

Soundings



American Cetacean Society- Monterey Bay Chapter
PO Box H E, Pacific Grove, CA 93950

APRIL 2011

**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**

SPECIAL MEETING DATE: THURSDAY, APRIL 14, 2011

**TIME: 7:30 PM. PLEASE JOIN US AT 7:00 FOR
REFRESHMENTS
AND SPECIAL BOOK SIGNING**

Speaker: Thomas A. Jefferson, Ph. D., Clymene Enterprises

**Title: "Threats to Cetacean Biodiversity Worldwide, With An
Update on the Vaquita**

This will mark the third consecutive year that Dr. Thomas Jefferson will have presented on the Vaquita to our Chapter. Because of Tom's leadership in Vaquita field work, the work of his colleagues and some of our own Chapter members, our Chapter has remained closely connected to this important cetacean and general conservation issue. This year Tom will expand his presentation to report on the threats to cetacean biodiversity worldwide.

Additionally, at 7 PM on meeting day, our Chapter will host a book signing for *Marine Mammals of the World: A Comprehensive Guide to Their Identification* written by Tom, Marc Webber of the US Fish and Wildlife Service and Robert Pittman of the Southwest Fisheries Science Center. The book signing will take place in the Boat Works Building, the same room used for our Chapter meeting.

Marine Mammals of the World... is 592 pages full of detailed illustrations by Brett Jarrett, beautiful photos and generous discussion for each species of marine mammal. Each species has a distribution map and a conservation status using International Union for Conservation of Nature categories. Tom's book is suitable both as a fundamental scientific reference volume and as an excellent resource for marine mammal enthusiasts.

Please come on down to the Boat Works at 7 PM on Thursday, April 14 to meet this special friend of our Chapter, to chat with Tom about his latest projects, to browse through his book and to get the latest update on the Vaquita and other challenged cetaceans world wide.

See you there,

Bob Mannix, ACS MB, Co-Chair Programs

*Ps. To visit the Chapter co-sponsored
Vaquita web site go to:*
<http://www.vivavaquita.org/index.html>

*To visit La Tienda! Which provides a fund raising
opportunity for the Vaquita go to:*
<http://www.printfection.com/vivavaquita>

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CALENDAR

April 9: Monterey Bay National Marine Sanctuary Symposium 2011. Ripple Effects: The Far Reaching Impacts of Local Ocean Research. CSUMB 9am-5pm

Hopkins Marine Station Spring Lecture

Series: Fridays 12 noon

April 15th- Peter Brewer MBARI
Estimating Challenges to Marine Life from the Combined Impact of Ocean Warming, Rising CO₂ and Declining O₂

April 29th Dr. Sylvia Earl: Defining Hope Spots on a Blue Planet

April 12-15: 31st Annual Symposium on Sea Turtle Biology and Conservation San Diego, CA. Symposium will be held at The Town and Country Resident Hotel and Convention Center.

April 17: Earth Day Whale Festival 2011. Celebrating Cetaceans and Community, Leo Carillo State Park 10am-4pm Cost is \$12.

April 30th and May 1st 9am-5pm Moss Landing Marine Lab Open House: Will include: Sea Lion Show, Arts and Crafts, puppet Shows, Researchers will be on hand talking about sharks, whales, turtles, seabirds, and fish.

April 21 10am-2pm: ACS Monterey Bay will be participating in Earth Day events at the Naval Postgraduate School in Monterey.

May 16-19: 62nd Tuna Conference. Lake Arrowhead, CA For Info Call 858-546-7100

ACS National Humpback Whale Fundraiser

May 21st (Sat.) 8am-4pm: Trip will take place on the Condor Express, Santa Barbara, CA. Cost for ACS members is \$88.00. This trip has the potential to observe a multitude of marine mammal species. For More Info Contact Cheryl McCormick at 310-548-6279

June 6-10: 6th Triennial Conference on Secondary Adaptations of Tetrapods to Life in Water. San Diego, CA. San Diego Museum of Natural History. Host committee include Annalisa Berta and Tom Demere.

