glim, *Vice President ACS National*  
Katy Castagna, *Treasurer*  
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Tony Lorenz, Mary K. Paul, *Editors*  
Email: kmarypaul@gmail.com  
tonylorenz@bigbluebay.com



# Soundings



American Cetacean Society- Monterey Bay Chapter

May 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, May 31, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speakers: Jerry Loomis, ACS MB Chapter President &  
Dana Jones, Park Superintendent of the  
North Coast Redwoods**

**Subject: A Journey to Southern Baja**

*Have you ever wanted to see southern Baja?*

*Join us for this amazing journey!*

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Jerry Loomis is our current American Cetacean Society Monterey Bay Chapter President. He has been the President of the ACS MB Chapter for three terms. He is a retired Monterey District Park Ranger. He worked as a naturalist on whale watching trips for 30 years. Jerry has a passion for marine conservation and has been involved in conservation through ACS and the California state parks since 1980.

Dana Jones is currently the Park Superintendent of the North Coast Redwoods in Eureka. Dana was formerly the Park Superintendent of the Monterey District. She also has a strong passion for conservation and nature.

This presentation will take us on a journey across southern Baja to see friendly whales in two calving lagoons and visit ancient cave paintings and missions. We will also be viewing wildlife from boat trips into the Sea of Cortez and view sea birds and foraging dolphins.

Hope to see you there,

Donna Beckett, ACS MB Programs Committee

## CALENDAR

### Hopkins Marine Station Spring Seminars

**May 15:** Callum Roberts: The Ocean of Life: The Fate of Man and the Sea.

**May 18:** Josh Goldman: Paths to Sustainable Aquaculture

**May 25:** Cameron Ainsworth, U. of South Florida: Restoring the Gulf of California: Ecosystem Based Strategy to Save the Vaquita and Preserve Artisanal Fisheries

**June 1:** Jim Estes, University of California Santa Cruz  
Apex Consumers and the Tapestry of Nature

**June 8:** Greg Store, Conservation International  
Saving Pristine Places

**May 21-24:** 63rd Tuna Conference Lake Arrowhead, CA. Natural and Anthropogenic Effects on Highly Migratory Fish Populations. For more info go to [tuna.conference.org](http://tuna.conference.org)

**May 22-June 3:** Marine Mammal and Seabird Behavioral Ecology of New Zealand. Class will be taught in Kaikoura, New Zealand with marine mammalogist Bernd Wursig. 13 days immersion in marine mammal and seabird ecology and behavior. For more info email : [wuersig@sbcglobal.net](mailto:wuersig@sbcglobal.net)

**May 26- May 28:** ACS Memorial Day Wildlife Weekend: Spend 3 days aboard the Searcher in search of Blue Whales, Dolphins, Sea Turtles, Pinnipeds, and Marine Birds. This trip will include a cruise past the Los Coronados Islands. Cost is \$450. For more info please call 619-226-2403 or [ASC.org](http://ASC.org)

### Summer Classes at Moss Landing Marine Lab

1. Techniques and Theories of Animal Training:  
Bio 348 (July 9-15) Tuition \$585

2. Working with Marine Mammals:  
Bio 347 (July 23-29) Tuition \$585

Completion of both courses will earn the student a Certificate of Completion in Beginning Marine Mammalogy. Class instructor will be Dr. Jenifer Zelig. For more info and class registration call 831-582-4500

**Aug. 4:** Monterey Bay Chapter ACS Summer Whale Watch "Search For The Great Blue Whale". Join us aboard the Sea Wolf 2 in search of the largest animal the world has ever known. Monterey Bay is one of the foremost locations in the world to observe blue whales. For more info please call Tony Lorenz at 831-901-7259 (more info to follow) .

**Aug 11:** ACS Nat'l Fundraiser- Blue Whales: Behemoths of the Deep, Santa Barbara. Boat-Condor Express. Cost \$95 includes a Continental Breakfast. For reservations and info please call Kaye Reznick at 310-548-6279

**CAMP SEA LAB: Science, Education and Adventure**  
2012 Sea Camps Include- School of Sharks, Flukes and Flippers, Journey to the Abyss, Girls and Science, Be-

tween the Tides and much more. For more info please call Chris at 831-582-3681

**Sept 24--30:** 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

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## Media Recommendations

The Ocean of Life: The Fate of Man and the Sea  
Written by Callum Roberts

Relics: Travels in Natures Time Machine  
Written by Piots Naskrechi

Charles R. Knight: The Artist Who Saw Through Time  
Written by Richard Milner

Cultural Traditions and the evolution of reproductive isolation: Ecological speciation in killer whales. Biological Journal of the Linnean Society

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## **MAHALO MONDAY IN MAY**

*Enjoy Island cuisine and tropical drinks at Hula's Island Grill, 622 Lighthouse Ave, New Monterey, every Monday in May after 4pm, and a portion of the proceeds from the month will be donated to Viva Vaquita! It's a delicious and simple way to help the most endangered cetacean on earth. Last year, Viva Vaquita received over \$1400 from Hula's, thanks to a strong turn-out of vaquita supporters. The littlest porpoise still needs our help!*

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## **DOLPHIN DASH**

ACS Executive Director, Cheryl McCormick, will run 50 miles on 6/28/12 to raise funds to attend the International Whaling Commission (IWC) meeting in Panama in early July. This will be Cheryl's third and final Dolphin Dash for ACS, as she has recently resigned from the ED position, effective upon her return from the IWC on 7/8/12. All donations are welcome. Cheryl's 50-mile course runs from Seaside to Carmel Valley and back.

Please show your support and mail your donations to ACS/MB, PO Box HE, Pacific Grove, CA 93950 or donate at [acsonline.org](http://acsonline.org). Dr. McCormick has developed a strategic plan for the growth of ACS and has updated governance principles, among many other accomplishments during her tenure as Executive Director. She will keep us posted on discussions at the International Whaling Commission with live blog and twitter feeds. Thank you, Cheryl, for your tireless work as Executive Director of ACS and for running the Dolphin Dash. We appreciate you!

## **BILL WOULD KEEP CONTROVERSIAL 'NO-OTTER ZONE' IN PLACE**

*The bill, backed by House Republicans, would retain the zone south of Point Conception until wildlife officials develop a plan ensuring that the threatened marine mammals and endangered abalone recover and that the commercial shellfish harvest stays at current levels.*

By Tony Barboza, LA Times, April 27, 2012

A bill backed by House Republicans would stall plans to let sea otters reclaim their historical range off Southern California because of concerns that the threatened marine mammals would compromise commercial fishing and military training operations.

The Military Readiness and Southern Sea Otter Conservation Act, sponsored by Rep. Elton Gallegly (R-Simi Valley), would keep a controversial "no-otter zone" south of Point Conception in place until wildlife officials develop a plan ensuring that the furry creatures and endangered abalone recover and that the commercial shellfish harvest stays at current levels.

Those provisions drew fire this week from wildlife experts, who believe the sea otters' recovery from the brink of extinction decades ago could be in jeopardy unless they are allowed to extend their range south from the Central Coast into Southern California.

The bill contends the furry critters could undermine training and testing activities at San Nicolas Island, San Clemente Island and Marine Corps Base Camp Pendleton, where the military conducts underwater detonations, live-fire exercises, amphibious warfare training and missile launches. The legislation would establish zones around the military installations where sea otters would be exempt from some protections under the Endangered Species Act and Marine Mammal Protection Act.

Gallegly said in a statement supporting his bill that when sea otters move south they "will be invading prime shellfish fishing grounds and U.S. Naval testing areas. While I support recovery efforts of the southern sea otter, this cannot happen at the expense of our national security, the commercial shellfish fishing industries, and other endangered species."

Critics say lawmakers are using national defense as a cover to benefit the fishing industry, which fears that otters will gobble up the region's shellfish.

Sea otters are such voracious consumers of sea urchins, abalone, mussels and clams that under the bill "there is no way the government could follow the law and let otters extend their range," said Jason Lutterman, program manager with the Carmel, CA.-based advocacy group Friends of the Sea Otter. The group is one of a coalition of conservation groups that oppose the bill as "dangerously counterproductive to the conservation and recovery of the threatened southern sea otter."

The bill stems from the decision last year by the U.S. Fish and Wildlife Service to end a failed 1987 program that barred sea otters from most Southern California



waters and sought to establish a second sea otter population by moving 140 of them from Monterey Bay to San Nicolas Island, 60 miles off the coast, in case a disaster, such as an oil spill, put them at risk of extinction.

But the relocation program failed and the southern colony never took hold. Many sea otters died or swam away, though a population of 50 remains at San Nicolas Island today.

As part of a compromise with fishing groups at the time, the government promised to round up any otters that strayed close to the Southern California mainland. Officials stopped moving otters out of area waters in 1993 after determining the artificial boundary was not helping restore the population.

The U.S. Fish and Wildlife Service opposes key provisions of the bill, saying they would duplicate existing recovery plans for sea otters and black abalone and wouldn't allow for natural interactions between predators and prey.

Some 16,000 sea otters used to populate the California coast until traders nearly hunted them to extinction by the early 1900s. In 1977 they were listed as threatened under the Endangered Species Act. They number about 2,700 today.

In recent years, the much-adored creatures have struggled to mount a comeback, their growth stifled by high mortality from predators, overfishing, polluted runoff and disease. In 2011, an unprecedented number of California sea otters were found dead, sick or injured, in part due to a rise in shark attacks.

Fishermen say their livelihood would be hurt by the unfettered expansion of sea otters into their fishing grounds.

"We need to balance the needs of all species, including human beings," California sea urchin diver Bruce Steele said at a House subcommittee hearing last week..

Sea otters aren't waiting for Congress to act.

In recent years, young males have been making seasonal sojourns into Southern California in search of food.

Adult females with pups have also ventured south of Point Conception, wildlife veterinarian David Jessup

told lawmakers. "Trying to exclude sea otters from areas of the ocean they want to occupy is proven unworkable and now seems a bit foolish," he said.

### ALBINO KILLER WHALE SPOTTED OFF RUSSIA'S EASTERN COAST

A team of Russian scientists have reported what they believe is the first-ever sighting of an all-white, adult killer whale in the wild.

The discovery of the six-foot, pure white fin was made by scientists during a research cruise off the eastern coast of Russia, near the Kamchatka Peninsula and the Commander Islands in the North Pacific.

"It is a breathtakingly beautiful animal," Eric Hoyt, one of the scientists, told the AFP.

Hoyt leads the Far East Russia Orca Project, the group that made the discovery and has been following orca whales in the area, protected as Russia's largest Marine reserve, for the past 12 years. The group says it has sighted and catalogued about 1,500 whales so far, but the discovery of the adult male, which they have nicknamed Iceberg, stands out.

"This is the first time we have ever seen an all-white, mature male orca," Hoyt said.

The orca appears to be healthy and interacting normally with the other nearly one dozen whales in its pod, according to Hoyt.

"We know that these fish-eating orcas stay with their mothers for life, and as far as we can see he's right behind his mother with presumably his brothers next to him," he told the BBC.

The researchers believe Iceberg is at least 16 years old given the "somewhat ragged" nature of his fin. Orca males can live up to the age of 50 or 60 years, although most only live for around 30 years.

"We've seen another two white orcas in Russia but they've been young," Hoyt said.

Hoyt's research team plans to track Iceberg and his pod over the summer months to definitively establish whether Iceberg is albino, a genetic condition that leaves animals unable to produce melanin, a darker pigment.

The team hopes to be able to confirm Iceberg's condition by photographing his eyes instead of the more complex task of taking a biopsy from the mammal.

"If we can get a full close-up of the eyes and they are pink, it would confirm Iceberg is an albino, but we don't know much about albinism in orcas," Hoyt said.

In 1972, a two-year-old white orca named

Chimo died while in captivity in Canada from a genetic condition that was believed to have caused its albinism.

More recent sightings of the elusive, albino version of the animal have included a reported sighting off the Aleutian Islands near Alaska in 2008 and interest in a humpback whale nicknamed Migaloo in Australia, although that animal is not believed to be naturally white, the BBC reports.

### UNDERSTANDING OF HEARING IN BALEEN WHALES AMPLIFIED

ScienceDaily (Apr. 17, 2012) — For decades, scientists have known that dolphins and other toothed whales have specialized fats associated with their jaws, which efficiently convey sound waves from the ocean to their ears. But until now, the hearing systems of their toothless grazing cousins, baleen whales, remained a mystery.

Unlike toothed whales, baleen whales do not have enlarged canals in their jaws where specialized fats sit. While toothed whales use echolocation to find prey, baleen whales generally graze on zooplankton, and so some scientists have speculated that baleen whales may not need such a sophisticated auditory system. But a new study by scientists at Woods Hole Oceanographic Institution (WHOI), published April 10, 2012, in *The Anatomical Record*, has shown that some baleen whales also have fats leading to their ears.

The scientists propose that toothed whales may not be the only whales that use fats to transmit sound in water, as previously believed, and the fats in both types of whales may share a common evolutionary origin.

Little progress had been made on the auditory anatomy of baleen whales because specimens to study are hard to get. Unlike many toothed whales, they are large, not kept in captivity, rarely strand on beaches, and decompose rapidly when they do.

For the new study, lead author Maya Yamato, a graduate student in the MIT/WHOI Joint Program in Oceanography, received seven heads of minke whales that stranded and died, mostly on beaches on



The fats associated with minke whale ears (shown here in yellow), previously seen only in toothed whales, may efficiently transmit sound waves from the external environment to ears inside of the whales' heads (shown here in purple). (Credit: Maya Yamato, Woods Hole Oceanographic Institution)

Cape Cod. She collaborated with the International Fund for Animal Welfare's (IFAW) Marine Mammal Rescue and Research unit in Yarmouth Port, Mass.

The whale heads were scanned using computerized tomography (CT) and magnetic resonance imaging (MRI) at the Computerized Scanning and Imaging (CSI) lab at WHOI and MRI facility at Massachusetts Ear and Eye Infirmary in Boston. Using these biomedical techniques, the researchers generated 3-D visualizations of the whales' internal anatomy, with both bones and soft tissue intact and in their undisturbed natural positions, providing "an unprecedented view of the internal anatomy of these animals," the scientists wrote.

Then the whale heads were dissected in the necropsy facility at the Marine Mammal Center at WHOI. Together, the studies showed that all the minke whales had "a large, well-formed fat body" connecting to the ears, providing a potential transmission pathway guiding sound from the environment to their inner ears.

"This is the first successful study of intact baleen whale head anatomy with these advanced imaging techniques," said WHOI Senior Scientist Darlene Ketten, director of the CSI lab at WHOI and co-author on the paper. "It really is an important addition to our understanding of large whale head and auditory systems."

Also collaborating on the study were Julie Arruda and Scott Cramer at the CSI and Kathleen Moore of IFAW. *This research was funded by a National Science Foundation Graduate Research Fellowship, a WHOI Ocean Life Institute Graduate Fellowship, the Joint Industry Program, the Office of Naval Research, and the U.S. Navy.*

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## **CALIFORNIA ASSEMBLY PASSES LEATHERBACK SEA TURTLE BILL ON BIPARTISAN VOTE**

*AB 1776 Will Designate Leatherback Sea Turtle as Official State Symbol*

Sacramento, CA- The California State Assembly voted unanimously to pass a bill (AB 1776 - Fong) that will designate the endangered Pacific leatherback sea turtle as California's official state marine reptile and declare October 15 every year as Leatherback Conservation Day. AB 1776 is sponsored by SeaTurtles.org (Turtle Island Restoration Network) and is intended to recognize the importance of California state waters to the survival and recovery of this ancient sea turtle species. The bill now goes to the Senate for voting.

"Designating the Pacific leatherback sea turtle as our state marine reptile will help be part of a coordinated worldwide conservation effort to save a species whose population has declined more than 95 percent," said Assemblymember Fong, who introduced the bill. "Naming the leatherback sea turtle as our official state marine reptile will demonstrate California's commitment to protecting leatherback sea turtles, our oceans ecosystem, and recognize the education and awareness this official designation bestows for this revered creature whose migratory pattern includes

California's coast."

The Pacific leatherback swims 6,000 miles across the ocean to feed on jellyfish along the coast.

"Few Californians realize that the rare and ancient leatherback even exists, let alone that it has relied on our coast for millions of years," said Teri Shore, Program Director at SeaTurtles.org (Turtle Island Restoration Network), primary bill sponsor, based in West Marin, California. "Making the leatherback the official marine reptile will help engage people at sea and on shore in conserving this incredible sea turtle for all time."

AB 1776 will help Californians learn about and appreciate the leatherback and recognize the ecological importance of this ancient species by adding it to state law as an official symbol of California's conservation ethic and biodiversity. So far over 30 organizations and thousands of California residents have supported the bill.

"The Assembly's swift bi-partisan support for this legislation shows the timeliness and importance of recognizing this ocean ambassador species," said Geoff Shester, Oceana California Program Director. We hope to see the Senate and Governor take similar action to make this recognition official."

In recognition of new scientific information validating the importance of California waters to the survival of Pacific leatherbacks, the National Marine Fisheries Service recently designated critical habitat off the U.S. west coast, including 16,910 square miles off California's coast. Both SeaTurtles.org and Oceana participated in the 5 year process leading to the final designation.

The Pacific Ocean population of leatherbacks is in critical danger, having declined by 95 percent in the last 25 years, with as few as 2,100 adult female leatherback sea turtles remaining in the Pacific. Every summer and fall, leatherbacks migrate from their nesting grounds in Indonesia to ocean waters off the U.S. West Coast to feed on jellyfish — a 12,000-mile round-trip journey that is the longest known migration of any living reptile. During that journey, leatherbacks face a gauntlet of threats across the Pacific, including capture in commercial fishing gear, ingestion of plastics, poaching, global warming and ocean acidification.

*Turtle Island Restoration Network's (SeaTurtles.org) mission is to protect and restore endangered sea turtles and marine biodiversity worldwide in ways that incorporate the ecological needs of marine species and the economic needs of local communities, both of which share our common marine environment. We accomplish our mission through grassroots and policy-maker education, consumer empowerment, strategic litigation and by promoting sustainable local, national and international marine policies. See [www.seaturtles.org](http://www.seaturtles.org)*

*Oceana is the largest international advocacy group working solely to protect the world's oceans. Oceana wins policy victories for the oceans using science-based campaigns. Since 2001, we have protected over 1.2 million square miles of ocean and innumerable sea turtles, sharks, dolphins and other sea creatures. More than 500,000 supporters have already joined Oceana. Global in scope, Oceana has offices in North, South and*

Central America and Europe. To learn more, please visit [www.oceana.org](http://www.oceana.org).

The following is an excerpt from a blog in the Opinions section of the New York Times. For the complete blog please go to <http://dotearth.blogs.nytimes.com/2012/04/19/dna-study-finds-deeper-antiquity-of-polar-bear-species/>

## DNA STUDY FINDS DEEPER ANTIQUITY OF POLAR BEAR SPECIES

By ANDREW C. REVKIN (April 19)

A fascinating new paper makes a strong case, using new genetic clues, that polar bears have been around a lot longer, and thus endured more climate vagaries, than most previous estimates. The research is described in “Nuclear Genomic Sequences Reveal that Polar Bears Are an Old and Distinct Bear Lineage,” a paper being published on Friday in the journal *Science*.

The journal’s summary of the article makes the prime point: “Polar bears diverged from their closest relatives about 600,000 years ago, according to a new genetic analysis. The findings suggest the cold adapted species is about five times older than previously thought, and may have had more time to adapt to arctic conditions than recently assumed.”

You’ll see various interpretations. Those concerned about global warming (including at least one study author) are stressing that a longer evolutionary timeline implies the bears’ adaptation to climate change in the past was a slow process (meaning the speed of change now poses new threats). Those questioning the vulnerability of this species to warming will point to its successful survival through two previous warm intervals between ice ages as evidence the bear can deal with reduced ice and other big environmental shifts. Finally, there are basic questions about the robustness of the conclusions, which are based on a new line of genetic analysis not previously applied to polar bears. I think this work bolsters the view of scientists who’ve been calling for a conservation strategy for polar bears and other ice-dependent species focused on areas of the Arctic where sea ice is projected to endure well into this greenhouse-heated era.

James Gorman of the science staff at The Times captures this complexity well in his news story:

The report comes to no conclusion about how sensitive the bears are to the current loss of the sea ice that they live on, and the evolutionary tale it presents can be read in different ways.

The findings challenge the idea that the bears adapted very quickly, but confirm that they have made it through warming periods and loss of sea ice before. It may have been touch and go for the bears, however, because the authors find evidence of evolutionary bottlenecks, probably during warm periods, when only small popula-

tions survived, even though warming was occurring much more slowly than it is now

I had a few questions for the authors, and you can read some answers below. I also sought reactions from some polar bear specialists and biologists focused on DNA clues to when the species split from its brown bear kin. Read on for their thoughts, as well.

Here’s my exchange with Frank Hailer, the lead author and a scientist at the Biodiversity and Climate Research Center in Frankfurt:

**Q:** I’m writing to get some input from you on your incredibly valuable new paper on polar bear evolutionary history and genetics. I’d written on the mitochondrial DNA work but your research clearly is an important advance. I have a couple of questions, one being where the paper supports the conclusion in the related news releases about the polar bear’s evolution being a slow process. As in this line is from the *Science* summary, for instance:

*This study suggests that past adaptation to a changing climate may have been a slow process. Consequently, polar bears may not have enough time to adjust to these warmer conditions as they have in the past.* Where does the paper clarify the pace of genetic change as it relates to past (and future) periods of warming?

**A:** Our study looks at the evolutionary history of polar bears. Previous studies had suggested, mainly based on mtDNA results [*using DNA from the mitochondria within cells*], that polar bears should be an example of unusually rapid adaptation to arctic conditions. This was, because mtDNA data suggested that polar bears had evolved within some 150,000 years from a brown bear population that had colonized arctic habitats. Our study now removes the necessity for unusually rapid adaptability in polar bears, providing some 600,000 years of time for evolutionary adaptation. This figure is much more in line with what evolutionary biologists have found in other mammals, with regard to speciation and adaptation.



A polar bear sprawls on Arctic sea ice.

Patrick Kelley, U.S. Coast Guard.

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.  
For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)			
			4/19 a.m.	15	Humpback Whales
				10	Killer Whales
				25	Risso's Dolphins
			4/18 a.m.	8	Humpback Whales
5/3 p.m.	17	Humpback Whales (more in the area)		1200	Pacific White-sided Dolphins
	1	Gray Whale (calf carcass)		400	Risso's Dolphins
	10	Killer Whales	4/17 p.m.	2	Humpback Whales
	30	Risso's Dolphins		100	Pacific White-sided Dolphins
5/3 a.m.	60	Humpback Whales (some lunge feeding on krill)		50	Risso's Dolphins
	2	Gray Whales (cow, calf under attack)	4/17 a.m.	3	Humpback Whales
	10	Killer Whales		1	Gray Whale
	1	Minke Whale		1000	Pacific White-sided Dolphins
	1	Pacific White-sided Dolphin		100	Risso's Dolphins
	4	Risso's Dolphins	4/16 p.m.	7	Humpback Whales
4/30 a.m.	4	Humpback Whales		3	Gray Whales
	5	Pacific White-sided Dolphins		10	Risso's Dolphins
	25	Risso's Dolphins	4/16 a.m.	17	Humpback Whales
4/29 a.m.	6	Humpback Whales (including cow & calf pair)		6	Gray Whales
	50	Risso's Dolphins		400	Pacific White-sided Dolphins
4/28 a.m.	3	Humpback Whales (feeding on surface krill)		300	Risso's Dolphins
4/27 a.m.	3	Killer Whales (predation on Gray Whale)	4/15 p.m.	12	Humpback Whales
	2	Humpback Whales		10	Killer Whales (transient type, predation on Harbor Seal)
4/26 p.m.	2	Humpback Whales (calf playful)	4/15 a.m.	12	Humpback Whales
	10	Risso's Dolphins		10	Killer Whales (transient type, predation on Minke Whale)
4/26 a.m.	2	Humpback Whales (cow & calf pair)	4/13 a.m.	4	Humpback Whales
	25	Risso's Dolphins	4/12 pm.	2	Gray Whales
4/25 p.m.	1	Humpback Whale (lunge feeding)	4/12 a.m.	6	Humpback Whales
4/25 a.m.	1	Humpback Whale		100	Pacific White-sided Dolphins
	50	Risso's Dolphins		100	Risso's Dolphins
	5	Bottlenose Dolphins	4/11 p.m.	3	Gray Whales
4/24 p.m.	1	Humpback Whale		1	Humpback Whale
	1	Gray Whale	4/11 a.m.	2	Humpback Whales
4/24 a.m.	3	Humpback Whales		30	Risso's Dolphins
	1	Gray Whale	4/10 a.m.	3	Gray Whales
	1500	Pacific White-sided Dolphins		2	Humpback Whales
	1800	Risso's Dolphins		1	Black-footed Albatross
	100	Northern Right Whale Dolphins	4/9 a.m.	10	Gray Whales
4/23 p.m.	4	Humpback Whales		500	Long-beaked Common Dolphins
	20	Pacific White-sided Dolphins	4/8 p.m.	2	Humpback Whales
	25	Risso's Dolphins		500	Pacific White-sided Dolphins
4/23 a.m.	2	Humpback Whales		800	Risso's Dolphins
	1	Gray Whale	4/8 a.m.	5	Gray Whales
	200	Pacific White-sided Dolphins		2	Humpback Whales
	200	Risso's Dolphins	4/7 p.m.	5	Gray Whales
4/22 p.m.	10	Humpback Whales (breaching, tail slaps, fin slaps)		4	Humpback Whales
	150	Risso's Dolphins	4/7 a.m.	4	Gray Whales
4/22 a.m.	12	Humpback Whales		4	Humpback Whales
	80	Pacific White-sided Dolphins	4/7 early a.m.	300	Pacific White-sided Dolphins
	125	Risso's Dolphins		400	Risso's Dolphins
4/20 p.m.	10	Killer Whales		20	Northern Right Whale Dolphins
	800	Pacific White-sided Dolphins	4/6 a.m.	4	Gray Whales
4/20 a.m.	2	Humpback Whales	4/3 p.m.	3	Gray Whales
	200	Risso's Dolphins	4/3 a.m.	1	Gray Whale
4/19 p.m.	1	Gray Whale		3	Killer Whales
	10	Killer Whales	4/2 p.m.	6	Gray Whales
	250	Long-beaked Common Dolphins		60	Pacific White-sided Dolphins
			4/2 a.m.	3	Gray Whales
				20	Risso's Dolphins

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**P.O. Box H E Pacific Grove, CA 93950**

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Email: [tonylorenz@bigbluebay.com](mailto:tonylorenz@bigbluebay.com)  
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# Soundings



American Cetacean Society- Monterey Bay Chapter

JUNE 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, June 28, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speaker: Sean R. Van Sommeran, Executive Director,  
The Pelagic Shark Research Foundation**

**Subject: Highlights of the Last 22 Years of Scientific Efforts  
by The Pelagic Shark Research Foundation**

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MEMBERSHIP.....	8

The Pelagic Shark Research Foundation (“Foundation”) is a local non-profit that has been around since 1990. Directed by Sean Van Sommeran, the Foundation and has been involved in a broad array of projects investigating mega fauna in the Monterey Bay and surrounding waters. Sean was born and raised in Santa Cruz and his local roots and early life oceanic adventures make him especially suited to carry out interesting research in our local waters.

Our speaker’s Highlights Report will include: the first tagging, tracking and ‘ID’ing of basking sharks and white sharks in the Monterey Bay National Marine Sanctuary (“MBNMS”); the first tagging and tracking of blue and mako sharks originating in the Monterey Bay and traveling to the eastern Pacific; the first tagging and tracking of sharks from the Monterey Bay north to San Francisco Bay and Humboldt Bay; the recovery of the first specimen of giant squid from Monterey Bay and the MBNMS; and many more interesting and entertaining stories about the activities of this cutting edge, non-profit, research organization.

Please join us for what will surely be a revealing presentation about some of the amazing denizens and visitors of our own Monterey Bay.

See you there,

Bob Mannix, Chair, ACS MB Programs

## CALENDAR

**July 18:** MBARI Lecture. Dr. Mary Silver UCSC Historical Knowledge of Phytoplankton Blooms  
3PM Wednesday MBARI Pacific Forum

**July 21:** 25 Year Anniversary Celebration  
12-5pm MBARI Open House

**Aug. 4: 9am—1pm Monterey Bay Chapter ACS Summer Whale Watch To See Blue and Humpback Whales Aboard the Sea Wolf. Departs from Fisherman's Wharf. \$40 per adult/ \$30 per child (15 and under). Sponsored by Monterey Bay Whale Watch. Send payments to 1235 Sylvan Road Monterey, CA 93940. Call Carol Maehr at 373-3752 for information.**

**Aug 11:** ACS Nat'l Fundraiser- Blue Whales: Behemoths of the Deep, Santa Barbara. Boat-Condor Express. Cost \$95 includes a Continental Breakfast. For reservations and info please call Kaye Reznick at 310-548-6279

**Aug 12-17:** The Fifth International Albatross and Petrel Conference. Wellington, New Zealand.

### CAMP SEA LAB: Science, Education and Adventure

2012 Sea Camps Include- School of Sharks, Flukes and Flippers, Journey to the Abyss, Girls and Science, Between the Tides and much more. For more info please call Chris at 831-582-3681

**Sept 24--30:** 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

### SUPPORT THE DOLPHIN DASH!

**WHAT:** 3rd annual Dolphin Dash 50-mile fundraiser run to support ACS registration fees and travel/lodging to-and-from the International Whaling Commission, located in Panama City, Panama, July 2-July 6, 2012. Executive Director Cheryl McCormick will be running solo and will be attending the IWC

on behalf of ACS.  
**WHERE:** The Dolphin Dash begins at 5 a.m. from Embassy Suites, Monterey Bay. The course runs to Carmel Valley and returns to the starting point for a total of 50 miles.



**WHEN:** Thursday, June 28, 2012

**HOW:** Blood, sweat, and tears... we're earning it the old-fashioned way!

Members and supporters can make a contribution to the Dolphin Dash in one of three ways:

- 1) Writing a check to ACS Headquarters, P.O. Box 1391, San Pedro, CA 90733-1391;
- 2) Writing a check to ACS-MB with "Dolphin Dash" in the memo line;
- 3) By visiting the ACS website homepage ([www.acsonline.org](http://www.acsonline.org)) and clicking on "Support Cheryl's 50 Miles to IWC" below the Dolphin Dash logo

### Get ready for the American Cetacean Society Monterey Bay Chapter Annual Barbeque!

when: Sunday July 29, 2012, at 3p.m.

where: Veterans' Memorial Park, Monterey  
at the west end of Skyline Drive or up Jefferson St. from downtown

Honoring Bob Mannix and David Zaches



\$20 per person

send RSVP payments to: 1235 Sylvan Road Monterey, CA 93940

call Katy Castagna at 647-1836 for information

Bring your own table service

B.Y.O.B.

## NEW SENSE ORGAN HELPS GIANT WHALES TO COORDINATE THE WORLD'S BIGGEST MOUTHFULS

The world's largest animals have been hiding something. The bodies of the giant rorqual whales—including the blue, fin and humpback—have been regularly displayed in museums, filmed by documentary makers, and harpooned by hunters. Despite this attention, no one noticed the volleyball-sized sense organ at the tips of their lower jaws. Nicholas Pyenson from the Smithsonian Institution is the first, and he thinks that the whales use this structure to coordinate the planet's biggest mouthfuls. The rorquals sieve tiny prey from the water with a unique hunting technique called lunge feeding. They surge forwards, open their mouths and swallow everything in front of them. This seemingly simple tactic is one of the most extreme in the animal kingdom. In one move, a lunging fin whale can engulf a volume of water that's bigger than its own body. Its bigger cousin – the blue whale – can swallow half a million calories in one gulp.

Here's what happens in slow-motion prose. A hunting rorqual detects the movements of their prey with pressure-sensitive whiskers on the underside. It accelerates to high speed and opens its mouth to almost a right angle. The two halves of its lower jaw – the largest bones that ever existed – are connected to its skull by flexible joints, and their tips aren't fused together. This allows them to swing outwards, widening the mouth.

As water floods in, the mouth balloons out. Blubbery pleats that run along the underside of the whale's throat allow it to expand without tearing (the name 'rorqual' comes from the Norwegian for 'furrow whale'). The tongue (which, in a blue whale, is the size of an elephant) inverts into a large flattened sac, partly retreating through the floor of the mouth. This creates more room. In just a few seconds, the whale has transformed from "a cigar shape to the shape of an elongated, bloated tadpole". Finally, the whale closes its gigantic mouth. The pleats contract and the tongue pops back into shape, pushing the engulfed water against bristly plates of baleen hanging from the roof of the mouth, and sieving out any tasty morsels.

### DISCOVERING A NEW ORGAN

Pyenson thinks that the new sense organ helps to coordinate this process. Together with Bob Shadwick, he discovered the structure by dissecting a dozen fin and minke whales, and by placing the jaws of one specimen in medical imaging scanners. "We had no idea what to make of it when we first saw it," says Pyenson. "It's a bit messy and gooey in life. Imagine a gel-filled balloon-like structure lodged between two telephone poles."

The organ was mentioned by Paul Brodie in 1993, but he interpreted it as a ball-and-socket joint. Pyenson disagrees. The gel around the organ contains many blood vessels and nerve endings, which come from a structure in the jawbone that was once the tooth socket of the first incisor, back when these whales still had teeth. These traits mark it out as a sense organ, and Pyenson thinks that it helps the whales to control the movement of their jaws during their titanic lunges.

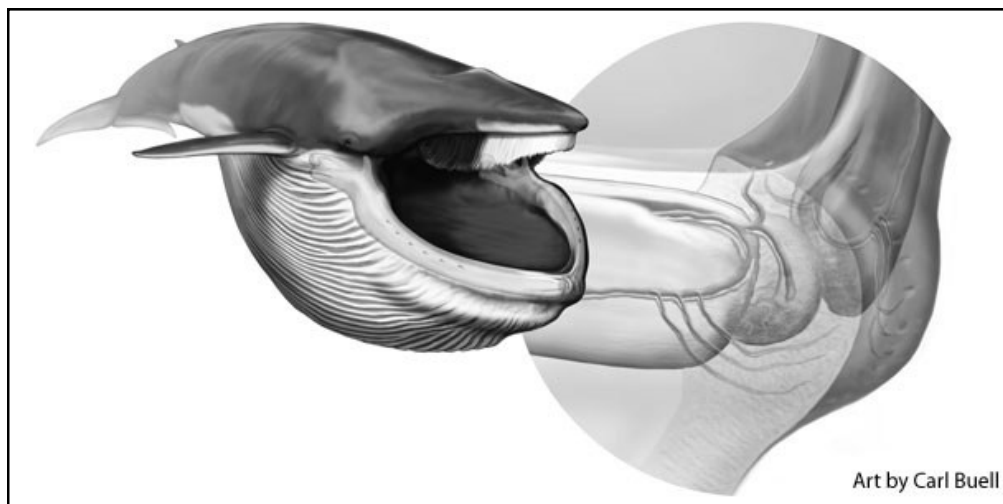
Lunge-feeding isn't a passive process, where the incoming water inflates the mouth like a parachute. If that was the case, simulations show that either the whale's mouth would experience "catastrophic blow-out", or the water would just rebound back out. Obviously, that doesn't happen—the oceans aren't littered with ruptured rorquals. Instead, the whale actively uses muscles in its mouth to push water forward during a lunge. This seems counterintuitive, but it smoothes out the drag forces acting upon the mouth, and prevents prey from clogging up the baleen.

To coordinate this, the whale needs to gauge what's going on in its mouth. Nerves in its pleats certainly help, but the newly discovered organ provides the clincher. It sits in a spherical cavity at the front of the mouth, nestled snugly between the disconnected halves of the lower jaw. It also rests on top of a Y-shaped piece of cartilage, which extends back along both sides of the jaw. It's in a prime position, connected up to the hard and soft parts of the whale's mouth, and wired into its brain.

During a lunge, the organ picks up signals from the jawbones, which compress it as they swing outwards. It also gets signals from the Y-shaped cartilage, which bends as the mouth expands. "A sense of stretch isn't new, but a gross organ devoted to this sense is unique," says Joy Reidenberg, a whale anatomist who appears on *Inside Nature's Giants*. "It's very exciting work!"

### SECRETS STILL UNTOLD

This organ is unique to the rorquals. Other baleen whales, like the bowhead and right, don't have it. This means that it evolved in conjunction with the lunge-feeding lifestyle, or just before it. Either way, it was part of the



Art by Carl Buell

adaptive apparatus that allowed these animals to grow enormous on a diet of tiny.

Erich Fitzgerald, who studies whale evolution at Museum Victoria, says that the next step is to get some data on how the organ is used during feeding. For example, why do the nerves running into the organ only come from one of the two jawbones, making it the only asymmetric part of the rorqual's entire body? No one knows, but Pyenson notes that rorquals often roll to one side when they gulp. Perhaps whales with nerves coming in from one side might prefer to feed on that side. "We'll admit that it's a bit suggestive and speculative," he says.

It might be surprising that such familiar animals still hold secrets, but there is much we don't know about the giant whales. "Whale anatomy is really an opportunistic venture," says Pyenson. "Even if you are lucky enough to find a carcass cast ashore in decent condition, you may not have the tools at your disposal to investigate everything properly. I wouldn't be surprised if more strange tissues and organs were discovered."

Fitzgerald agrees. "We still have so much to learn about the basic biology of some of the most storied, controversial, popular and enormous animals on Earth," he says. "There is still much to learn from investigating the fundamentals of anatomy and natural history—sciences that are as relevant and dynamic today as they were in the 18th century. The great days of zoological exploration are clearly not yet done!"

### OVER 30 YANGTZE PORPOISES FOUND DEAD IN CHINA AS POPULATION NEARS EXTINCTION

Jeremy Hance, mongabay.com May 01, 2012

Six years after the Yangtze river dolphin (*Lipotes vexillifer*), or baiji, was declared "functionally extinct" by scientists, another marine mammal appears on the edge of extinction in China's hugely degraded Yangtze River. In less than two months, 32 Yangtze finless porpoises (*Neophocaena asiaeorientalis asiaeorientalis*), a subspecies of the finless porpoise, have been found dead in Dongting and Poyang Lakes in the Yangtze, reports the World Wide Fund for Nature (WWF).

The porpoises are suffering from many of the same impacts that pushed the baiji to extinction: illegal electrofishing, strikes by boat propellers, poisons, and possibly pollution and food shortages from lower water levels linked by officials to climate change. Autopsies show that at least two of the animals were killed by electrofishing and boat propellers.

"This tragedy shows that Yangtze finless porpoise is facing enormous challenges," Lei Gang, head of WWF China's Central Yangtze program, said in a press release. "The porpoise deaths illustrates that without effective

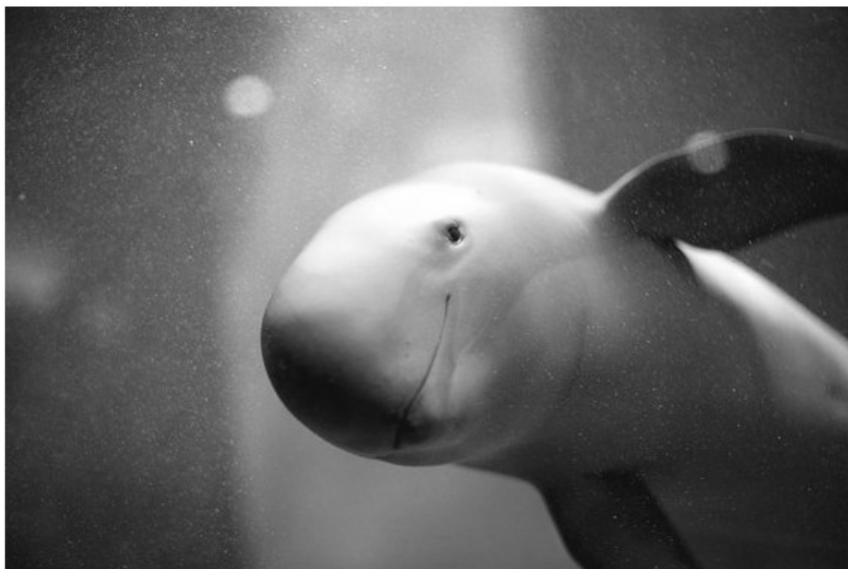
measures to fundamentally reverse the trend of ecological deterioration, future of the incredible creature is far from certain. We have to act immediately."

Researchers believe that around 1,000 Yangtze finless porpoises survive in the river with the population in dramatic decline. Currently, the IUCN Red List is evaluating the subspecies to see if the situation warrants classifying the population as Critically Endangered.

Breakneck development, including a series of dams, with little environmental regard has left the ecology of the Yangtze River in shambles. Aside from the baiji's extinction, many of the river's key species are vanishing. The Chinese paddlefish (*Psephurus gladius*), arguably the world's biggest freshwater fish, is listed as Critically Endangered with only two fish confirmed since 2002. Scientists fear the fish may be soon gone for good, if not already, after a 2009 survey couldn't find a single fish. In addition the Chinese alligator (*Alligator sinensis*), the Yangtze sturgeon (*Acipenser dabryanus*), and the Yangtze soft-shell turtle (*Rafetus swinhoei*) are all listed as Critically Endangered.

Still, a controversial new hydroelectric project, the Xiaonanhai Dam, is moving ahead despite concerns that it will finish off a number of the river's endangered fish, many found no-where else in the world. The looming mass extinction of the Yangtze River's key species and widespread environmental degradation has left fishermen bereft of livelihoods on the once plentiful river. A report in 2007 by China's State Environmental Protection Administration (SEPA) found that 30 percent of the Yangtze river's tributaries are "seriously polluted" and 600 kilometers of the river is in "critical condition". Such degradation has lessened the river's annual fish harvest 77 percent from the 1950s to the 1990s. Pessimistically, the SEPA report called the damage to the Yangtze River "largely irreversible."

Despite such challenges, WWF and local Chinese



There are two subspecies of the finless porpoise, one is found in the Yangtze River, the other in Japan, Taiwan, and South Korea. This individual is the latter and was photographed in a Japanese aquarium. Photo by: Kenichi Nobusue.

authorities hope it's not too late to save the Yangtze finless porpoise. The local government is working on a plan to better regulate fishing and traffic in the porpoise's habitat, meanwhile conservationists are also mulling a plan to move some of the porpoises to a more secure ecosystem.