MLML Summer Marine Mammal Courses:

1-Techniques and Theories of Animal Training Bio 348. July (11-17) Tuition \$585.00

2-Working with Marine Mammals: Bio 347 (July 25-31). Tuition \$585.00

For more info about course details please contact Jenifer Zeligs, Ph.D Director of SLEWTHS at 831-771-4191 or go to slewths.mlml.calstate.edu

Nov 27-Dec 2: 19th Biennial Conference on the Biology of Marine Mammals. Tampa, Florida. More info will be forthcoming.

BOOKRECOMMENDATIONS

The Great Sperm Whale A Natural History Of The Oceans Most Magnificent And Mysterious Creature. by Richard Ellis University Press of Kansas.

Deep Blue Home: An Intimate Ecology Of Our Wild Ocean by Julia Whittey

Wonders of the Sea Volume Two: Marine Jewels of Southern California Coast and Islands. By Marc Shangel. (Point Conception to the Mexican Border)

WELCOME NEW MEMBERS

ACS/Monterey Bay welcomes our newest members to the world's oldest whale conservation organization. Thank you for joining ACS to help cetaceans. Membership is vital for ACS to continue its work in cetacean research, education and conservation.

- Naftoli Pickard
- Dr. George Somero
- Dennis J. Long

WHITE SHARK CENSUS REVEALS RARITY OFF CALIFORNIA COAST

By Louis Bergeron, Stanford Report, March 14, 2011

Perched atop the tip of the food chain, big, fierce predators are rare. Now it seems that white sharks may be the rarest of the rare among ocean predators, according to the first-ever scientific census of their numbers along the central California coast, by a group that included Stanford researchers.

The researchers estimate that there are only about 219 adult and sub-adult white sharks – commonly known as "great white sharks" – plying the waters in the region stretching from Bodega Bay to Año Nuevo.

"Although white sharks are protected in many areas, including the waters off California, before this study we had no real idea how many there were," said Barbara Block, the Charles and Elizabeth Prothro Professor in Marine Sciences at Stanford's Hopkins Marine Station. "Now that we have a baseline, we can start to look at the dynamics of the white shark population – to determine whether their numbers are growing or declining in the wild."

The sharks were identified by the distinctive patterns of nicks, notches and scars they accrue on the trailing edge of their dorsal fins, which are typically visible above the water when sharks are swimming near the surface.

Block is one of the authors of a study published March 9 in *Biology Letters*. There are at least two other genetically distinct populations of white sharks in the world – one around New

Zealand and Australia, the other in the waters off South Africa.

"This low number was a real surprise," said Taylor Chapple, the study's lead author and a doctoral student at the University of California-Davis when the work was done.

"It's lower than we expected, and also substantially smaller than populations of other large marine predators, such as killer whales and polar bears. However, this estimate only represents a single point in time; further research will tell us if this number represents a healthy, viable population or one critically in danger of collapse, or something in between."

The census was conducted in 2006, 2007 and 2008 on adult white sharks that inhabit shelf waters along the central California coast each year, beginning in late July and lingering until late January. Satellite tagging has shown that these sharks return from their open ocean sojourns with remarkable precision, which is

what makes it possible to do a reliable census, Block said.

Teams of researchers went out in pursuit of the white sharks around Tomales Point, near Bodega Bay, and to the Farallon Islands off the San Francisco coast, areas where the sharks are known to congregate. The teams worked from small

vessels to get close enough to the sharks to take detailed photographs.

The researchers took most of the photos during tagging expeditions, when they were attaching tracking tags to the sharks.