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## ELEPHANT SEAL TRACKING REVEALS HIDDEN LIVES OF DEEP-DIVING ANIMALS

May 15, 2012 in Biology & Nature

Researchers at the University of California, Santa Cruz, who pioneered the use of satellite tags to monitor the migrations of elephant seals have compiled one of the largest datasets available for any marine mammal species, revealing their movements and diving behavior at sea in unprecedented detail. A new study published May 15 in the journal *PLoS ONE* focuses on the annual migrations of adult female elephant seals, with data from nearly 300 animals. The results show elephant seals traveling throughout the entire northeast Pacific Ocean on foraging trips in search of prey such as fish and squid.

"This work is unprecedented in terms of the number of animals tracked. For the first time we can truly say that we know what the elephant seal population is doing," said Daniel Costa, professor of ecology and evolutionary biology and leader of the elephant seal research group at UC Santa Cruz. "This represents the efforts of a large number of graduate students, postdoctoral researchers, and undergraduate volunteers who have all worked very hard to make this happen."

The researchers found that individual seals pursue a variety of different foraging strategies, but most of them target one oceanographic feature in particular--a boundary zone between two large rotating ocean currents, or gyres. Along this boundary, the cold nutrient-rich waters of the sub-polar gyre in the north mix with the warmer waters of the subtropical gyre, driving the growth of phytoplankton and supporting a robust food web. Presumably, this leads to a concentration of prey along the boundary, said Patrick Robinson, a postdoctoral researcher in Costa's lab and lead author of the paper.

"The highest density of seals is right over that area, so something interesting is definitely going on there," Robinson said.

Previous studies by Costa and other participants in the Tagging of Pacific Predators program have shown that this boundary zone is important for a wide range of marine predators, including elephant seals, sharks, tuna, and albatrosses. A surface feature associated with the boundary zone, caused by blooms of phytoplankton, is detectable in satellite images, but it moves seasonally as much as 1,000 kilometers to the south. The deep-diving elephant seals do not follow this surface feature, but continue to target the deep boundary zone between the two gyres.

Smaller numbers of female elephant seals feed in coastal regions, pursuing bottom-dwelling prey along the continental shelf, or in other areas outside of the boundary

zone such as around seamounts. Among these is a large female that feeds near Vancouver Island and holds the record for deepest recorded dive by an elephant seal. The data analyzed in the *PLoS ONE* paper include one dive to 1,747 meters (5,765 feet, well over a mile), and the same seal dove even deeper on a more recent foraging trip, reaching 1,754 meters (5,788 feet), Robinson said.

Female northern elephant seals make two foraging trips every year. After the breeding season in February and March, they head out to sea for two months before returning to the rookery to molt. Then they leave on a long post-molting migration that often lasts eight months, from June to January. The amount of food a female is able to find on these foraging trips directly affects her breeding success and, if she gives birth, her pup's growth rate and chances of survival.

"If foraging is not good, the pups are smaller at weaning because the females produce less milk," Robinson said.

In addition to tracking the foraging migrations, the researchers monitor the health of the seals and track birth rates over time. Tags are attached harmlessly onto the animals' fur and recovered when they return to the rookery. Before and after each migration, the researchers get weights and blood samples from the tagged seals, which always return to the same rookery. The tags used today are far more sophisticated than the first ones deployed by UCSC researchers in the 1980s. Current devices, used on a subset of the seals in this study, can capture an animal's location, swim speed, and depth and duration of dives, as well as the temperature and salinity of the seawater and how that changes with depth.

Most of the animals in this study were tagged at the rookery on Año Nuevo Island, where UCSC researchers have been studying elephant seals for decades. But the study also involved a collaboration with researchers in Mexico to tag elephant seals at Islas San Benito, which is 1,150 kilometers (690 miles) southeast of Año Nuevo. "A lot of those animals travel much further to get to foraging areas in the north, so they might spend an extra week traveling, and we wanted to see how that affects them," Robinson said. "The animals from San Benito that do go up to feed at the boundary zone do fine, but we also found that many of them stayed closer to home, feeding along the continental shelf, and they were successful too."

These findings highlight the adaptability of elephant seals, suggesting that they may be able to withstand environmental perturbations such as climate change because the population is not dependent on a single foraging strategy.

This research is also providing valuable oceanographic data. While ocean surface temperatures can be measured by satellites, oceanographers have limited temperature data from deep waters. Costa's group has organized the temperature data collected by the elephant seals into a format that oceanographers can use and uploaded it

to the World Ocean Database, providing millions of ocean temperature data points not otherwise available.

In addition to Robinson and Costa, the coauthors of the paper include Daniel Crocker, a longtime collaborator who earned his Ph.D. at UCSC and is now a biology professor at Sonoma State University; Juan Pablo Gallo-Reynoso at Unidad Guaymas in Sonora, Mexico; UCSC graduate students Cory Champagne, Melinda Fowler, Chandra Goetsch, Kimberly Goetz, Jason Hassrick, Luis Huckstadt, Jennifer Maresh, Sarah Peterson, and Nicole Teutschel; UCSC postdoctoral researchers Sara Maxwell, Birgitte McDonald, and Stella Villegas-Amtmann; Carey Kuhn of the National Marine Mammal Laboratory in Seattle; Samantha Simmons from the Marine Mammal Commission; and Ken Yoda of Nagoya University in Japan.

This project was supported by the Office of Naval Research, the International Association of Oil and Gas Producers, gifts from Steve Blank, the Rebecca and Steve Sooy Graduate Fellowship in Marine Mammals, and the Ida Benson Lynn Chair in Ocean Health.

#### **DNA FINGERS REAL-LIFE CAPTAIN AHABS FOR PRECIPITOUS DECLINE OF GRAY WHALES**

By Katherine Harmon | May 9, 2012

Tens of thousands of whales were slaughtered each year for decades from the mid 1800s to the early 1900s, in the service of lighting city streets, painting ladies' lips and providing multitudinous other modern conveniences. This monomaniacal hunt led many species to the brink of extinction. But recent research has suggested that gray whale (*Eschrichtius robustus*) populations in the Pacific might have already been on their way down. So are the real life Ahabs really off the hook—at least for the gray whale's plight?

Getting a picture of pre-whaling whale populations is tricky. Early- and mid-19th century population estimates and whaling records can be as convoluted as Queequeg's tattoos. And attempting to estimate ancient populations by assessing contemporary populations' DNA relies on assumptions that do not always hold water.

Historic data estimated the pre-1850 gray whale population to be somewhere between 15,000 and 20,000, whereas genetic estimates puts that number at 19,500 and 35,500.

A more solid tale of whale populations and their distributions is of interest not just to historians but also to policy-makers seeking insights into restoring contemporary gray whale populations, which are still less than a third of what they likely once were. So scientists have been curious to get a sense of how many of these Pacific whales there really were.

A team led by Elizabeth Alter, of Stanford University's Hopkins Marine Station, undertook an effort to set the

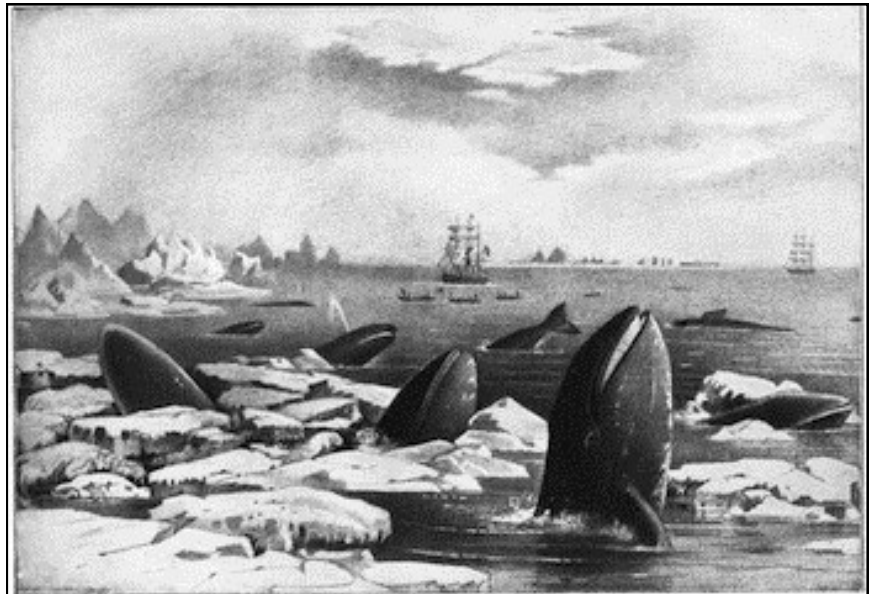
record straight. They harvested DNA from gray whales captured or beached along the northern Pacific coasts of the U.S. and Canada both recently and historically. The researchers compared contemporary whale DNA to that sampled from whalebones uncovered at archeological digs of indigenous fishing villages that ranged from 150 to 3,500 years old.

According to the analysis, there was, indeed, a severe population bottleneck. But it didn't happen before the *Pequods* of the world set out for their cetacean prizes. So it probably wasn't the "Little Ice Age" (cooling from 1300 to 1850), predation from killer whales (*Orcinus orca*) or increased hunting by indigenous populations that took the gray whale to the edge of evolutionary obscurity.

The new genetic data reveals that this bottleneck probably occurred about 93 years ago (or about six whale generations ago), which would have been in the final furious push of industrialized whaling. During this time, there were only about 9,070 gray whales left in the eastern Pacific. Before that population pinch, the area likely was home to more than 60,000 of these massive, 16-meter-long creatures. The work underscores the difficulties of using modern genetics alone to estimate ancient animal populations.

"Historic baselines for many marine populations [might be] much larger than previously estimated," the researchers wrote in their paper, published online May 9 in *PLoS ONE*.

So, thanks to some clever new analysis, these old whalebones proved worth their salt in helping us understand whale populations in the era before we humans started launching our harpoons. And Melville's characters—and their actual analogues—remain implicated in the crime.



Gray whale, *Eschrichtius robustus* (page 455). - After Scammon, *Marine Mammals of the North-West Coast of North America*, New York 1874, drawn by P. Neumann/Wikimedia Commons

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.  
For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)			
6/7 a.m.	15	Humpback Whales	5/21 a.m.	25	Humpback Whales
	2	Blue Whales		600	Pacific White-sided Dolphins
6/6 a.m.	32	Humpback Whales	5/20 a.m.	75	Northern Right-whale Dolphins
	15	Risso's Dolphins		5	Humpback Whales
	2	Harbor Porpoise		300	Pacific White-sided Dolphins
6/5 a.m.	6	Humpback Whales (with calf)	5/19 a.m.	1200	Risso's Dolphins
6/4 p.m.	28	Humpback Whales		3	Humpback Whales
	3	Harbor Porpoise		50	Pacific White-sided Dolphins
6/4 a.m.	22	Humpback Whales	5/18 a.m.	50	Risso's Dolphins
	2	Minke Whales		2	Humpback Whales
	3	Harbor Porpoise	5/17 a.m.	25	Risso's Dolphins
6/3 a.m.	27	Humpback Whales (50+ in the Bay)		1	Humpback Whale
	1	Minke Whale	5/16 a.m.	130	Pacific White-sided Dolphins
	800	Pacific White-sided Dolphins		5	Risso's Dolphins
	10	Northern Right-whale Dolphins	5/15 a.m.	2	Humpback Whales
6/2 a.m.	9	Humpback Whales	slapping)	40	Pacific White-sided Dolphins
	1	Blue Whale	5/14 p.m.	40	Risso's Dolphins
	1	Minke Whale		4	Humpback Whales (breaching, tail-
	200	Risso's Dolphins		6	Killer Whales (including a calf)
	3	Harbor Porpoise	5/14 a.m.	22	Humpback Whales
6/1 a.m.	14	Humpback Whales		2	Killer Whales
	1	Blue Whale		20	Risso's Dolphins
	5	Harbor Porpoise	5/13 a.m.	26	Humpback Whales
5/31 a.m.	56	Humpback Whales		2	Killer Whales (hunting sea lion)
	1800	Pacific White-sided Dolphins		3	Risso's Dolphins
	300	Risso's Dolphins	5/12 p.m.	48	Humpback Whales (75+ in the area)
	15	Harbor Porpoise		2	"Friendly" Humpback Whales
5/30 p.m.	3	Humpback Whales	5/12 a.m.	30	Pacific White-sided Dolphins
	20	Pacific White-sided Dolphins		20	Risso's Dolphins
	50	Risso's Dolphins		27	Humpback Whales
	5	Harbor Porpoise	5/12 a.m.	20	Risso's Dolphins
5/30 a.m.	20	Humpback Whales		27	Humpback Whales
	2	Blue Whales		75	Pacific White-sided Dolphins
	5	Killer Whales	5/11 p.m.	100	Risso's Dolphins
	150	Risso's Dolphins	5/11 a.m.	4	Humpback Whales
	5	Harbor Porpoise		25	Humpback Whales
5/29 a.m.	32	Humpback Whales		2	Gray Whales
	7	Killer Whales (predation on Harbor Seal)	5/10 p.m.	1	Northern Fur Seal
	7	Risso's Dolphins		20	Humpback Whales
5/28 a.m.	27	Humpback Whales	5/10 a.m.	9	Risso's Dolphins
	1	Fin Whale		1	Harbor Porpoise
	220	Pacific White-sided Dolphins	5/9 a.m.	35	Humpback Whales
	150	Risso's Dolphins		15	Risso's Dolphins
	5	Dall's Porpoise	5/8 p.m.	5	Humpback Whales
	6	Harbor Porpoise		20	Pacific White-sided Dolphins
5/27 p.m.	25	Humpback Whales		2	Humpback Whales
	1	Fin Whale		75	Pacific White-sided Dolphins
	20	Risso's Dolphins	5/8 a.m.	20	Risso's Dolphins
5/27 a.m.	35	Humpback Whales	5/7 a.m.	8	Humpback Whales
	1	Fin Whale		25	Humpback Whales
	80	Risso's Dolphins		50	Pacific White-sided Dolphins
5/26 p.m.	22	Humpback Whales	5/6 p.m.	600	Risso's Dolphins
5/26 p.m.	35	Humpback Whales		25	Humpback Whales
5/22 a.m.	40	Humpback Whales		60	Risso's Dolphins
	30+	Pacific White-sided Dolphins	5/6 a.m.	65	Humpback Whales (120+ in the Bay)
	75	Risso's Dolphins		1500	Pacific White-sided Dolphins
	150	Northern Right-whale Dolphins		2	Harbor Porpoise
	3	Harbor Porpoise	5/5 a.m.	45	Humpback Whales (100+ in the Bay)
				1500	Pacific White-sided Dolphins
				200	Risso's Dolphins

American Cetacean Society  
Monterey Bay Chapter  
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Signature \_\_\_\_\_

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**P.O. Box H E Pacific Grove, CA 93950**

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[kmarypaul@gmail.com](mailto:kmarypaul@gmail.com)



# Soundings



American Cetacean Society- Monterey Bay Chapter

July 2012

PO Box H E, Pacific Grove, CA 93950

*Two ACS Monterey Bay Chapter Events this Summer Not to Miss!*

*Annual Barbecue on July 29 &*

*Summer Whale Watching Trip on August 4*

Get ready for the  
American Cetacean Society  
Monterey Bay Chapter  
Annual Barbeque!

when: Sunday July 29, 2012, at 3p.m.

where: Veterans' Memorial Park, Monterey  
at the west end of Skyline Drive or up Jefferson St. from downtown

Honoring Bob Mannix and David Zaches



Whale treasures Raffle  
and Puckett Sculpture  
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## CALENDAR

**July 18:** MBARI Lecture. Dr. Mary Silver UCSC Historical Knowledge of Phytoplankton Blooms 3PM Wednesday MBARI Pacific Forum

**July 21:** 25 Year Anniversary Celebration 12-5pm MBARI Open House

**Aug 11:** ACS Nat'l Fundraiser- Blue Whales: Behe-moths of the Deep, Santa Barbara. Boat-Condor Ex-press. Cost \$95 includes a Continental Breakfast. For reservations and info please call Kaye Reznick at 310-548-6279

**Aug 12-17:** The Fifth International Albatross and Petrel Conference. Wellington, New Zealand.

**CAMP SEA LAB: Science, Education and Advent-ure** 2012 Sea Camps Include- School of Sharks, Flukes and Flippers, Journey to the Abyss, Girls and Science, Between the Tides and much more. For more info please call Chris at 831-582-3681

**Sept. 8:** Channel Islands Adventure: San Miguel Island. Cost is \$100. For More Info 310-548-7562

**Sept 24--30:** 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

**Nov. 9th-11th:** 13th International Conference Of The American Cetacean Society. Whales and Humans: A Conflicted Relationship. San Diego, CA Hyatt Regency, Mission Bay

## MEDIA RECOMMENDATIONS

Last Lost World: Ice Ages, Human Origins, and the Invention of the Pleistocene Written by Lydia V. Pyne and Stephen J. Pine. 2012 Viking Press

ZOOBIQUITY: What animals tell us about health and the science of healing. Written by Barbara Natterson- Horowitz, M.D. and Kathryn Bowers

Earth Before The Dinosaurs. Written by Sebastian Steyer. 2012 Indiana University Press

## **HALT DEADLY CALIFORNIA GILLNET FISHERY EXPANSION**

*Enough is Enough - Stop the California Drift Gillnet Expansion and End the Curtain of Death*

The California drift gillnet fishery for swordfish and shark continues to capture and kill dolphins and sea lions, and to toss back, dead and damaged, 20 to 30 percent of its catch of fish. The capture and deaths of two endangered sperm whales were observed in the drift gillnet fishery in 2010, equal to an estimated total of 16 whales caught and injured or killed in the fishery.

Because the drift gillnet fishery is so deadly to marine life of all kinds, it has been severely restricted. The use of longline gear to catch swordfish along our coast has been completely banned due to bykill of sea turtles. ***Yet federal fishery officials in defiance of longstanding California state policy and conservation laws are trying to expand this unsustainable fishery again!***

***Take Action!*** Tell National Marine Fisheries Service and the Pacific Fisheries Management Council to halt any further action to expand the California drift gillnet fishery for swordfish and shark or to introduce a pelagic longline fishery for swordfish and sharks off the U.S. West Coast.

Send your letters to:

Dan Wolford  
Pacific Fishery Management Council  
7700 NE Ambassador Place  
Suite 101  
Portland, OR 97220-1384

Rod McInnis  
National Marine Fisheries Service  
501 W. Ocean Blvd., Suite 4200  
Long Beach, CA 90802



## FIRST PATERNITY STUDY OF SOUTHERN RIGHT WHALES FINDS LOCAL FATHERS MOST SUCCESSFUL

*SCIENCE DAILY (June 22, 2012)* — The first paternity study of southern right whales has found a surprisingly high level of local breeding success for males, scientists say, which is good news for the overall genetic diversity of the species, but could create risk for local populations through in-breeding.

Results of the study, by researchers at the University of Auckland, Oregon State University and the New Zealand Department of Conservation, have just been published in the journal *Molecular Ecology*.

The study found that most of the right whales born near the remote sub-Antarctic islands of New Zealand were fathered by males from the same local population, according to lead author Emma Carroll, who recently completed her doctorate at the University of Auckland.

"This finding gives us information on the breeding behavior of right whales, but more importantly it shows that the New Zealand population is relatively isolated from other populations in the region, including that of neighboring Australia," Carroll said.

In other words, male southern right whales don't get around much -- and that kind of behavior is surprising.

"In other species of mammals, males usually disperse from their place of birth to seek new mating opportunities," said Scott Baker, associated director of the Marine Mammal Institute at Oregon State University, and co-author on the study. "But with right whales, it seems that local fidelity to breeding habitat is strong -- for both males and females."

Southern right whales were hunted to near-extinction by commercial whaling, but some populations around New Zealand and Australia have slowly started to recover. Baker, who works out of OSU's Hatfield Marine Science Center in Newport, Ore., initiated the genetic study of right whales in the region in 1995 in part to assess the likelihood that they could recover.

The New Zealand right whale population had plummeted to fewer than a hundred animals by 1920, from more than 30,000 before Europeans arrived in the late 18th century. The authors estimate that by 1998, the population had increased to about 1,000 individuals. Their newest study sought to determine the connectivity, or isolation, of the regional populations so as to better monitor and manage right whales,

which are listed as a "Nationally Endangered" species in New Zealand.

The paternity analysis has also helped to explain the right whale mating behavior observed in the Auckland Islands, which is also a primary habitat for calving and nursing.

"It is difficult to distinguish social interactions from actual mating in southern right whales," said Carroll, who did her Ph.D. studies under Baker.

"When and where individuals breed has been difficult to judge in this migratory species. By using DNA profiles from mothers and calves to identify likely fathers among males sampled in New Zealand, we now think mating takes place locally rather than during migration or on distant feeding grounds."

Carroll, Baker and colleagues gathered DNA from small skin samples collected during a 15-year period from 34 mother-calf pairs, and more than 300 males -- about 30 percent of the male right whales in New Zealand.

Although they didn't match all of the calves with fathers, the proportion that did match was also 30 percent, consistent with the number of males sampled from the population. The authors then showed that it was highly unlikely that this many paternities would be assigned to local males if males from outside the New Zealand population were fathering calves.

"It is possible, but unlikely, that males from the Aus-



A new study by researchers in New Zealand and at Oregon State University found that southern right whales have a high local fidelity. (Credit: photo courtesy of the Auckland Islands Team)

tralian population have fathered some of the other calves," Carroll said. "We cannot exclude the possibility of the occasional visiting suitor."

Baker, who frequently provides advice to the International Whaling Commission on cetacean conservation genetics, said that although in-breeding could be a problem at very low numbers, local fidelity also has advantages.

"Along with preserving greater overall diversity, local fidelity may allow for habitat specialization and the transmission of cultural memory," he pointed out. "It becomes easier to pass along such things as locations of breeding and feeding grounds."

Although right whales demonstrate fidelity to their own population, the researchers say, they are anything but monogamous. Males compete in "sperm competition" through multiple mating encounters with different females, rather than physical confrontations with each other, as do males in most other species of mammals. This may be why male right whales have the largest testicles in the animal kingdom, the researchers noted in their study -- up to six feet in diameter and weighing as much as a ton.

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## TOO FEW SALMON IS FAR WORSE THAN TOO MANY BOATS FOR KILLER WHALES

*ScienceDaily (June 6, 2012)* — Not having enough Chinook salmon to eat stresses out southern resident killer whales in the Pacific Northwest more than having boatloads of whale watchers nearby, according to hormone levels of whales summering in the Salish Sea.

In lean times, however, the stress level normally associated with boats becomes more pronounced, further underscoring the importance of having enough prey, according to Katherine Ayres, an environmental and pet-behavior consultant who led the research while a University of Washington doctoral student in biology. Ayres is lead author of a paper appearing online June 6, in the journal *PLoS ONE*.

In a surprise finding, hormone levels show that southern resident killer whales are best fed when they come into the Salish Sea in the late spring, Ayres said. The Salish Sea includes Puget Sound and the straits of Georgia, Haro and Juan de Fuca. Once there they get a necessary boost later in the summer while eating Chinook salmon at the height of the Fraser River run.

While Fraser River Chinook are an important food source, helping the southern resident killer whales may mean giving additional consideration to spring runs of Chinook salmon off the mouth of the

Columbia River and other salmon runs off the West Coast, if that's where the orcas are bulking up in the spring, Ayres said. "Resident" killer whales are fish-eating orcas, unlike the so-called "transient" orcas that eat marine mammals.

For the study, scientists analyzed hormonal responses to stress that were measurable in whale scat, or poop. Many samples were collected using a black Labrador named Tucker on board a small boat in the vicinity of individuals or groups of whales. Even a mile away, Tucker can pick up on the scent he's been trained to recognize as the fishy smell distinctive to southern resident killer whales, a group of orcas listed as endangered by both Canada and U.S.

"This is the first study using scat-detection dogs to locate killer whale feces," Ayres said. "The technique could be used to collect scat and study stress in other species of whales, always difficult subjects to study because the animals spend 90 percent of their time underwater."

Since the population of southern resident killer whales declined nearly 20 percent between 1995 and 2001, scientists and managers have wondered if the animals weren't thriving because of lack of food, the closeness of boats, toxins built up in their bodies or a combination of all three.

"Behavior is hard to interpret, physiology is easier," said co-author Samuel Wasser, UW professor of biology and developer of the program using dogs like Tucker to detect scat for biological research. "Fish matter most to the southern resident killer whales.

Even if boats are important to consider, the way you minimize that impact is to keep the fish levels high."

It's the same with toxins, Wasser said. The study being published in *PLoS ONE* specifically considered stress caused by inadequate prey and boats. But Wasser said that toxins accumulating in body fat will likely affect killer whales most when food is scarce and they start to use that stored fat, releasing toxins into their bodies when their physical condition already is in decline. When whales are well-fed, toxins should be less of a factor, he said.

In the study researchers examined the level of two hormones to study physiological responses to boat and food stresses.

One type of hormone, glucocorticoids, are released in increasing amounts when animals face immediate challenges, whether it's a shortage of food or the fight-or-flight response when threatened, Ayres said. When whale watching boats and other vessels

were most numerous in the summer, glucocorticoids should have spiked if the whales were bothered. Instead glucocorticoids went down, driven by an increase in the number of Fraser River Chinook.

The other hormone, thyroid hormone, tunes metabolism depending on how much food is available, for example ramping down metabolism to lower the energy an organism expends when food is scarce, Ayres said. Unlike glucocorticoids, thyroid hormone levels do not respond directly to stresses such as boats being nearby. During summers, thyroid levels of Salish Sea whales dipped while they awaited the arrival of Fraser River Chinook, increased again when food became plentiful and declined once again as the Chinook run petered out.

Unexpectedly, the thyroid hormone measures showed the whales were best fed when they first arrive in the Salish Sea, better than at any time in the five months they spent there, Wasser said.

"We assume winter is a lean time, so to come into the Salish Sea at their nutritional high for the year, then clearly they have been eating something -- a very rich food source -- before they arrive," Wasser said. "It appears another fish run is critical to them before they get here."

Some evidence points to the Chinook returning to the Columbia River, although Wasser said that more spring data are needed.

The *PLoS ONE* paper follows a draft report issued May 3 by U.S. and Canadian fisheries experts considering to what extent salmon fishing is affecting the recovery of the southern resident killer whales. Wasser said the report pays too little attention to year-to-year salmon variability, but got it right when it said more needs to be known about what's happening to the whales in the winter and, particularly, in early spring.

Among other things, the report said Chinook stocks are currently harvested at a rate of about 20 percent "so there is limited potential for increasing Chinook abundance by reducing fishing pressure," according to the executive summary. More extreme measures may be required that increase overall Chinook salmon stocks, Wasser said.

"To support a healthy population of southern residents we may need more salmon than simply the number of fish being caught by commercial and sport fishers," Ayres said. "We may need to open up historical habitats to boost wild salmon, such as what is being done with the Elwha River and what is proposed for the Klamath River. That may be the only way to

support the historic population size of southern residents, which is ultimately the goal of recovery." Other co-authors are Rebecca Booth of the UW; Jennifer Hempelmann, Candice Emmons, M. Bradley Hanson and Michael Ford of the National Oceanic and Atmospheric Administration's Northwest Fisheries Science Center; Kari Koski of Soundwatch Boater Education Program and the Whale Museum, Friday Harbor; Robin Baird of Cascadia Research Collective, Olympia; and Kelley Balcomb-Bartok, who helped get the study off the ground through collaboration with the Center for Whale Research.

Draft report: "Effects of Salmon Fisheries on Southern Resident Killer Whales" <http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/KW-Chnk.cfm>



*Katherine Ayres handles Tucker as he zeros in on the scent of whale poop. Tucker never goes into the water, he just leans over the bow in the direction the boat should travel. (Credit: Jeanne Hyde)*

## **BLUEFIN TUNA RECORD FUKUSHIMA RADIO-ACTIVITY**

By Jonathan Amos, Science correspondent, *BBC News 28 May 2012* — Pacific Bluefin tuna caught off the coast of California have been found to have radioactive contamination from last year's Fukushima nuclear accident.

The fish would have picked up the pollution while swimming in Japanese waters, before then moving to the far side of the ocean.

Scientists stress that the fish are still perfectly safe to eat.

However, the case does illustrate how migratory species can carry pollution over vast distances, they say.

"It's a lesson to us in how interconnected eco-regions can be, even when they may be separated by thousands of miles," Nicholas Fisher, a professor of marine sciences at Stony Brook University, New York, told BBC News.

Fisher and colleagues report their study in the journal *Proceedings of the National Academy of Sciences*.

They examined the muscle tissues of 15 Bluefin tuna (*Thunnus orientalis*) taken from waters off San Diego in August 2011, just a few months after the accident at the Fukushima Daiichi nuclear plant.

These were animals whose parents would have spawned in Japanese waters and spent one to two years locally before heading to feeding grounds in the eastern Pacific.

All the fish examined in the study showed elevated levels of radioactive caesium - the isotopes 134 and 137.

Caesium-137 is present in seawater anyway as a result of the fall-out from atomic weapons testing, but the short, two-year half-life of caesium-134 means the contamination can be tied directly to Fukushima. There is no other explanation for the isotope's presence.

The measured concentrations were about 10 times the total caesium radioactivity seen in tuna specimens taken from before the accident.

As a control, the team also examined Yellowfin tuna, which are largely residential in the eastern Pacific.

These animals showed no difference in their pre- or post-Fukushima concentrations.

The research is likely to get attention because Bluefin tuna is an iconic species and a highly valuable fishery - thousands of tonnes are landed annually.

But consumers should have no health concerns about eating California-caught tuna from last year, the team says.

The levels of radioactivity are well within permitted limits, and below those from other radioisotopes

that occur naturally in the environment, such as potassium-40.

"The potassium was about 30 times higher than the combined radio-caesium levels. If you calculate how much additional radioactivity there is in the Pacific Bluefin tuna caught in California relative to the natural background - it's about 3%," said Prof Fisher.

The scientists even calculated how much radioactivity might have been present in the fish before they swam across the Pacific (it would have fallen over time) and figured it could have been 50% above background levels; but, again, this would still have met the legal requirements for safe consumption.

Tuna caught in the coming months will be subjected to new tests. These animals would have spent much longer in Japanese

waters and so conceivably could have a very different pollution load.

The team also believes the investigation should be extended to other migratory species that frequent Japanese waters.

Fukushima pollution is potentially a very useful tool to trace the origin and timing of animal movements.

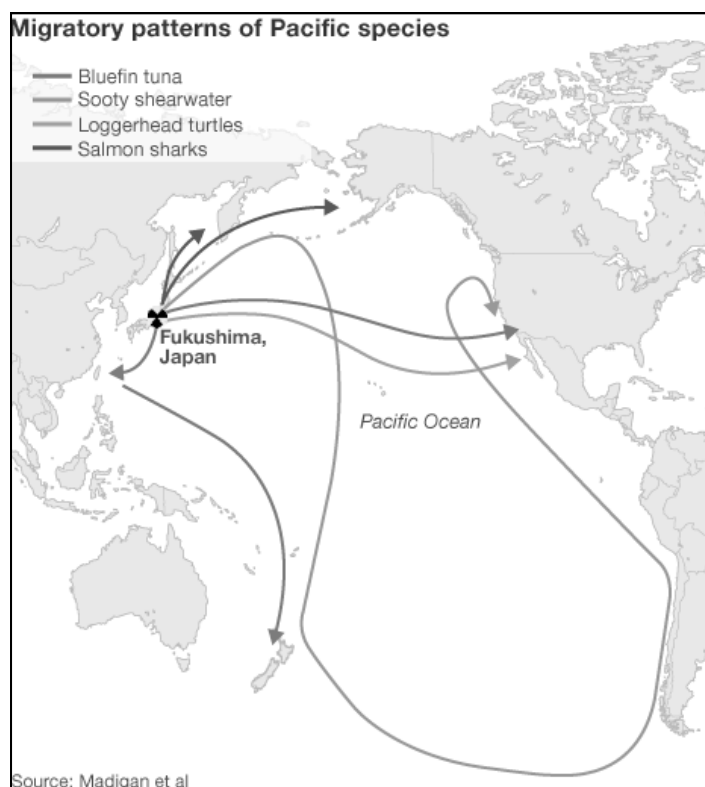
Because of their very predictable decay rates, the caesium isotopes and their ratio to each other can be used like a clock to work out when a particular migration took place.

"There's been a lot of really nice electronic tag-

ging work, but any tag you put on a fish shows you what that animal will do from this point forward. What it can't tell you is about the past, and that's what these tracers can do," explained the study's lead author Dan Madigan from Stanford University.

"The logical next step is to look at other species that do what the Bluefin do... migrate from Japan.

"Right now, we have the sampling in place to look at sea turtles, sharks, other fish, potentially whales, and some seabird species as well. This will give us information about the transport [of the contamination] by the animals and it will tell us about the migratory patterns of the animals," he told BBC News.



**SIGHTINGS** Compiled by Monterey Bay Whale Watch.For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)			
7/6 late p.m.	25	Humpback Whales	6/28 p.m.	3	Risso's Dolphins
	3	Blue Whales	6/28 a.m.	3	Harbor Porpoise
7/6 p.m.	30	Humpback Whales		50+	Blue Whales
	4	Blue Whales		14	Humpback Whales
7/6 a.m.	40	Humpback Whales		1	Blue Whales
	6	Blue Whales	6/27 p.m.	20	Fin Whale
	8	Bottlenose Dolphins		6	Risso's Dolphins
7/5 p.m.	8	Blue Whales	6/27 a.m.	2	Humpback Whales
	150	Risso's Dolphins		5	Blue Whales
7/5 a.m.	40	Humpback Whales		15	Humpback Whales
	12	Blue Whales		150	Blue Whales (50+ in the bay)
	250	Pacific White-sided Dolphins	6/26 a.m.	200	Pacific White-sided Dolphins
	400	Risso's Dolphins		4	Risso's Dolphins
	300	Northern Right-whale Dolphins		2	Humpback Whales
7/4 p.m.	30	Humpback Whales	6/25 p.m.	1	Blue Whales
	12	Blue Whales		8	Blackfooted Albatross
	2	Minke Whales	6/25 a.m.	75	Humpback Whales
	6	Dall's Porpoise		10	Pacific White-sided Dolphins
7/4 a.m.	35	Humpback Whales	6/24 p.m.	2	Humpback Whales
	15	Blue Whales		10	Blue Whales
	1	Minke Whale	6/24 a.m.	1	Humpback Whales
7/3 p.m.	16	Humpback Whales		20	Blue Whale
	5	Blue Whales	6/23 p.m.	300	Humpback Whales ("friendly", breaching)
	7	Pacific White-sided Dolphins	6/23 a.m.	15	Pacific White-sided Dolphins
	10	Risso's Dolphins		45	Humpback Whales (very active)
7/3 a.m.	50	Humpback Whales	6/23 a.m.	45	Humpback Whales (100+ in the Bay)
	20	Blue Whales (lunge feeding)		2000	Pacific White-sided Dolphins
	20	Pacific White-sided Dolphins	6/22 p.m.	75	Risso's Dolphins
	100	Risso's Dolphins		400	Northern Right-whale Dolphins
7/2 a.m.	15	Humpback Whales		15	Humpback Whales
	3	Blue Whales	6/22 a.m.	2	Blue Whales
	30	Risso's Dolphins (with 5 calves)		115	Risso's Dolphins
7/1 p.m.	40	Humpback Whales	6/21 p.m.	25	Humpback Whales
	15	Blue Whales		1	Blue Whale
	30	Risso's Dolphins		8	Humpback Whales
7/1 a.m.	60+	Humpback Whales		2	Blue Whales
	40+	Blue Whales	6/21 a.m.	1	Fin Whale
	75	Risso's Dolphins		5	Risso's Dolphins
6/30 late p.m.	3	Humpback Whales		11	Humpback Whales
	2	Blue Whales	6/20 p.m.	400	Pacific White-sided Dolphins
6/30 p.m.	35	Humpback Whales		150	Northern Right-whale Dolphins
	8	Blue Whales	6/20 a.m.	4	Humpback Whales (2 cows with 2 calves)
	50	Risso's Dolphins		1	Blue Whale
6/30 a.m.	65	Humpback Whales	6/20 a.m.	5	Humpback Whales
	20	Blue Whales		7-8	Killer Whales
	4	Minke Whales		500	Pacific White-sided Dolphins
	50	Risso's Dolphins	6/19 a.m.	100	Northern Right-whale Dolphins
	12	Harbor Porpoise		2	Humpback Whales
	1	Basking Shark	6/19 a.m.	3	Humpback Whales
6/29 late p.m.	4	Humpback Whales		2	Killer Whales
	6	Blue Whales (lunge feeding)		120	Risso's Dolphins
6/29 p.m.	30+	Humpback Whales		50	Northern Right-whale Dolphins
	6	Blue Whales	6/18 p.m.	5	Dall's Porpoise
	30	Risso's Dolphins		3	Humpback Whales
6/29 a.m.	42	Humpback Whales		1	Blue Whale
	6	Blue Whales		25	Pacific White-sided Dolphins
	3	Minke Whales	6/18 a.m.	5	Risso's Dolphins
	120	Pacific White-sided Dolphins		10	Northern Right-whale Dolphins
				7	Humpback Whales

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**P.O. Box H E Pacific Grove, CA 93950**

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[kmarypaul@gmail.com](mailto:kmarypaul@gmail.com)



# Soundings



American Cetacean Society- Monterey Bay Chapter

AUGUST 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, August 30, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speaker: Ron Eby, Naturalist and Conservationist**

**Subject: Elkhorn Slough And  
The Otters That Flourish There**

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As rich and diverse as the Monterey Bay, so also is Elkhorn Slough. The Slough is a key estuarine habitat that supports life from the Bay as well as organisms that spend their entire life cycles in its environment. The slough habitat is also an important component in our planet's overall hydrological cycle. .

Our speaker and research team members Robert Scoles and Rita Chaffin have spent thousands of hours observing and reporting on Elkhorn Slough and the life and conditions there. Ron's presentation will include the historical and geological aspects of the Slough as seen from a naturalist's perspective. He will feature observations and findings from recent and ongoing studies of sea otter usage.

Please join us this month for an interesting and informative presentation about this key wet lands habitat by someone who has seen things first hand over an extended period of time.

See you there,

Bob Mannix, Chair, ACS MB Programs Committee

*Congratulations to ACS volunteers extraordinaire Bob Mannix and Dave Zaches, who were honored at the annual ACS BBQ held on 7/29. Many thanks to those attending to honor Bob and Dave, and Thank You to the volunteers who organized a delightful day and donated to the excellent raffle. Thank you Monterey Bay Whale Watch and participants at the annual Blue Whale Watch Adventure held on 8/4. We saw blues, humpbacks and bow-riding Dall's porpoises. Thanks for attending!*

## CALENDAR

**Aug. 30:** San Francisco Chapter ACS: Chris Pincetich presents Recent and Historical Impacts of the Ca Drift Net Fishery on Marine Mammals and Turtles. 7 -9pm Saylor's Restaurant and Bar, Sausalito, CA

**Sept. 8:** Channel Islands Adventure: San Miguel Island. Cost is \$100. For More Info 310-548-7562

**Sept 24--30:** 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

**Oct. 13:** Wildlife Conservation Expo, 10am-6pm, Mission Bay Conference Center, San Francisco. [www.wildnet.org/events](http://www.wildnet.org/events)

**Nov. 9th-11:** 13th International Conference Of The American Cetacean Society. Whales and Humans: A Conflicted Relationship. San Diego, CA Hyatt Regency, Mission Bay. Register now at [Acsonline.org](http://Acsonline.org)

## MEDIA RECOMMENDATIONS

[The Gulf of California: Biodiversity and Conservation](#) written by Richard C. Brusca. University of Arizona Press.

[Sea Turtles of the Eastern Pacific: Advances in Research and Conservation](#) (Arizona-Sonora Desert Studies in Natural History)

[Seabird Islands: Ecology, Invasion and Restoration](#). 2011 Oxford University Press

[The Odyssey of KP2. An Orphan Seal a Marine Biologist, and the Fight to Save a Species](#) written by Dr. Terrie Williams. UCSC Marine Mammal Physiologist.

[Shark: A Visual History](#) written by Richard Ellis. 2012 Lyons Press

## BLUE WHALE GATHERING OFF MONTEREY NOTHING SHORT OF SPECTACULAR

By Pete Thomas, GrindTV.com

Blue whales have flocked to Monterey Bay in what some off the Central California port are calling the most phenomenal showing of the endangered mammals in recent history. As many as 100 of the planet's largest creatures have congregated to gorge on tiny shrimp-like krill, and joining in the feast are dozens of smaller but more animated humpback whales, along with numerous other marine mammal species.

"Everywhere you go you just see blows," Nancy Black, owner of Monterey Bay Whale Watch, told the Santa Cruz Sentinel.

Black said the phenomenon represents "a once-in-a-lifetime chance" for tourists to witness the splendor -- and gluttony -- of mammals that can measure 100 ft. and weigh up to 150 tons. What's incredible is the sheer numbers of blue whales -- there are only about 10,000 worldwide -- but also feeding behavior that's occurring at the surface and unusually close to shore. (Generally, krill remains lower in the water column and beyond sight of boat-ers.)

This includes horizontal and vertical lunge-feeding by whales that are capable of ingesting vast quantities of krill in single gulp.

"People get to see the world's largest mouth," said researcher Alisa Schulman-Janiger, explaining that a blue whale's mouth is about 1/4 of the size of a mammal that consumes up to 4 tons of krill per day. Krill, of course, is key to the blue whales' existence. About 2,000 blue whales spend the summer off the West Coast fattening up on the inch-long crustaceans, before migrating to southern waters in the fall. Some of the whales feed along the coast but much of it occurs beyond the range of whale-watching fleets.

Krill feed on phytoplankton and when conditions are prime in a given area, generally after an upwelling of cold water and nutrients, krill blooms can fill vast portions of the water column.

For the last two summers, southern California boasted the most consistent blue whale sightings. But for now Monterey Bay is the great gathering place for the ocean giants, but also for smaller cetaceans present for the feast. On Thursday's morning trip alone Monterey Bay Whale Watch reported sightings of 12 blue whales, 40 humpback whales, 400 Risso's dolphins, 300 northern right whale dolphins, 250 Pacific white-sided dolphins and two minke whales.

It just doesn't get any better than that.

## HOW “REAL REALITY TELEVISION” MIGHT SAVE THE MONK SEAL -

By Charles Littnan, *Lead Scientist of the Hawaiian Monk Seal Research Program, NOAA Fisheries*

The Hawaiian monk seal is one of the oldest species of seal on the planet, having resided in the tropical waters of the Hawaiian archipelago for millions of years. But their tenure in paradise is perilously close to its end. In the last 75 years the monk seal population has declined dramatically and only about 1,100 seals remain in the wild.

While there is a steep decline and many threats faced by the population in the remote part of the seals' range, there is a glimmer of hope. A small population of seals has established itself in the main Hawaiian Islands...and has begun to grow. Quickly. In 2000 there were 15 seals in the main islands...12 years later there are now 150-200. This increase provides an important toehold for the population and raises hope for the species recovery. But an increase of seals in the heavily human-populated area has resulted in a number of new and complex management issues. Some of the key issues are seals, their diet, and interactions with fisheries. There are a number of very real concerns voiced by community members but the way forward to finding solutions is hampered by a lack of data, poor communication, and a good amount of misinformation. The host of issues, not just fisheries concerns, has increased animosity towards the seals and recently there have been a number of seal killings.

The need to address concerns about monk seal foraging and diet gave rise to this exciting collaboration and the Hō'ike ā Maka Project. The intent of the project is to understand and share images of the feeding and underwater behavior of Hawaiian monk seals, and lay to rest many of the myths and misconceptions regarding monk seals and their impact on the local marine environment and its resources. We plan to deploy seal-borne video cameras to study how monk seals feed and use their marine habitat in the main Hawaiian Islands. The discoveries will be critical to un-

derstanding the seals' ecology, ensuring their continued existence, and building a culture of coexistence between man and seal. But more importantly, our project is going to abandon the typical research model of scientists working alone and reporting their findings back to the public. We want to include our community in all aspects of the work. To that end, we will work directly with local researchers, ocean users (fishers, divers, surfers and others), students, and NGO's, during the deployments, the “reveal session” where we get the first glimpses of each monk seal's underwater world, and during the analysis and interpretation.

We hope that through this project greater trust and partnership can be fostered between everyone that has a stake in this issue. We are two months away from our first field trip and we will be posting blog entries as we continue on our adventure. It will be a journey filled with amazing wildlife, fascinating discovery, heated conflict, and, hopefully, enlightenment and understanding for all. Please join us.

Besides following our work on this blog, you can also make sure that this important scientific research becomes a reality. We need the assistance of citizens scientists everywhere and have an urgent need to raise at least \$7,500 by September in order to cover the cost of highschool student research grants, tracking tags, and other instrumentation. Wherever you are in the world, become part of the Hawaiian monk seal research and conservation family by making a donation at: <http://www.monksealfoundation.org/Research.aspx>



A Hawaiian monk seal approaches the camera of Mark Sullivan, taken on NMFS permit 10137. Photo by Mark Sullivan.

## GROWING SHIP TRAFFIC THREATENS BLUE WHALES

By Erik Olsen

MIRISSA, Sri Lanka — In early April, whale watchers off this country's southern coast were greeted by a disturbing sight: the lifeless body of a 60-foot-long blue whale floating in the water about 12 miles offshore.

The body was swelling rapidly, and suckerfish swarmed across its skin. Even more unsettling was the condition of its tail, which had been nearly severed from the body.

"It was very obviously from a ship's propeller," said Mazdak Radjainia, a structural biologist and underwater photographer from the University of Auckland in New Zealand who happened upon the whale. "It must have been a really cruel death, because it was such a massive injury."

Researchers say ship strikes are a leading cause of death among whales around the globe. Many that are killed are from endangered populations like blue whales that are barely holding on.

The problem is particularly troublesome here in Sri Lanka, where a largely unstudied population of blue whales, possibly numbering in the thousands, has come under increasing pressure from commercial shipping and from a boom in unregulated whale-watching boats.

Because these waters are poorly monitored, scientists do not know for sure whether ship strikes are on the rise. But the whale's death in April was already the sixth of the year, according to news reports. In one grisly encounter in March, a blue whale was found draped over the bow of a container vessel in the harbor in the capital, Colombo, 90 miles north of this beach resort. Last year, some 20 whale carcasses (not all of them blue whales) were seen around the island, according to Arjan Rajasuriya, a research officer with the National Aquatic Resources Research and Development Agency in Colombo. It is not known how many of the deaths resulted from ship strikes.

"These strikes likely represent only a portion of the likely true mortality," said John Calambokidis, a whale researcher in Olympia, Wash., who documents ship strikes off the West Coast of the United States. Because blue whales often sink soon after they are struck, most such deaths go unrecorded, and Dr. Calambokidis says the true number "could be 10 or 20 times" the number seen.

Fifteen miles off the southern coast of Sri

Lanka is one of the world's busiest shipping lanes, and whales are known to swim regularly inside them. But some scientists believe that the increase in whale watching could be forcing whales to seek food farther out, pushing them into the big ships' path.

"I'm afraid the whales are being harassed by the whale-watching boats and that this could affect their movement," said Asha de Vos, a whale researcher here.

The threat to the whales has some researchers scrambling to learn as much as they can about them and to find a way to protect them.

"Having these whales right off the coast is pretty amazing," said Ari S. Friedlaender, a research scientist at the Duke University Marine Laboratory. "We know so little about blue whales in general that any place that you have easy access to animals like this, your learning curve is going to be exponential."

In 2009, Sri Lanka ended a deadly 25-year civil war that largely kept foreign scientists and researchers away from these waters. Several general surveys in the 1970s revealed that there were whales here, but it was not until the 1990s that interest started to grow. Researchers were particularly drawn by the whales' tendency to stay here year round; other blue whale populations are known to migrate vast distances.

Perhaps no one has studied these whales and promoted their conservation as much as Ms. de Vos.

Three years ago, Ms. de Vos started the Sri Lankan Blue Whale Project, a long-term research program that she hopes will stop the carnage and raise awareness of the whales here. For the last three years, from December to May, she has been photographing the whales and using scientific instruments to better understand their feeding behaviors.

"Clearly, there's something down there that's keeping them around. But we need to know where it is and how much," she said.

In March, Ms. de Vos was helped by a team of researchers from the Duke University Marine Lab who brought along an electronic echo sounder, which uses sound waves to measure the density of prey in the water. For 10 days, she and the team crisscrossed miles of water, taking measurements and finding spots thick with krill.

The data will help scientists better understand where and when the whales are feeding — and, she hopes, persuade the government to shift the shipping lanes farther out to sea.

Ms. de Vos, who was born and raised in Colombo, became a champion of the blue whales after

she took a boat ride in 2006 and was astounded by what she saw.

“There were six whales within four square kilometers of where I was, and that was it for me,” she said. “That was a sign, and I knew I wanted to better understand and protect them.”

But her effort is fraught with challenges, including a lack of support from local authorities and the disadvantages of being a young woman in a society dominated by men. “I’m very much on my own around here,” she said. “I don’t have a lot of infrastructure or equipment to do my work.”

She has received some financial support from the University of Western Australia, where she is completing a doctorate in oceanography.

“Her work is really setting the stage for further research on these animals,” said Dr. Friedlaender, who hopes to visit the region next year.

Ms. de Vos notes that with the end of Sri Lanka’s civil war, there is now a major push to increase tourism, and whale watching is a critical part of the government’s development strategy. While the effort may bring much-needed economic development to this poor country, Ms. de Vos is concerned that it may all be happening too fast.

“Right now, whale-watching boats are driving helter-skelter around the animals,” she said. “I don’t want it to explode into something that becomes a harassment for the whales.”

In other countries with established whale-watching industries, laws prohibit getting close to the animals; the United States sets the minimum distance at 100 yards. Ms. de Vos would like to see similar regulations here.

“In this new era of peace, the blue whale is very fast becoming the symbol of our country,” she said. “It would be very sad to harm these animals because of our foolishness.”

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## LEATHERBACK FEEDING SEASON BEGINS OFFSHORE OF CALIFORNIA

Rare leatherbacks spotted by network organized by SeaTurtles.org

Confirmed sightings of endangered leatherback sea turtles by scientists and naturalists offshore of Dana Point, Monterey, Santa Cruz, and Half Moon Bay are being reported to the all-volunteer Leatherback Watch Program run by the non-profit SeaTurtles.org over the last ten days. Leatherbacks were first sighted July 14th offshore of Monterey and have been sighted regularly throughout the last week with

the most recent sighting Sunday offshore of Moss Landing in the Monterey Bay National Marine Sanctuary. In total, nine individual leatherbacks sightings have been reported offshore of Northern California in under two weeks.

“Seeing a critically endangered leatherback is a rare and unforgettable experience and compiling these sightings is really boosting our local conservation and advocacy outreach,” said Chris Pincetich, Ph.D. a marine biologist and educator at SeaTurtles.org. “Knowing exactly when they arrive, where they are most abundant, and how many are out there helps us shape new protective policies for fisheries that are their leading threat.”

Dr. Pincetich said the leatherbacks seen recently appeared to be moving north as they followed a huge bloom of jellyfish. Based on photos acquired, one sea turtle was spotted twice, four days apart by the same vessel. Leatherbacks are feasting on brown sea nettle jellies, the most nutritious species offshore from California, Pincetich said.

Passengers and crew aboard Blue Ocean Whale Watch vessels out of Moss Landing reported at least two leatherbacks. A former deckhand on the whale watching boat Huli Cat, out of Pillar Point Harbor in San Mateo County, also spotted one from shore, said Tom Mattusch, the boat’s skipper. In Southern California, naturalist Corey Hall spotted a leatherback twice last week on a Dana Wharf Whale Watching vessel.

“Last year we had 7 sightings of leatherback turtles from our boat and we’re excited to see if we can spot more this season.” said Kate Cummings from Blue Ocean Whale Watch. “So far, it’s looking good because our first sighting didn’t come until August of



This leatherback was spotted July 14, 2012 offshore of Moss Landing, California, feeding on brown sea nettle jellyfish that were so abundant one can be seen stranded on the leatherback’s carapace in this photo from Blue Ocean Whale Watch.

last year. When we start to see sea nettle jellies in the water, we perk up and scan all around the boat, hoping to see a feasting turtle return to the surface to breathe.”

With the help of supporters like Kate, the Leatherback Watch Program has recorded sightings from Point Sur California up to British Columbia, Canada. The majority of sightings were off the California coast in an area that is now protected critical habitat under the Endangered Species Act for these marine reptiles enacted February 27, 2012.

The Leatherback Watch Program began in 2010 to work collaboratively with charter vessels, marine researchers and local yacht clubs to compile, record and communicate sightings of Pacific leatherbacks off the West Coast of the United States using photos and GPS coordinates to validate the data for use in ongoing marine ecology studies. The project reaches hundreds of thousands of people when media outlets share news stories, articles, and videos.

SeaTurtles.org is advocating to name the leatherback the official marine reptile of the state of California with a bill, AB 1776, moving through Sacramento this year. AB 1776 will help Californians learn about and appreciate the leatherback and recognize the ecological importance of this ancient species by adding it to state law as an official symbol of California’s conservation ethic and biodiversity.

Leatherbacks grow up to eight feet long, can weight close to a ton, have survived the extinction of dinosaurs over 65 million years ago virtually unchanged, but are now under a serious threat of extinction in the Pacific. Populations of the Pacific leatherback have declined by approximately 90 percent in the last 25 years under the constant assault of industrial fishing, particularly the deadly interactions with long-line and gillnet fishing gear. Illegal poaching, vessel strikes, entanglement in marine debris, and plastic pollution ingestion all harm and kill these imperiled animals. For over twenty years, the Sea Turtle Restoration Project [www.seaturtles.org](http://www.seaturtles.org) has worked from California and the Gulf of Mexico with communities across the globe to protect endangered leatherback sea turtles from slipping closer to extinction.

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## PIECING THE PUZZLE TOGETHER ON DOLPHIN DEATHS

By Leslie Kaufman

Unusually cold water in the Gulf of Mexico combined with damage to the food web from the BP oil spill probably caused the premature deaths of hundreds of dolphins in the region, a new report concludes.

The study, published in the journal PLoS One,

suggests that a perfect storm of events led to the deaths. The researchers cited three specific stresses: an unusually cold winter in 2010, the oil spill from April to July of 2010 and an unusually large and rapid flow of very cold freshwater from melting snows in January 2011. Such cold water would have been tolerable to healthy dolphins, they suggested, but many of the dolphins in the northern Gulf were unhealthy and had thin blubber layers.

Graham A.J. Worthy, a biologist and contributing author from the Univ. of Central Florida, said the study was not definitively linking the deaths to the oil spill but seeking to assemble the various pieces of the puzzle. "Everything ultimately seems to be linked back to poor body condition," he said. "So what would cause poor body condition? What we do know was that there was a cold winter in 2010 which might have affected dolphin food resources, and the BP oil spill occurred in 2010, and there is increasing evidence of spill materials entering coastal ecosystems and negatively impacting the food web," he said.

The report was produced by a team of scientists from half a dozen Southern universities and research institutes, including the Dauphin Island Sea Lab and the Univ. of Central Florida, that have been studying the dolphin deaths for two years.

Whether the oil spill from the Macondo well is related to the unusually high number of dolphin deaths in the northern gulf has been an enduring mystery.

At least 754 dolphins have been reported stranded there since February 2010. The dolphin deaths have mostly ceased in Florida, which was further from the spill site, but have continued in Alabama, Louisiana and Mississippi. In January 2011, there was also a spike in the deaths of baby dolphins.

So far the National Oceanic and Atmospheric Administration has stopped short of linking the dolphin deaths directly to the spill. But in March the agency released a report on autopsies on 32 dolphins from Barataria Bay off Louisiana, which was hit hard by the spill. The necropsies showed that the dolphins had low amounts of a stress hormone, indicating adrenal insufficiency, which has been associated with oil contamination among mammals in other studies.

Teri Rowles, the coordinator of the National Marine Mammal Health and Stranding Response Program at NOAA's Fisheries Service, said the agency would review the paper but had yet to come to any conclusion about the role of the oil spill in dolphin deaths. "We are still evaluating contributing factors and causes of this event," she said.

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.  
For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)			
8/9 a.m.	100	Risso's Dolphins	7/28 a.m.	32	Humpback Whales
	1	Mola Mola		6	Blue Whales
	1	Laysan Albatross	7/27 p.m.	2	Humpback Whales
8 a.m.	4	Killer Whales (predation on Sea Lion)		6	Blue Whales
	200	Pacific White-sided Dolphin	7/27 a.m.	8	Risso's Dolphins
	350	Risso's Dolphins		15	Humpback Whales
	6	Harbor Porpoise		4	Blue Whales
8/7 a.m.	5	Killer Whales (transient type)		1	Minke Whale
	8	Harbor Porpoise		4	Harbor Porpoise
8/6 a.m.	4	Humpback Whales	7/26 p.m.	10	Humpback Whales
	1	Blue Whale		1	Blue Whale
8/5 late p.m.	5	Killer Whales (transient type)		6	Harbor Porpoise
8/5 p.m.	1	Humpback Whale	7/26 a.m.	12	Humpback Whales
	4	Killer Whales (transient type)		2	Blue Whales
	15	Harbor Porpoise		1	Minke Whale
8/5 a.m.	2	Humpback Whales	7/25 late p.m.	6	Harbor Porpoise
	5	Killer Whales (transient type)	7/25 p.m.	11	Humpback Whales
	1	Minke Whale		4	Humpback Whales
	200	Pacific White-sided Dolphins	7/25 a.m.	1	Blue Whale
	15	Dall's Porpoise		14	Humpback Whales
	5	Harbor Porpoise		3	Blue Whales
8/4 p.m.	7	Humpback Whales	7/24 p.m.	40	Risso's Dolphins
	2	Blue Whales		17	Humpback Whales
	1	Minke Whale	7/24 a.m.	1	Blue Whale
	4	Harbor Porpoise		16	Humpback Whales
8/4 a.m.	12	Humpback Whales		2	Blue Whales
	4	Blue Whales		25	Risso's Dolphins
	20	Dall's Porpoise		12	Harbor Porpoise
8/3 p.m.	5	Humpback Whales	7/23 p.m.	25	Humpback Whales (some double breaching)
8/3 a.m.	3	Humpback Whales	7/23 a.m.	18	Humpback Whales
	6	Killer Whales (transient type)		2	Blue Whales
	30	Pacific White-sided Dolphin		60	Risso's Dolphins
8/2 p.m.	1	Humpback Whale (surface lunge feeding)	7/22 late p.m.	5	Harbor Porpoise
	7	Bottlenose Dolphins	7/22 p.m.	22	Humpback Whales (some lunge feed- ing)
8/2 a.m.	1	Humpback Whale (surface lunge feeding)		2	Blue Whales (some lunge feeding)
	6	Killer Whales	7/22 p.m.	9	Humpback Whales
8/1 p.m.	3	Humpback Whales (surface lunge feeding)		4	Blue Whales
8/1 a.m.	30	Humpback Whales (many lunge feeding)	7/22 a.m.	3	Bottlenose Dolphins
7/31 p.m.	9	Humpback Whales		3	Humpback Whales
	3	Blue Whales		3	Blue Whales
7/31 a.m.	20	Humpback Whales	7/21 p.m.	60	Risso's Dolphins
	11	Blue Whales		2	Humpback Whales (cow & calf)
	1	Northern Fur Seal		2	Blue Whales
7/30 p.m.	8	Humpback Whales	7/21 a.m.	3	Humpback Whales
	3	Blue Whales		4	Blue Whales
7/30 a.m.	28	Humpback Whales	7/20 a.m.	11	Humpback Whales
	8	Blue Whales		4	Blue Whales
	6	Harbor Porpoise		1	Pacific White-sided Dolphin
7/29 p.m.	20	Humpback Whales	7/19 p.m.	15	Risso's Dolphins
	3	Blue Whales		35	Humpback Whales
7/29 a.m.	26	Humpback Whales		2	Blue Whales
	3	Blue Whales	7/19 a.m.	8	Humpback Whales
	2	Killer Whales (transient type)		4	Blue Whales
	1	Minke Whale		1	Mola Mola
	6	Dall's Porpoise	7/18 p.m.	8	Blue Whales
7/28 p.m.	2	Humpback Whales	7/18 a.m.	10	Humpback Whales
	3	Blue Whales		7	Blue Whales
	1	Laysan Albatross		10	Risso's Dolphins
				1	Leatherback Sea Turtle
			7/17 p.m.	10	Humpback Whales
				1	Blue Whale

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# Soundings



American Cetacean Society- Monterey Bay Chapter

SEPTEMBER 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, September 27, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speaker: Mark DiOrio and Mara Kerr,  
Film Makers and Conservationists**

**Subject: *In the Wake of Giants*, a screening and discussion**

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This is the second occasion that Monterey has been the host to the Blue Ocean Film Festival. While not an official sponsor of BLUE, ACS MB appreciates this International Film Festival that showcases marine related issues. Our Chapter looks forward to making its own effort to support the spirit of BLUE 2012.

This year our speakers are the husband and wife team of Mark DiOrio and Mara Kerr, the founders of AKUA Films. AKUA Films is a non-profit organization that specializes in marine conservation documentaries.

*In the Wake of Giants* was produced by Mark and Mara. The film is about the large whale disentanglement efforts being conducted primarily within the Hawaiian Island Humpback Whale National Marine Sanctuary. The film highlights the perils humpback whales face due to marine debris on their migration from Alaska to Maui and back. It also looks at those individuals who risk their lives to disentangle these large marine mammals.

All proceeds from the film have been donated to the Hawaiian Island Humpback Whale National Marine Sanctuary. Donations have allowed the large whale disentanglement team to purchase additional safety equipment, cutting tools and even a new inflatable chase craft.

Please join us to help celebrate the spirit of Blue 2012 and to meet two local film makers who are making a difference in the world of marine conservation.

See you there,  
Bob Mannix, Chair, ACS MB Programs Committee

## CALENDAR

**Sept 24--30:** 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

**Oct 4:** Ken Norris Memorial Lecture at Long Marine Lab. Lecture 7pm. Book Signing 8pm. Discovering the Heart of America: An Experiment in Marine Biology-Terrie Williams-UCSC Professor of Ecology and Marine Biology

**Oct. 13:** Wildlife Conservation Expo, 10am-6pm, Mission Bay Conference Center, San Francisco. [www.wildnet.org/events](http://www.wildnet.org/events)

**Oct 23-26:** 8th California Islands Symposium Ventura, CA. For more info go to [cisymposium@gmail.com](mailto:cisymposium@gmail.com)

**Nov. 8-11:** Western Society of Naturalists Annual Meeting in Monterey, CA. Meeting will be held at the Embassy Suites Hotel in Seaside, CA

**Nov. 9th-11:** 13th International Conference Of The American Cetacean Society. Whales and Humans: A Conflicted Relationship. San Diego, CA Hyatt Regency, Mission Bay. Register now at [Acsonline.org](http://Acsonline.org)

### Moss Landing Marine Science Series

#### Wednesdays; 4:00-5:00pm OLLI@CSUMB

Oct. 17: Hawaiian Monk Seals

Tenaya Norris, Vertebrate Ecology

Oct. 24; Tackling Ocean Pollution

Nicole Bobco, Biological Oceanography

Nov. 7; California Leatherbacks

Deasy Lontoh, Vertebrate Ecology

## MEDIA RECOMMENDATIONS

### Darwin's Ghosts: The Secret History of Evolution

Written by Rebecca Scott

### On a Farther Shore: The Life and Legacy of Rachel Carson.

Written by William Souder

### Dinosaur Art: THE WORLD'S GREATEST

PALEOART. Written by Steve White

### The Land Grabbers; The New Fight Over Who Owns

The Earth. Written by Fred Pearce

## **CALIFORNIA LAWMAKERS DESIGNATE LEATHERBACK SEA TURTLE AS NEW STATE SYMBOL**

*Legislation Awaits Governor Jerry Brown's Signature*

August 13th, Sacramento, CA.- Today California Senators voted unanimously to designate the endangered Pacific leatherback sea turtle as the official marine reptile of California and send the enabling legislation, AB 1776 by Assembly-member Fong (D - Cupertino), to Governor Jerry Brown for his signature. The governor has 12 days to sign the bill into law.

The legislation will declare October 15 every year as Leatherback Conservation Day in California, urge conservation of this ancient marine species and encourage schools to teach about the native sea turtle. The bill is intended to recognize the importance of California state waters to the survival and recovery of the Pacific leatherback. Naming this species as the state marine reptile will add it to other state icons including the California gray whale, golden trout, poppy, and the redwood. More than 20 leatherback sightings have been reported along the California coast this year.

"Designating the Pacific leatherback sea turtle as our state marine reptile is part of a coordinated worldwide conservation effort to save a species whose population has declined more than 95 percent," said Assembly-member Fong, who authored the bill. "Naming the leatherback sea turtle as our official state marine reptile will demonstrate California's commitment to protecting leatherback sea tur-



Photo copyright Doug Perrine/SeaPics.com

tles, our ocean's ecosystem, and recognize the education and awareness this official designation bestows for this revered creature whose migratory pattern includes California's coast."

Governor Brown has historically taken actions to protect the state's ocean resources. Last year the governor signed legislation to ban the sale, trade, and purchase of shark fins, also authored by Assembly-member Fong. In his previous term as governor, Brown signed into law the California Coastal Commission and Coastal Conservancy Acts, and successfully fought federal efforts to expand offshore oil drilling in Southern California.

"By signing the leatherback bill, Governor Jerry Brown will build on his own ocean legacy and enhance California's commitment to sea turtles, marine life and our oceans," said Teri Shore, Program Director at SeaTurtles.org (Turtle Island Restoration Network), the primary bill sponsor, based in West Marin, California.

The Pacific leatherback swims 6,000 miles across the ocean to feed on jellyfish along the California coast. More than 16,000 square miles of California's coastal waters were designated as critical habitat for the leatherbacks earlier this year.

As sponsors and supporters of the bill, SeaTurtles.org and Oceana generated statewide support for AB 1776 from thousands of California residents and more than 30 conservation entities.

"The Senators' swift bi-partisan support for this legislation shows the timeliness and importance of recognizing this ocean ambassador species," said Geoff Shester, Oceana California Program Director. "With Governor Brown's signature, California will continue to lead the way in our nation for healthy oceans."

## THE FIN WHALE, UNDER MORE THREAT IN THE MEDITERRANEAN THAN THOUGHT

ScienceDaily (July 26, 2012) — Until now it was thought that fin whales in the Strait of Gibraltar and the Alboran Sea made up part of the distribution of this species of whale in the Mediterranean. However, an international team of scientists led by a Spaniard has revealed that their population has been overestimated by including specimens from the Atlantic that visit at certain times the western Mediterranean, where the noise generated by human activity affects their survival.

In 1991 the fin whale (*Balaenoptera physalus*) population in the Mediterranean Sea was estimated at 3500 specimens. A new study, published in *Marine Mammal Science*, now shows that this record included specimens from the Atlantic, and suggests that the distribution and size of the current population of this whale, which is threatened with extinction, should be reconsidered.

"The Mediterranean population has easily been overestimated, as the census included the whole of the southeast Mediterranean, incorporating Atlantic fin whales within the Mediterranean census", reported to SINC Manuel Castellote, the lead author of the study and researcher in the National Oceanic and Atmospheric Administration (NOAA), Seattle (USA).

The research team analyzed 29,822 hours of recordings of the songs emitted by these marine mammals -which can reach a length of 27 metres, and are the second biggest cetaceans in the world- in order to identify the distribution limits of the Mediterranean fin whale and those of the north Atlantic fin whale in the Straits of Gibraltar, where the two populations overlap.

The results reveal that the presence of fin whales in the areas of the Straits of Gibraltar and the Alboran Sea -southwest of the Mediterranean- is exclusively limited to Atlantic fin whales that visit the Mediterranean Sea, above all in autumn and spring.

As a consequence, "the population of Mediterranean fin whales presents a much more limited distribution than currently described, excluding a significant region of the western Mediterranean", confirms Castellote, who highlights the fact that this region had previously been identified as a feeding area.

The importance of the study is the critical state situation of the whale in these waters where it is the only mysticete (it has a baleen instead of teeth). The species is particularly susceptible to collisions with merchant vessels and ferries, which is the main cause

of fin whale mortality.

Among other threats, an "insufficient" knowledge of their basic ecological characteristics such as distribution and population size stands out. For the biologist, "from a conservation point of view, it is essential to understand the geographical distribution and population size of the Mediterranean fin whale, because if not, appropriate management methods cannot be implemented".

### **The danger of undersea noise**

Maritime traffic and geophysical exploration - including the search for hydrocarbons- "drastically" reduces the song effectiveness -linked to reproduction and which propagates hundreds of kilometers beneath the Sea- of the whales, which are also the group of marine mammals with the greatest acoustic sensitivity at low frequencies. "The noise generated through human activity in the oceans leads to possible chronic effects on the health of this species" Castellote states.

To control these threats the same researchers identified in another report the possible impact of noise generated by human activity on the acoustic behaviour and geographical movement of the fin whales in various regions of the Mediterranean Sea and in the northeast Atlantic.

After analyzing 20,547 hours of recordings of the sounds emitted by the whales, the study published in Biological Conservation indicated that the whales modified the characteristics of their songs in order to try to reduce the impact of noise on their propagation.

In addition the researchers recorded a massive displacement of fin whales, triggered by the noise from geophysical prospecting at a distance of 285 km from the study area. "These recurrent displacements, together with the changes in acoustic behavior, could increase the energy expenditure and reduce the reproductive success of whales affected by the noise", the expert indicated.

In the long-term the consequences for these mammals are clear: chronic effects which impact on their survival emerge. "Noise in the marine medium, despite being recognized as a significant pollutant, is far from being controlled and regulated within the waters of the Exclusive Economic Zone of Spain", warns Castellote.

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## **HUMPBACK WHALES STAYING IN ANTARCTIC BAYS LATER INTO AUTUMN**

ScienceDaily (July 30, 2012) — Large numbers of humpback whales are remaining in bays along the Western Antarctic Peninsula to feast on krill late

into the austral autumn, long after their annual migrations to distant breeding grounds were believed to begin, according to a new Duke University study.

The study, published July 30 in the journal *Endangered Species Research*, provides the first density estimates for these whales in both open and enclosed habitats along the peninsula in late autumn.

It suggests that the little-studied bays are much more important late-season feeding grounds for humpback whales than scientists previously thought. It also highlights changes that are occurring in the region in response to the increasingly delayed arrival and reduced extent of annual winter sea ice cover, associated with rapid climate change.

"The old dogma is that by late autumn, the ice is heading in and the whales have headed out. But 70 percent of our surveying took place in waters with no ice, and we detected 371 groups of humpback whales over a 654-kilometer survey area, with density estimates of up to 1.75 whales per square kilometer," said David W. Johnston, research scientist at Duke's Nicholas School of the Environment and lead author of the paper.

At that density, Johnston said, "if you were to walk to the bridge of a ship and look around, you'd spot two whales within 500 meters of the boat. That's higher than anyone expected."

The scientists found the highest densities of whales in narrow, enclosed sections of Wilhelmina Bay, Andvord Bay and the Errera Channel. They found the lowest densities -- as low as 0.02 whales per square kilometer -- in the open water of the adjacent Gerlache Strait, which separates the Palmer Archipelago from the Western Antarctic Peninsula.

They conducted the study aboard the National Science Foundation (NSF) research vessel *Laurence M. Gould* in late April through early June of 2009. NSF funded the study.

Johnston's co-authors are Ari S. Friedlaender, research scientist; Andrew J. Read, Rachel Carson Associate Professor of Marine Conservation Biology; and Douglas P. Nowacek, Repass-Rodgers University Associate Professor of Marine Conservation Technology. All four are stationed at the Duke University Marine Laboratory. Nowacek holds a joint appointment as associate professor of electrical and computer engineering at Duke's Pratt School of Engineering.

Scientists have long known the waters around the Western Antarctic Peninsula are important foraging grounds for humpback whales that feed on swarms of shrimp-like krill there, but previous studies have

been conducted earlier in the season or in open waters farther from land.

"Establishing the autumn density of humpback whales in the inshore regions of the Western Antarctic Peninsula is crucial for understanding the role they play in this rapidly changing ecosystem," said Friedlaender. "Our results provide a new perspective on the magnitude of predator-prey relationships in the region as the Antarctic winter sets in.

Being the first to estimate densities in the peninsula's narrow in-shore waters was a challenge, Johnston said, because the line-transect techniques and distance sampling methods scientists traditionally use for this type of study weren't well suited to the bays' tight quarters, tricky currents and jutting shorelines.

"We had no idea that the whales were going to be packed up in these narrow channels and passages. We had to think on our feet a bit and use alternative sampling approaches and incorporate data from other portions of the project," he said. For instance, data collected from tagging the whales and tracking their underwater movements turned out to be inordinately useful for estimating densities, too.

"Once we knew their dive behaviors, we could establish how likely it was that we might miss them as we were traveling along the surface of the water," Johnston said. "That's not something we would have been able to do using only the traditional methods."

---

## EASING THE COLLATERAL DAMAGE FISHERIES INFLICT ON SEABIRDS

*Two recent studies highlight the harm that industrial fisheries are doing to the world's seabirds, either by overharvesting the birds' favorite prey or by drowning birds hooked on longlines. But tighter regulations and innovative technologies are starting to significantly reduce seabird "bycatch," slashing it by 90 percent in some regions.*

By Jeremy Hance

A little more than a decade ago, thousands of seabirds — including the magnificent wandering albatross, with the longest wingspan of any bird in the world — perished annually in the Southern Ocean surrounding Antarctica when they dove for baited hooks set by longline fishing boats. Impaled on the hooks, the birds were dragged underwater and drowned.

But in recent years, increased regulations, stricter enforcement, and innovative gear — including the adoption of technologies that weigh down baited hooks well below the surface or scare seabirds away from longlines — have had a dramatic impact on so-

called seabird bycatch. The number of drowned seabirds in the Southern Ocean surrounding Antarctica has fallen to near zero in the legal fishery, experts say. Another key factor was a requirement by the Commission on the Conservation of Antarctic Marine Living Resources that a scientific observer be placed on every fishing boat operating in the Southern Ocean.

"Where environmental organizations, fishery managers, and fishermen work together — great results have been achieved," says Ramunas Zydulis, a seabird expert with the Center for Marine Conservation at Duke University. "Seabird bycatch has been reduced by 90 percent and more in longline fisheries in the Southern Ocean, Hawaii, Alaska, South Africa, and New Zealand."

Such efforts are sorely needed, as the number of seabirds drowned by longline fisheries — estimated at 160,000 to 320,000 annually — remains hugely unsustainable. This toll is emblematic of a wide array of threats facing seabirds today. Having navigated the perils of marine life for 65 million years, seabirds face unprecedented challenges, particularly from industrial fisheries.

Two recent studies have highlighted the intensifying pressure on the world's seabirds. A recent paper in *Bird Conservation International* noted that 28 percent of the world's 346 seabird species are listed as threatened by the International Union for Conservation of Nature's Red List — more than double the percentage of birds imperiled as a whole (12 percent). The study concluded that nearly half — 47 percent — of the world's seabirds are in decline.

And a recent study in *Science* drew attention to another, less publicized danger facing seabirds: the decimation by fishing fleets of the small fish and other prey species that seabirds depend on. The study, published last December, concluded that whenever prey populations fall below one third of their maximum abundance, seabird breeding suffers and populations fall.

Scientists say the decline in seabird populations is a warning sign of a broader assault on the world's oceans, from overfishing, to pollution, to climate change.

"Seabirds are found across all of the world's oceans, are well-known, relatively easy to monitor, and are sensitive indicators of ocean health," explains Stuart Butchart, co-author of the *Bird Conservation International* paper and global species officer with the conservation group, BirdLife International. "They act as the marine equivalent of canaries in the coal mine

because they respond to many of the most important threats to the marine environment.”

### Solutions to Bycatch

While tackling the broader problem of overfishing has proven exceedingly difficult, doing something about seabird bycatch has proven to be a more tractable problem. Fisheries agencies such as the U.S. National Oceanic and Atmospheric Organization (NOAA) and conservation groups such as the World Wildlife Fund (WWF) — which for the past seven years has sponsored the International Smart Gear Competition to reduce by-catch of seabirds and other species — have been working with fishermen and enjoying success where regulations are enacted.

The main culprit is longline fisheries, which spool out fishing lines up to 80 miles long that are baited with thousands of hooks. Currently 40 of the world’s seabird species are killed as bycatch, including those most connected to the open ocean: albatrosses and petrels.

How do you make bait less attractive to seabirds? Common methods include using weighted lines that sink below the surface or attaching streamers to longlines — known as tori lines — to scare off birds. Shifting how and when fisheries work also is important, such as setting lines in low light when birds are less active or no longer throwing offal, or chum, when setting lines.

Pamela Toschik, an international affairs specialist with NOAA, says marine researchers refer to these methods as “shrink and defend” — shrink the area in which the hooks are available by weighting the lines so the baited hooks sink faster, and then defend the remaining area with bird-scaring lines. She and others said that independent scientific observers also are vital to collecting data on lone boats that ply the sea thousands of miles from enforcement agencies.

An anonymous observer who did several tours on longline fisheries in the Pacific says ships used several methods to mitigate bycatch, including dyeing bait blue for camouflage. The observer said that while mitigation procedures have had a “huge” impact on reducing seabird bycatch, several albatrosses drowned on the ships where she was stationed. “These vessels set upwards of 2,000 hooks per day, each having the capability to catch a fish — or a bird, turtle, or whale,” said the observer. “It’s impossible to control for all conditions.”

WWF’s smart gear competition, which gives prize money for the best new ideas to reduce bycatch, has resulted in some effective innovations. Last

year’s winner, the Yamazaki Double-Weighted Branchline, was developed by a Japanese boat captain. Already in use in several tuna fisheries, the technology weighs the line and reduces line recoil, lessening the chance of injury to fishermen. The 2009 winner, which sets baited hooks at preset depths in a vessel’s wake, is currently being field-tested.

Researchers are now working to reduce seabird bycatch from gillnets, a largely unstudied and unmitigated threat. Experts believe that hundreds of thousands of diving seabirds — such as loons, grebes, seaducks, auks, cormorants, and shags — drown in gillnets every year. Gillnets ensnare diving birds when they are attracted to floundering fish. Duke’s Zydalis says knowledge of gillnet seabird bycatch remains “patchy” because the nets are operated by thousands of small-scale fishermen. But he said that once researchers begin monitoring the threat, mitigation methods could be rapidly developed; already, some fishermen have employed more visible nets and moved them to areas where seabirds are less likely to become entangled.

“Fisheries should learn that adoption of minor changes in methods can save seabirds, while at the same time create more efficient operations that help their bottom line,” says Stephen Kress, the Audubon Society’s vice president for bird conservation. “There is great value in educating fishers about this win-win opportunity.”

### Overfishing: A third for the birds

A more daunting challenge is overfishing of seabirds’ prey species. The recent study in *Science* found that not only are seabird populations intrinsically connected to prey abundance, but also documented for the first time at what level overfishing begins to hurt these slow-breeding birds. Looking at 14 seabird species in seven marine ecosystems, scientists discovered that every time prey populations dropped below one third of their maximum abundance, seabird breeding suffered.

“What this is saying is that [seabirds] have evolved to exploit average to above-average feeding conditions,” says co-author Ian Boyd, director of the Scottish Oceans Institute at the University of St. Andrews. “This isn’t really very surprising, but some things don’t become obvious until the evidence is right in front of you.”

The research incorporated everything from penguins to gannets, as well different prey species. One case involves the Peruvian anchovy fishery. Boyd says that there is circumstantial evidence of

“long sustained declines of seabirds as the fishery has grown,” although scientists lack conclusive data directly linking the fishery to seabird declines. Penguin expert David Ainley, a senior marine wildlife ecologist with H.T. Harvey & Associates, says that anchovy fisheries have put several penguin species at risk.

“This is especially true of the African penguin and the Humboldt penguin in the Benguela and Peru currents, respectively, where the fisheries for anchovies are immense and have led to the severe depression in almost all seabird species breeding along those coasts,” Ainley said in an e-mail, noting that the Humboldt penguin is also a victim of drowning in gillnets.

‘Anchovy fisheries are immense and have led to severe depression in seabird species breeding along those coasts,’ says one expert.

Ainley said the best solution is to create marine protected areas encompassing much of the foraging range of these seabird species.

Bycatch and overfishing are not the only threats to the world’s seabirds. Pollution — from dumped plastics to nitrogen runoff to oil spills — also has detrimental impacts on seabirds. Invasive predators on breeding islands are another problem, but one where conservationists are making significant progress; Scientists have successfully eradicated invasive rodents from 284 breeding islands, though at least 75 islands still require such efforts. Finally, climate change is threatening to swamp low-lying breeding islands and possibly impact prey abundance.

Boyd and his co-authors argue that their findings should propel a new way of thinking about fisheries management, with a rallying cry of “one third for the birds” — not just to preserve seabird abundance but to help other species as well.

“It is possible that the relationship also applies to many components of the ecosystem,” says Boyd. “If this was used as a general rule in fisheries it is more likely to lead to sustainable fishing than current systems of management.”

Many of the problems that plague seabirds also imperil other marine species and even people. Moving fisheries toward sustainability would help people as much as it does birds, Butchart says.

“Managing fisheries unsustainably not only denies future generations of people from using these food supplies, but also has detrimental impacts on other biodiversity,” Butchart says. “Ensuring that harvesting is sustainable provides long-term benefits both to people and nature.”

For biologist Carl Safina — author of *Eye of the*

*Albatross* and president of the Blue Ocean Institute — the reasons to protect seabirds go well beyond the practical. Says Safina, “They are exquisitely beautiful, they are extreme athletes, and their travels and migratory skills inspire awe.”

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.

For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)
9/7 p.m.	2	Humpback Whales (mom & calf), 5 in the area
	7	Dall's Porpoise
9/7 a.m.	3	Humpback Whales
	1	Possible Sei Whale
	7	Dall's Porpoise
9/6 p.m.	2	Humpback Whales (breaching behaviors)
	75	Risso's Dolphins
9/6 a.m.	2	Humpback Whales
	50	Risso's Dolphins
9/5 p.m.	3	Humpback Whales
9/5 a.m.	3	Humpback Whales
	2	Harbor Porpoise
9/4 p.m.	4	Humpback Whales
9/4 a.m.	3	Humpback Whales
	150	Risso's Dolphins
9/3 p.m.	10	Humpback Whales
	7	Harbor Porpoise
9/3 a.m.	6	Humpback Whales
	20	Harbor Porpoise
9/2 p.m.	4	Humpback Whales
	60	Risso's Dolphins
9/2 a.m.	32	Humpback Whales
	30	Harbor Porpoise
9/1 p.m.	15	Humpback Whales
9/1 a.m.	25	Humpback Whales
	80	Risso's Dolphins
8/31 p.m.	8	Humpback Whales
8/31 a.m.	50	Risso's Dolphins
	6	Dall's Porpoise
8/30 a.m.	3	Humpback Whales
8/29 a.m.	5	Killer Whales
8/28 a.m.	1	Humpback Whale
8/27 a.m.	1	Humpback Whale
8/26 p.m.	2	Humpback Whales
8/26 a.m.	2	Humpback Whales
	5	Blue Whales
	1	Killer Whale
	3	Fin Whales
8/25 p.m.	2	Killer Whales (transient type)
	2	Bottlenose Dolphins
8/25 a.m.	2	Killer Whales (transient type)
	2	Harbor Porpoise
8/24 p.m.	2	Humpback Whales
8/24 a.m.	2	Humpback Whales
	50	Risso's Dolphins
8/23 a.m.	1	Humpback Whale
	1	Elephant Seal
	2	Mola Mola (Ocean Sunfish)
8/22 p.m.	2	Humpback Whales

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# Soundings



American Cetacean Society- Monterey Bay Chapter

OCTOBER 2012

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY- MONTEREY BAY CHAPTER

Monthly meeting at **Hopkins Marine Station**, Lecture Hall,  
Boat Works Building

(Across from the American Tin Cannery Outlet Stores)

Meeting is open to the Public

**Date: Thursday, October 25, 2012 Time: 7:30 PM.**

**PLEASE JOIN US AT 7:00 FOR REFRESHMENTS**

**Speaker: Ed Clifton, PhD.**

**Deep water sedimentation, geologist & oceanographer by day  
Natural History Enthusiast, Photographer, Poet ...by Night**

**Subject: Marine Mammal Evolution**

**Trick or treat?: Surprise Movie**

Well its almost Halloween....

Our presentation by Ed Clifton is sure to be a TREAT! Many of you already know Ed especially if you volunteer at the Monterey Bay Aquarium or Point Lobos State Reserve. Ed is a generous seeker of the truth. He undertakes serious investigations of different topics and is willing to share the fruits of his labor most generously. One of his more recent projects involves marine mammal evolution and in particular evolution of some marine mammals that are still today a part of our local fauna.

The second part of the evening is a surprise short movie....

Please join us for an interesting, informative and fun presentation

See you there,

Bob, Chair, ACS MB Programs Committee

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## CALENDAR

**Please Note: The November and December monthly meetings are combined. Our next monthly meeting of 2012 will be Thursday, December 6.**

**Oct. 21, 1pm:** On Wings and over Water: Exploring the Biology and Conservation of Pacific Seabirds.

Josh Adams. Seymour Center/Long Marine Lab

**Oct 23-26:** 8th California Islands Symposium  
Ventura, CA. For more info go to [cisymposium@gmail.com](mailto:cisymposium@gmail.com)

**Nov. 8-11:** Western Society of Naturalists Annual Meeting in Monterey, CA. Meeting will be held at the Embassy Suites Hotel in Seaside, CA

**Nov. 9th-11:** 13th International Conference Of The American Cetacean Society. Whales and Humans: A Conflicted Relationship. San Diego, CA Hyatt Regency, Mission Bay. Register now at [Acsonline.org](http://Acsonline.org)

**Nov. 14:** Sitka Whale Festival- "Cold Oceans to the Sea: Terrestrial Connections to our Northern Oceans"

### Moss Landing Marine Science Series

#### Wednesdays; 4:00-5:00pm OLLI@CSUMB

**Oct. 24;** Tackling Ocean Pollution

Nicole Bobco, Biological Oceanography

**Nov. 7;** California Leatherbacks

Deasy Lontoh, Vertebrate Ecology

An Ocean of Inspiration-The John Olguin Story"

Written by Stefan Herzen, Barbara Brunnick

**Feb 14-18:** AAAS/2013 Annual Meeting in Boston

## MEDIA RECOMMENDATIONS

The Golden Shore: California's Love Affair with the Sea. Written by David Helvarg

Once We Had Gills: Growing up an Evolutionist in

an Evolving World. Written by Rudolph Raff

The California Channel Islands written by Marla Daily

A Guide to Rockfishes, Thornyheads, and Scorpionfishes of the Northeast Pacific. Written by Milton Love, John L. Butler and Tom E. Laidig

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## **GREAT WHITE SHARKS OFF WEST COAST TO BE CONSIDERED FOR ENDANGERED LISTING**

By Juliet Eilperin, Published: September 27

The federal government will examine whether to protect the West Coast population of great white sharks under the Endangered Species Act, the National Oceanic and Atmospheric Administration announced Thursday.

Four environmental groups had filed petitions with the NOAA Fisheries Service this summer to list the West Coast population on the grounds that accidental catches, illegal fishing and the accumulation of contaminants threaten the iconic species. Research studies suggest that as few as 350 great white sharks could be swimming off the coasts of the United States and Mexico.

Craig Wingert, a regional Endangered Species Act policy adviser for NOAA, said the agency will assemble a scientific team to conduct "a comprehensive review" and will issue a final decision by June.

Global trade of great whites is regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and it is illegal to kill great whites off U.S. coasts in either the Pacific or Atlantic. An endangered species listing would allow the federal government to designate critical habitat for the West Coast population of great white sharks and possibly impose restrictions on other activities that threaten it.

Whit Sheard, Pacific counsel for the advoca-

cy group Oceana, said, given the pressures West Coast great whites are facing, “an endangered listing might possibly be one of the only ways to keep these species from going extinct.”

The move by the United States came the same day that the government of Western Australia announced it would hunt and kill great whites swimming off its coasts that it considers a threat to humans. Five people have been killed by great white sharks there in the past year.

“We will always put the lives and safety of beachgoers ahead of the shark,” Western Australian state Premier Colin Barnett told reporters.

But Christopher Neff, a doctoral student at the University of Sydney, noted there is no research to support the idea that shark hunting reduces the threat to humans. Western Australia’s move could even undermine shark research, he noted, because “a shark tagged by scientists in South Africa or San Francisco may have their shark culled under the [new] program if it sets off the tracking device.”

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## ALBATROSS POPULATION RISES TO 3,000 ON TORISHIMA: SURVEY

Aug 22, The Yomiuri Shimibun/Asia News Network  
*Torishima is known as the seabirds' largest breeding ground. -Yomiuri Shimibun/ANN*

The population of the endangered short-tailed albatross, a species designated as a special Japanese natural treasure, has recovered to about 3,000 birds on Tokyo's Torishima island, up from less than 200 more than 30 years ago, according to an expert.

Toho University Prof. Hiroshi Hasegawa, who has been involved in protecting the birds on the island

for more than 30 years, said the current number is large enough for their numbers to recover naturally.

Torishima



Photo: Internet

is known as the seabirds' largest breeding ground. The number of birds that left the nest this season rose to 353, a record high since Hasegawa's team started surveys in 1976.

The recovery is believed to have been the result of greatly improved breeding rates, boosted by newly prepared breeding sites on the island.

If the current recovery pace continues, the number of birds is expected to reach 5,000, a benchmark for avoiding the extinction crisis, by about 2018. Some chicks have been transferred to Mukojima island in Tokyo's Ogasawara Islands since 2008 to create another breeding ground, effectively putting eggs in several baskets so to speak, in the event that an eruption should occur on Torishima island. These birds also have left their nests, Hasegawa said.

"The recovery is dreamlike as the number was less than 200 when we started protecting the birds," he said. "It took a long time, but I think our project worked well."

Hasegawa carried out his latest survey in April and May.

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## ORCA MOTHERS CODDLE ADULT SONS, STUDY FINDS

By Sindya N. Bhanoo

Humans, pilot whales and killer whales are the only known species in which females have a prolonged period of menopause — a time of life when they cannot reproduce. Now, a study in the journal *Science* reports the purpose that menopause serves in orcas: for females to care for their sons and make sure their genes are passed on to future generations.

“Females have a really unique life history,” said Emma Foster, a marine biologist at Exeter University in England. “They stop reproducing in their 30s and 40s, but they can live into their 90s.”

Using 36 years of data on orcas in the Pacific Northwest, the researchers found that for males over 30, the death of a mother meant an eightfold increase in the likelihood of death within a year.

Killer whales stick with their mothers their entire lives. Dr. Foster suspects that mothers help sons with foraging or offer protection in encounters with other males. Among female orcas over 30, there was only about a threefold increase in the likelihood of death in the year after a mother's death. "It makes more sense for the mothers to invest more in their sons, because there is no increased burden on the family group," Dr. Foster said. "Children of sons move on to new family groups."

The findings recall what some scientists term the "grandmother hypothesis" in humans — the idea that a long menopause allows women to focus not on their own fertility or on their adult children but on nurturing the next generation.

By "ensuring the success of their grandchildren they improve their reproductive success," Dr. Foster said.

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### **SOLAR-POWERED WAVE GLIDER LATEST STEP IN STANFORD RESEARCH TEAM'S EFFORT TO BUILD A PACIFIC OCEAN WI-FI HOTSPOT NETWORK FOR BIODIVERSITY**

Being scalable and modular is one of the big advantages of employing solar and wind energy technology to produce power. From consumer electronics to utility-scale power plants, solar, wind and other renewable power systems are driving our transition out of the fossil fuel era.

Adding to the environmental, social and economic benefits, scientists are helping drive innovation by employing renewable, clean energy technology in new ways, ways that are helping to measure, monitor and analyze human impacts and the state of the natural environment to a degree never before possible.

Besides being a driving force in determining climate, the world ocean provides habitat for an uncounted number of plant and animal species, as well as nutrition and sustenance for billions of people. Concerns have been growing about our use of the oceans and the sustainability of marine biodiversity and fish stocks in the face of increasingly intense industrial

fishing, marine pollution and changing ocean chemistry due to a changing climate, however.

Marine scientists and volunteers have been working to increase our knowledge and understanding of the complex ocean environment and the state of the world oceans, and they're pushing the limits of new clean technology in doing so. This week, an ocean science research team led by Stanford University Marine Sciences Prof. Barbara Block and team deployed a self-propelled, solar-powered, unmanned Wave Glider near the San Francisco coast.

### **WI-FI HOTSPOTS FOR MARINE SPECIES IN "THE BLUE SERENGETI"**

Equipped with a bevy of custom-designed and -built instruments, launching the Wave Glider is a big step forward toward realizing Prof. Block's dream of our being able to create what amounts to a health monitoring system that spans the world ocean. It's "part of a new network including data receivers on fixed buoys that will pick up signals from acoustic tags on marine animals, such as Great White sharks, passing within 1,000 feet," according to a Stanford University, Hopkins Marine Station press release. The data received will be transmitted to Prof. Block's shore-based research team.

"Deployment of the Wave Glider is the culmination of years of long, hard work. The long-lasting, relatively inexpensive acoustic tags and the local array of both fixed and mobile ocean transmitters will fine-tune 12 years of insights gleaned from satellite-connected tags used to follow thousands of animals throughout their entire Pacific journeys," the press release from Monterey Bay states.

The solar-powered Wave Glider launched off the San Francisco coast is the first of what Prof. Block and her team hope will grow into an interconnected network of "ocean Wi-Fi hotspots" when combined with similar devices installed on stationary, moored buoys. The data gleaned from such new, in-

novative scientific devices is already contributing significantly to our knowledge and understanding of the world ocean and Prof. Block's "Blue Serengeti Initiative."

Dr. Block led the global scientific effort that resulted in the publication of the "International Census of Marine Life (2000-2010)." Following on from the Tagging of Pacific Predators (TOPP) project, the Wave Glider launch builds on these efforts.

"My mission is to protect ocean biodiversity and the open sea," Block, the Charles and Elizabeth Prothro Professor in Marine Sciences, Biology at Stanford, explained. "Our goal is to use revolutionary technology that increases our capacity to observe our oceans and census populations, improve fisheries management models, and monitor animal responses to climate change."

#### BRINGING MARINE LIFE, AND SCIENCE, TO THE BROAD PUBLIC

Scientific research and researchers at times seem divorced from the public and the lives of everyday people. New information and communications technology is helping change that. "Importantly," according to Hopkins Marine's press release, "the public can now follow the tracking of animals in real-time on a smartphone and tablet computer app."

"People realize this is important, but it's hard for them to connect on a visceral, personal level to the incredible biodiversity in their own backyard," Dr. Randall Kochevar, one of the Stanford University developers of the app, said. "Through this app, we're able to put the Blue Serengeti right in their hands. They can follow individual sharks and learn about their lives and feeding habits."

A new Apple mobile iOS app created by Dr. Block and colleagues with developers from TOPP, EarthNC and Gaia GPS is available free of charge at

the Apple app store. It provides users "with a direct, personal connection between the public and wild marine animals to raise public awareness of the ocean wilderness teeming with life just off North America's West Coast."

A collaboration among 75 scientists from five countries, TOPP made use of an array of electronic tags to follow the migrations of more than 4,300 individual marine animals, including sharks, tuna, whales, seals, seabirds, and turtles, Hopkins Marine recounts. The TOPP project and Wave Glider are profiled in a special on the Discovery Channel entitled, "The Great White Highway." Narrated by long-time actor, ocean environmental advocate and Oceana board member Ted Danson, the program aired Thursday night, Aug. 16, on Discovery Channel's "Shark Week."

*Spanning a decade (more than 300,000 days) of tracking and monitoring these marine animals, the TOPP team demonstrated that the West Coast of North America is an important hotspot for animals ranging throughout the Pacific," Hopkins Marine states. Included among the diversity of marine species tracked were "bluefin tuna, white and mako sharks, sooty shearwaters and leatherback sea turtles, elephant seals and blue whales on a seasonal basis that reaches a peak in later summer and early fall."*

#### WEBSITES AND MOBILE APPS FOR THE WORLD OCEAN

Dr. Block and her research team are now busy wiring up their ocean Wi-Fi hotspot network. The effort includes deploying acoustic detection buoys in key locations known to be areas where Great White sharks have been found to congregate during the time they spend close to shore, a region the Hopkins marine research team has dubbed the "White Shark Cafe." The mobile app receives detection data from these buoys and notifies users when a shark passes within 1,000 feet or so of the device.

Customizable, interactive maps enable users to explore Pacific Ocean regions frequented by northern California white sharks in real-time. A media gallery includes photos, videos, historical tracking data, and 3D interactive models.

Dr. Block and team are also working to obtain United Nations World Heritage Site status for regions of Pacific where the California Current flows. She likens the importance of these oceanic regions to “the vast African Serengeti plains because of its vital diversity and abundance of life.” “This place is one of the last wild places left on Earth” she was quoted as saying.

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## WHALES FALL THROUGH THE RESEARCH NET: GLOBAL POPULATIONS OF MARINE MAMMALS OBSERVED FAR TOO LITTLE

ScienceDaily (Sep. 17, 2012) — A world map created by scientists of the universities of Freiburg and St. Andrews, Scotland, reveals that only a fourth of the world ocean surface has been surveyed for whales and dolphins in the past decades. It is only possible to identify detrimental influences and collect basic information for research and environmental protection if data on marine organisms is collected regularly. First and foremost, it will be necessary to observe international waters more closely and develop new analytical methods, conclude the scientists in their study in the journal *PLoS ONE*.

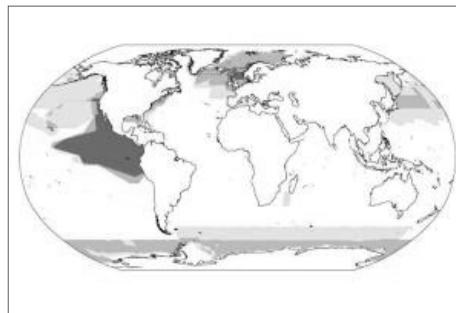
The team combed through more than 400 studies on whales conducted between 1975 and 2005 for their study. The scientists digitalized thousands of maps, and in doing so identified alarming gaps. They determined that most of the extensive observations have taken place in the waters of economically strong nations in the northern hemisphere, particularly those of the USA and Europe. With the exception of the Antarctic waters, where the International Whaling Commission is monitoring the reduction of the Minke Whale population by Japanese whalers, there are enormous areas in the southern hemisphere in which

whale populations have not been surveyed at all in the past decades..

The researchers ascertained that the main reason for observing whales is the market for "dolphin-friendly" tuna,

whose production requires ensuring that no dolphins are killed by incidental capture. "The eastern tropical Pacific has thus been studied more often than all other marine areas put together," says the Freiburg marine biologist Dr. Kristin Kaschner. But even these relatively well researched areas lie on the lower end of the scale with regard to the necessary observation frequency. In order to track temporal changes, Kaschner explains, it is important to observe the populations of marine mammals as regularly as possible. "This is currently only the case for six percent of the surface of all oceans," says Kaschner.

However, a sufficient pool of data on the populations of whales and dolphins is a precondition for successful research and effective protection of marine mammals. They were decimated by whaling in the past and are still threatened today by military sonar systems, bycatch, and water pollution. The scientists argue that international efforts to maintain biodiversity should lead to the development new approaches to data collection. Particularly important is the question as to what effect sound sources like sonar systems or seismic exploration of potential oil or gas reserves have on whales. "Gaps in data have an impact on all aspects of marine biology and planning, from fishery policy to marine protected areas," says Kaschner. "The data we have on sharks, deep-sea creatures, and marine viruses is even patchier."



*There are enormous gaps on the world map of whale observation, especially in international waters. Only the areas shaded dark have been surveyed several times in the past decades. (Credit: Image courtesy of Albert-Ludwigs-Universität Freiburg)*

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.  
For Complete listing and updates see [gowhales.com/sighting](http://gowhales.com/sighting)

Date	#	Type of Animal(s)			
10/16 a.m.	1	Humpback Whale	9/29 a.m.	20	Risso's Dolphins
	40	Pacific White-sided Dolphins		1	Humpback Whale
10/15 a.m.	3	Humpback Whales	9/28 p.m.	100	Risso's Dolphins
	75	Pacific White-sided Dolphins	9/28 a.m.	2	Humpback Whales
	150	Risso's Dolphins	9/27 a.m.	4	Humpback Whales
10/14 p.m.	800+	Risso's Dolphins		2	Killer Whales
10/14 a.m.	2	Humpback Whales	9/26 p.m.	1	Minke Whale
	800+	Risso's Dolphins	9/26 a.m.	2	Humpback Whales
	15	Dall's Porpoise		1	Humpback Whale
10/13 p.m.	5	Humpback Whales	9/25 p.m.	200	Risso's Dolphins
	500	Risso's Dolphins		1	Humpback Whale
10/13 a.m.	4	Humpback Whales	9/25 a.m.	17	Risso's Dolphins
	3	Killer Whales		1	Humpback Whale
	500	Risso's Dolphins	9/24 a.m.	200	Long Beaked Common Dolphins
10/12 a.m.	4	Humpback Whales		1	Humpback Whale
	50	Short-beaked Common Dolphins		100	Risso's Dolphins
	500	Risso's Dolphins	9/23 p.m.	15	Harbor Porpoise
10/11 a.m.	8	Killer Whales	9/23 a.m.	1	Blue Shark
	10	Risso's Dolphins		1	Humpback Whale
	2	Distant Humpback Whales		1	Humpback Whale
10/10 p.m.	1	Killer Whale	9/22 p.m.	40	Risso's Dolphins
10/10 a.m.	30	Pacific White-sided Dolphins	9/22 a.m.	1	Harbor Porpoise
	200	Risso's Dolphins	9/21 p.m.	10	Humpback Whale
10/9 p.m.	5	Killer Whales		1	Risso's Dolphins (tail throwing)
10/9 a.m.	1	Humpback Whale	9/21 a.m.	20	Harbor Porpoise
	1	Mola Mola		1	Humpback Whale
10/8 p.m.	3	Killer Whales	9/19 a.m.	30	Harbor Porpoise
10/8 a.m.	300	Pacific White-sided Dolphins		2	Humpback Whales
	40	Risso's Dolphins	9/18 a.m.	200	Common Dolphins
	1	Elephant Seal		300	Common Dolphins
10/7 p.m.	2	Humpback Whales		40	Risso's Dolphins
10/7 a.m.	2	Humpback Whales	9/17 p.m.	15	Dall's Porpoise
	6	Harbor Porpoise and a fresh swarm of krill!		3	Humpback Whales
10/6 p.m.	2	Humpback Whales	9/17 a.m.	1	Minke Whale
	5	Harbor Porpoise		100	Risso's Dolphins
10/6 a.m.	2	Humpback Whales		3	Humpback Whales
	3	Pacific White-sided Dolphins		300	Risso's Dolphins
	200	Risso's Dolphins	9/16 p.m.	10	Dall's Porpoise
	6	Dall's Porpoise	9/16 a.m.	25	Harbor Porpoise
10/5 p.m.	250	Risso's Dolphins		20	Risso's Dolphins
10/5 a.m.	6	Killer Whales	9/15 p.m.	1	Humpback Whale
	250	Risso's Dolphins		22	Harbor Porpoise
10/4 p.m.	2	Humpback Whales	9/15 a.m.	3	Humpback Whale
	20	Risso's Dolphins		25	Harbor Porpoise
10/4 a.m.	3	Killer Whales	9/14 p.m.	1	Humpback Whale
	6	Dall's Porpoise	9/14 a.m.	45	Harbor Porpoise
10/3 a.m.	200	Risso's Dolphins	9/13 p.m.	20	Harbor Porpoise
10/2 p.m.	5	Killer Whales		12	Harbor Porpoise
10/2 a.m.	14	Killer Whales	9/13 a.m.	1	Humpback Whale
	300	Risso's Dolphins		70	Risso's Dolphins
10/1 a.m.	1	Blue Whale	9/13 a.m.	2	Humpback Whales
	50	Common Dolphins		1	Minke Whale
	30	Risso's Dolphins		30	Pacific White-sided Dolphins
	2	Northern Right Whale Dolphins	9/12 p.m.	500	Risso's Dolphins
	7	Bottlenose Dolphins		1	Humpback Whale
9/30 a.m.	20	Risso's Dolphins	9/12 a.m.	30	Risso's Dolphins
9/29 p.m.	1	Humpback Whale		50	Risso's Dolphins
				30	Harbor Porpoise

American Cetacean Society  
Monterey Bay Chapter  
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Email: [tonylorenz@bigbluebay.com](mailto:tonylorenz@bigbluebay.com)  
[kmarypaul@gmail.com](mailto:kmarypaul@gmail.com)



# Soundings



American Cetacean Society- Monterey Bay Chapter  
PO Box H E, Pacific Grove, CA 93950

NOVEMBER-DECEMBER 2012

**MONTHLY MEETING AT HOPKINS MARINE STATION,  
LECTURE HALL BOAT WORKS BUILDING  
(ACROSS FROM THE AMERICAN TIN CANNERY OUTLET STORES)  
MEETING IS OPEN TO THE PUBLIC**

**COMBINED NOV/DEC MEETING DATE:**

**Thursday, December 06, 2012**

**Time:** 7:30 PM. PLEASE JOIN US AT 7:00 FOR REFRESHMENTS

**Speaker:** Kate Spencer Naturalist and Marine Life Artist

**Title:** A Monterey Naturalist in Antarctica

Any whale watching trip is enjoyable for so many reasons. It is always great to get out on the water! What you get to see is engaging and amazing! What also makes for a great cruise is what happens while everyone is waiting for something to happen. That's where an engaging and informative naturalist has their greatest challenge and opportunity: keeping things interesting when nothing is happening.

Kate Spencer is a wonderful local naturalist who brings an artist's eye to her craft. Her engaging personality, knowledge and experience turn those "waiting for something to happen stretches" into informative and engaging experiences. Any chance to go on a whale watching trip with Kate is a great opportunity!

For our December 6 program, Kate will share some observations and experiences from her most recent adventure on a small-ship expedition to the Southern Ocean. Included locales are Antarctica, South Georgia Island and the Falklands.

Please join us for this trip with Kate to the land that is truly down under. It promises to be informative and enjoyable: a great way to end the year for American Cetacean Society: Monterey Bay Chapter.

See you there,

Bob, Chair, ACS MB Programs Committee

*After 6 years of service this is my final Press Release for the Chapter. Thank you all for the support you continue to give the Chapter in general and to the Programs Committee in particular. It has been a pleasure!*

*Bob Mannix, ACS MB, Programs Committee Chair*

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## CALENDAR

Nov. 30<sup>th</sup> 12pm-1 pm: Hopkins Marine Station Lecture, Jerry Goldbogen Cascadia Research Collective

**Jan 26-27: *Whalefest 2013***, Celebrate whales on Fisherman's Wharf and at Custom House Plaza with many activities planned. ACS Monterey Bay will have an educational outreach booth on both days and is seeking volunteers. Please contact Diane Glim at 831.214.1016 if you'd like to help.

Feb 1-2: 2013 Southern California Marine Mammal Workshop. Newport Beach, CA Keynote Speakers include Dr. Steven Katona and Dr. Brandon Southall

Feb 20-24: Pacific SeaBird Group 40th Annual Meeting. Portland, Oregon Hilton

Feb 2-8: 33rd Annual Symposium on Sea Turtle Biology and Conservation. Baltimore, Maryland

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### **CONGRATULATIONS MADAME PRESIDENT!**

Diane Glim was elected the American Cetacean Society's National president, which was announced at the 13th Biennial ACS Conference last week in San Diego. Diane has served as president of the Monterey Bay Chapter and has been an active ACS member since 1988.

Recognizing strength in numbers, Diane encourages whale and dolphin enthusiasts to become members of ACS, and will strive to unite chapters and at-large members towards a stronger voice for cetacean conservation, research and education.

### **HAPPY HOLIDAYS!**

Do you have whale people on your holiday shopping list? We will have whale-related gift ideas at the 12/6 meeting, in addition to festive refreshments. Bring your checkbooks! Randy Puckett has generously offered a bronze whale sculpture for another opportunity drawing, and tickets will be available at the meeting for \$10 each or 3 for \$25. Members who join or

renew their memberships with ACS on 12/6 will receive a beautiful whale poster by Uko Gorter.

### **THE GRAY WHALES ARE COMING!**

Join the Monterey Bay Chapter for our annual Gray Whale Welcome Tour on Sunday morning, January 27, from 8am-10am with Monterey Whalewatching. With knowledgeable naturalists on board, we will be on the water during the peak of the gray whale migration. Tickets are \$30 for adults, \$15 for children, and all proceeds from this annual fundraiser go towards the ACS mission of providing funding for marine research grants, providing educational opportunities and the conservation of cetaceans. Elementary school students from Salinas who are studying whales will accompany us. Please send checks in advance to ACS/MB, PO Box HE, Pacific Grove, CA, 93950. Call Jerry Loomis for more info at 831.419.1051

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### BOOK RECOMMENDATIONS

Ocean Journeys: Beginnings by Brandon L. Southall

Dreaming the Future: Re-imagining Civilization in the Age of Nature by Kenny Ausubel

Spillover: Animal Infections and the Next Human Pandemic by David Quammen

Evolution: Making Sense of Life by Carl Zimmer

Jack O' Neil: It's always summer on the Inside

Dolphin Diaries: My 25 years with Spotted Dolphins in the Bahamas. By Dr. Denise L. Herzing

## ORCA MOTHERS CODDLE ADULT SONS, STUDY FINDS

By Sindhya Bhanoo

Humans, pilot whales and killer whales are the only known species in which females have a prolonged period of menopause — a time of life when they cannot reproduce. Now, a study in the journal *Science* reports the purpose that menopause serves in orcas: for females to care for their sons and make sure their genes are passed on to future generations.

“Females have a really unique life history,” said Emma Foster, a marine biologist at Exeter University in England. “They stop reproducing in their 30s and 40s, but they can live into their 90s.”

Using 36 years of data on orcas in the Pacific Northwest, the researchers found that for males over 30, the death of a mother meant an eightfold increase in the likelihood of death within a year.

Killer whales stick with their mothers their entire lives. Dr. Foster suspects that mothers help sons with foraging or offer protection in encounters with other males. Among female orcas over 30, there was only about a threefold increase in the likelihood of death in the year after a mother’s death. “It makes more sense for the mothers to invest more in their sons, because there is no increased burden on the family group,” Dr. Foster said. “Children of sons move on to new family groups.”

The findings recall what some scientists term the “grandmother hypothesis” in humans — the idea that a long menopause allows women to focus not on their own fertility or on their adult children but on nurturing the next generation.

By “ensuring the success of their grandchildren they improve their reproductive success,” Dr. Foster said.

<http://www.nytimes.com/2012/09/18/science/orca-mothers-coddle-adult-sons-study-finds.html>



## LAWSUIT FILED TO PROTECT ENDANGERED SEA TURTLES, RARE ALBATROSS FROM DEADLY HAWAII SWORDFISH LONGLINE FISHERY

HONOLULU— Conservation groups filed a lawsuit today in federal district court challenging a new rule by the National Marine Fisheries Service that doubles the number of endangered sea turtles allowed to be entangled and killed by Hawaii’s longline swordfish fishery. The suit, brought under the Endangered Species Act and other federal environmental laws, was filed by Earthjustice on behalf of the Center for Biological Diversity and Turtle Island Restoration Network. It aims to stop the Fisheries Service from allowing the fishery to cause the deaths of far too many endangered loggerhead and leatherback sea turtles, as well as migratory seabirds.

“The Hawaii longline fishery indiscriminately spreads its 60-mile long wall of deadly hooks without regard for the untold number of sea turtles, dolphins and seabirds it kills and injures,” said Todd Steiner, biologist and executive director of Turtle Island Restoration Network (SeaTurtles.org). “It is a shame that we must constantly file lawsuits to enforce even the modest protections that these threatened animals are legally guaranteed under the Endangered Species Act. It may be time to consider phasing out this irresponsible fishing technique. “The Fisheries Service has, yet again, abdicated its conservation duties and bowed to the longliners’ insatiable appetite for more endangered wildlife,”

said Earthjustice attorney Paul Achitoff, who has been challenging the fishery’s violations for many years. “We will continue to fight for these magnificent creatures as long as the Service continues to ignore the law.”

The new federal rule, opposed by conservation groups, rolled back

the significant protections that had been gained through a 2011 settlement between the same parties that capped the number of sea turtles that could be caught by the fishery to 17 endangered loggerheads and 16 critically endangered leatherbacks. The new rule allows the fishery to kill 34 loggerheads and 26 leatherbacks. Longline fishing is one of the biggest threats to the survival of these sea turtles, which get hooked on the fishing gear and drown. "The ocean's largest sea turtles will soon be extinct unless they're protected from drowning in fishing gear. It's tragic that these large commercial fisheries are killing animals by the thousands for the sake of a few profitable swordfish," said Miyoko Sakashita, the Center's oceans director. Swordfish longline vessels trail up to 60 miles of fishing line suspended in the water with floats, with as many as 1,000 baited hooks deployed at regular intervals. Sea turtles become hooked while trying to take bait or become entangled while swimming through the nearly invisible lines — encounters that can drown the turtles or leave them with serious injuries.

Seabirds also dive for the bait and become hooked; worldwide, longline fishing has caused serious declines in most albatross populations. Today's lawsuit therefore also challenges a permit issued by the Fish and Wildlife Service that allows the fishery to catch Laysan and black-footed albatrosses without requiring the mitigation method the Service has acknowledged could save these increasingly rare birds

<http://www.seaturtles.org/img/original/LeatherbackonlineNOAA.jpg>

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## WORLD'S RAREST WHALE SEEN FOR THE FIRST TIME

ScienceDaily (Nov. 5, 2012) — A whale that is almost unknown to science has been seen for the first time after two individuals -- a mother and her male calf -- were stranded and died on a New Zealand beach. A report in the November 6th issue of *Current Biology* offers the first complete description of the spade-toothed beaked whale (*Mesoplodon traversii*), a species previously known only from a few bones.

The discovery is the first evidence that

this whale is still with us and serves as a reminder of just how little we still know about life in the ocean, the researchers say. The findings also highlight the importance of DNA typing and reference collections for the identification of rare species.

"This is the first time this species -- a whale over five meters in length -- has ever been seen as a complete specimen, and we were lucky enough to find two of them," says Rochelle Constantine of the University of Auckland. "Up until now, all we have known about the spade-toothed beaked whale was from three partial skulls collected from New Zealand and Chile over a 140-year period. It is remarkable that we know almost nothing about such a large mammal."

The two whales were discovered in December 2010, when they live-stranded and subsequently died on Opape Beach, New Zealand. The New Zealand Department of Conservation was called to the scene, where they photographed the animals and collected measurements and tissue samples.

The whales were initially identified not as spade-toothed beaked whales but as much more common Gray's beaked whales. Their true identity came to light only following DNA analysis, which is done routinely as part of a 20-year program to collect data on the 13 species of beaked whales found in New Zealand waters.

"When these specimens came to our lab, we extracted the DNA as we usually do for samples like these, and we were very surprised to find that they were spade-toothed beaked whales," Constantine says. "We ran the samples a few times to make sure before we told everyone." The researchers say they really have no idea why the whales have remained so elusive.

"It may be that they are simply an offshore species that lives and dies in the deep ocean waters and only rarely wash ashore," Constantine says. "New Zealand is surrounded by massive oceans. There is a lot of marine life that remains unknown to us."

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## **STATE AGENCY SAYS PG&E SEISMIC SURVEYS WOULD HURT MARINE MAMMALS**

By Louis Sahagun, Los Angeles Times  
(Nov 6, 2012 )Pacific Gas & Electric Co. was scrambling Monday to salvage plans to conduct seismic surveys using sonic blasts off the coast near the Diablo Canyon nuclear power plant after a state regulatory agency staff report concluded it would disturb more than 7,000 marine mammals.

The California Coastal Commission staff, in a report released Friday, recommended that the commission deny PG&E's application for a coastal development permit needed to begin the project. The staff cited "significant and unavoidable impacts to marine resources," including threatened and endangered whales, porpoises and sea otters.

The commission plans to vote Nov. 14 on PG&E's request to survey 130 square miles off the coast of Morro Bay in San Luis Obispo County with acoustic pulses capable of penetrating as much as nine miles into the seafloor.

The utility believes the seismic survey is the best way to define the amount of movement that faults in the area are capable of producing, and to develop emergency preparedness plans.

Analysis of the sonic reflections would provide detailed 3-D images of the geometry, relationships and ground motions of several fault zones near the plant, which generates enough energy to meet the needs of more than 3 million residents of Northern and Central California.

"PG&E is committed to conducting this proposed seismic research safely and in an environmentally responsible manner," spokesman Blair Jones said. The utility's plan was developed carefully in consultation with state and federal agencies, he said.

Coastal Commission staff, however, said it could not determine whether alternative, less harmful technologies are available for the survey — or whether it is needed at all.

"The staff is saying that the potential impacts of this project are so severe that a seismic survey should be the last alternative," said Alison

Dettmer, the commission's deputy director of ocean resources. "Theoretically, they could come back later and apply again."

The staff's major concerns are the survey's potential effects on the basic biological functions of sea creatures in marine sanctuaries, and on a population of about 2,000 harbor porpoises that reside in and around scenic Morro Bay.

Harbor porpoises are acutely sensitive to man-made sounds. It is the species that would be most vulnerable to hearing loss and injury during the survey, which calls for a 235-foot vessel to tow a quarter-mile-wide array of submerged 250-decibel "air cannons" that would discharge every 15 seconds, night and day, for 17 days.

The entire population of harbor porpoises in Morro Bay would experience multiple disturbances and possibly be forced to move far outside their normal foraging grounds, which could threaten their survival, according to the staff report.

Overall, "more than 7,000 individual marine mammals from 17 species would be exposed to sound levels sufficient to result in some level of disturbance and behavioral disruption," the report said. In addition, the project would "result in mortality to about 5 million fish and invertebrate larvae in the project area and an unknown number of fish eggs."

PG&E said it plans to station observers certified in monitoring protected species on vessels and in airplanes to check for injured animals and carcasses. The utility said it would halt the testing if marine mammals, which rely on communication and sensing of their environment for a variety of critical life functions, venture close to the operation.

But commission staffers said that potentially high seas, windy conditions and poor night visibility "would cause these measures to be ineffective much of the time."

Michael Jasny, director of the Natural Resources Defense Counsel's marine mammal protection project, said the staff report "reflects a thorough understanding of the issues involved."

"Fundamentally, this project has not been justified along the coast where the impacts would be significant," Jasny said. "If you are going to impact the coast, you better make sure it is

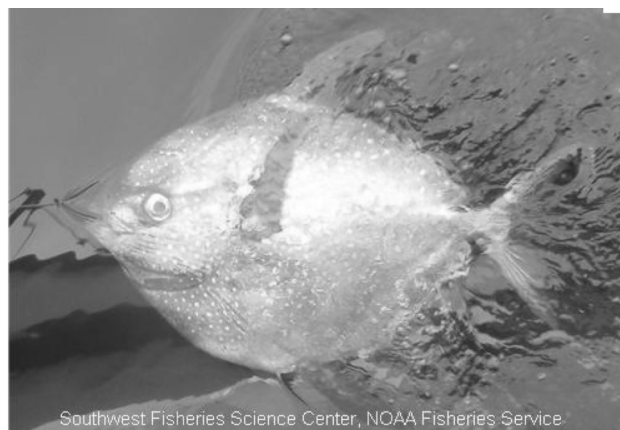
essential to the public welfare and there is no safer way to do it."

## **OFFSHORE KILLER WHALES FEED ON EXOTIC DEEP-SEA FISH OPAH IN MONTEREY BAY: FIRST TIME DOCUMENTED!**

### *FROM MONTEREY BAY WHALE WATCH*

On October 31, our captain John Mayer spotted some killer whales just beyond the canyon edge, 8 miles northwest of Pt. Pinos. After watching the whales for a short time, he suspected that they were the offshore type. There are three types of killer whales found in the North Pacific, "transients" or mammal hunters (seen most often in Monterey), "residents" (fish hunters, which often travel through Monterey in winter, and are most often off Washington state), and the "offshores", a type which is least known with a few observations of them feeding on sharks and fish. Males of this type have a more rounded and narrow fin than transients and females, also with a rounded fin. They tend to have many notches and scratches in their dorsal fin, possibly from catching sharks. On a whale watch trip many years ago, we (Nancy Black and Richard Ternullo) observed them catch a blue shark. However, there are very few observations of the food types for offshores. The offshores are one population, in that all the whales (around 350-500 in population) range from Southern California to the Bering Sea. The groups typically range in size from 10 to over 100, with most sightings numbering 20-100 whales. Unlike the transients and residents which exist in distinct groups (such as southern residents, northern residents, Alaskan residents) that range over part of their entire population range, the offshores consist of one population. On this day, there were around 25 whales, as offshores are often found in large scattered groups. Just after they arrived, Captain John and naturalist Shawn Swing on our whale watch trip observed part of the group catch and feed on an Opa, an unusual fish usually found in warmer waters. Isiah Foulks, our deckhand, was quick enough to photograph the Opa with the whales. The fish was about 4' long and weighed about 100 lbs. Opahs are a laterally

flattened, silver fish, with gray spots and crimson (bright orange) fins, a very beautiful fish known to be occasionally caught by fishermen in offshore waters of Monterey with albacore. John first observed a group of about six whales bringing the Opa to the surface, including some bubble bursts by the whales to likely confuse the fish. John saw that one female type whale brought the fish up in its mouth and let it go as 3-4 whales tightly surrounded it on the surface, preventing the fish from escaping. The fish was definitely in the mouth of the whale and looked injured. After a short time, another whale grabbed the fish and pulled it under. Within a few minutes, the whales tore up the fish as several gulls and a few albatross were seen picking pieces and small gut parts out of the water. It looked similar to the way transients feed on their mammal prey, such as harbor seals, which they quickly consume. This is the first time that we know of offshore killer whales feeding on Opa, a very important observation adding to our knowledge of this type of whale. Alisa Schulman-Janiger and I (Nancy Black) dashed out after the whale watch returned and were able to locate the whales again with the help of boater Eric Mailander. We both had been working on our update to our previously published killer whale identification catalog, and Alisa has been up here for several weeks from Los Angeles. We followed the whales for just over four hours until dark as they slowly traveled south, and we left them a few miles off of Pt. Lobos. They remained in subgroups of 2-5 whales spread just under a mile. Some were curious about the boat and



passed us closely, with a few tail slaps and

sypops. They were mostly in the travel mode and not obviously feeding. There were about five albatross' following the whales, as these seabirds often seem to follow killer whales in hopes of picking up leftover pieces if they disperse their prey near the surface. We were able to photograph the group and recognized many whales from previous sightings. We are analyzing the photos from this sighting to determine matches to other areas, as we have previously documented matches from Southern California, Monterey and as far as the Bering Sea. Everyone was very excited about the event, with some passengers amazed at how many killer whales were present and also appreciated seeing them in the wild. We will continue to look for this group again, or possibly more groups could pass through, as many offshores are seen on the outer coast of the Queen Charlotte Islands/Alaska during the summer (also some throughout the year) and are seen off California primarily during late fall to early spring (more in winter). Our last Monterey offshore sighting was March 2011 and the last California sighting was January 2012 off Southern California.

<http://www.montereybaywhalewatch.com/Features/KillerWhalesFeedingOnOpah121102.htm>

**SIGHTINGS** compiled by Monterey Bay Whale Watch. For complete listing and updates see [www.gowhales.com/sighting.htm](http://www.gowhales.com/sighting.htm)

Date	#	Type of Animal(s)
11/14 a.m.	2	Humpback Whales
	800-1000	Risso's Dolphins
	1	Mola Mola
11/13 a.m.	2	Humpback Whales
11/12 a.m.	2	Humpback Whales
	1000	Risso's Dolphins
11/11 p.m.	1	Humpback Whale
	500	Risso's Dolphins
11/11 a.m.	1	Humpback Whale
	800	Risso's Dolphins
11/10 p.m.	1	Humpback Whale
	500	Risso's Dolphins
11/10 a.m.	2	Humpback Whales
	8	Killer Whales
	1000	Risso's Dolphins
	10	Harbor Porpoise
11/09 p.m.	1	Humpback Whale
	50	Risso's Dolphins
11/09 a.m.	5	Killer Whales
	100	Pacific White-sided Dolphins
	200	Risso's Dolphins

	50	Northern Right Whale Dolphins
11/07 a.m.	100	Risso's Dolphins
11/06 a.m.	6	Killer Whales
11/05 p.m.	8	Risso's Dolphins
11/05 a.m.	3	Humpback Whales
	1000	Risso's Dolphins
11/04 pm.	2500	Risso's Dolphins
11/04 a.m.	2500	Risso's Dolphins
11/03 p.m.	2	Dall's Porpoise
11/03 a.m.	250	Risso's Dolphins
		Humboldt Squid
11/02 p.m.	10	Dall's Porpoise
11/02 a.m.	100	Long-beaked Common Dolphins
	10	Risso's Dolphins
11/01 a.m.	250	Risso's Dolphins
10/31 a.m.	9	Killer Whales
	20	Risso's Dolphins
10/30 a.m.	500	Risso's Dolphins
	10	Harbor Porpoise
		Humboldt Squid
10/29 p.m.	2	Humpback Whales
		Humboldt Squid
10/29 a.m.	2	Humpback Whales
	100	Risso's Dolphins
10/28 p.m.	2	Humpback Whales
	75	Risso's Dolphins
10/28 a.m.	4	Humpback Whales
	50	Short-beaked Common Dolphins
	500	Risso's Dolphins
	15	Harbor Porpoise
10/27 p.m.	2	Humpback Whales
	10	Pacific White-sided Dolphins
	10	Northern Right Whale Dolphins
	10	Harbor Porpoise
10/27 a.m.	2	Humpback Whales
	10	Pacific White-sided Dolphins
	10	Northern Right Whale Dolphins
	15	Harbor Porpoise
		Schools of Humboldt Squid
10/26 p.m.	2	Humpback Whales
10/26 a.m.	2	Humpback Whales (breaching)
	1	Killer Whale
		Schools of Humboldt Squid
10/25 p.m.	2	Humpback Whales
	30	Risso's Dolphins
10/25 a.m.	22	Killer Whales (transient type)
10/24 a.m.	2	Humpback Whales
	1	Minke Whale
	150	Risso's Dolphins
10/23 p.m.	2	Humpback Whales
10/23 a.m.	2	Humpback Whales
	300	Pacific White-sided Dolphins
	200	Common Dolphins
	400	Risso's Dolphins
10/21 a.m.	2	Humpback Whales

\*\* Skipped dates indicate no trip

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