Slowly pulling a seal-shaped decoy made of carpet or neoprene through the water, the

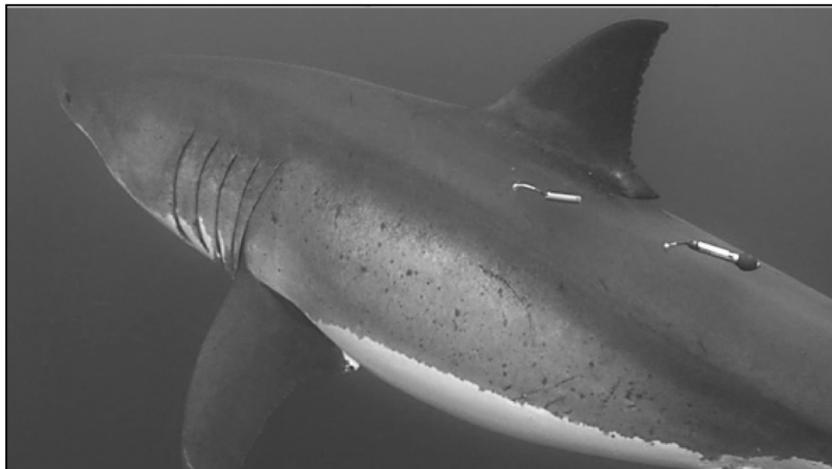


Photo: Scot Anderson. A white shark tagged with both acoustic (front) and pop-up satellite (rear) tags. The acoustic tag is detected when the shark swims within 250 m of a listening station, while the pop-up satellite tag records information about location, temperature and depth – and relays it to the laboratory when the tag releases itself from the shark.

researchers would lure a curious shark close in to their boat. They usually gave the decoy some added allure by dangling a chunk of seal or whale blubber over the side of the boat, to create a scent plume of "eau de marine mammal" in the water.

When a shark came alongside the boat, a pole was used to affix the tag and the designated shutterbug snapped profile shots of the dorsal fin. From 321 photographs, the researchers identified 131 individual sharks. Using a variety of standard mathematical models to analyze these data, they calculated that the likely total population along the central California coast is about 219 adult and sub-adult sharks. "This is a surprisingly low number for an apex predator. Given their low genetic diversity, it is important to establish the census of our population of predators," Block said.

Although the census was conducted from 2006 to 2008, researchers have been photographing dorsal fins of white sharks off the California coast for 22 years. In another study by the same research team, published online in *Marine Biology* last week, they described how the jagged patterns on the dorsal fins persist over time. One individual shark that was first identified in 1987 was seen seven more times over the years, with the most recent sighting three years ago.

In addition to demonstrating the reliability of using dorsal fins to identify white sharks, the study provided the first evidence of white sharks surviving in the wild for at least 22 years.

Four other white sharks were identified repeatedly over spans of at least 16 years.

"We've found that these white sharks return to the same regions of the coast year after year," Block said. "That is what makes it possible to estimate their numbers using this relatively simple technique."

The persistent appearances of the white sharks along the central California coast, where all the photographs in the *Marine Biology* study were taken, further supports findings from previous satellite tagging studies that revealed that although the sharks make an annual migration from California to either the Hawaiian Islands or an area in the open ocean

approximately halfway between the Baja Peninsula and the Hawaiian Islands, dubbed the "White Shark Café," they always come back to California after their open ocean odysseys. That makes having an accurate count of their population invaluable.

"This is a critical first step in maintaining the wilderness that exists just off our shores," Block said.

NEW WINTERING GROUNDS FOR HUMPBACK WHALES DISCOVERED USING SOUND

ScienceDaily (Mar. 9, 2011) — Researchers have made a remarkable new discovery regarding humpback whale wintering grounds.

In the thick of whale season, researchers from Hawai'i Institute of Marine Biology (HIMB) and the National Oceanic and Atmospheric Administration (NOAA) shed new light on the wintering grounds of the humpback whale. The primary breeding ground for the North Pacific was always thought to be the main Hawaiian Islands (MHI). However, a new study has shown that these grounds extend all the way throughout the Hawaiian Archipelago and into the Northwestern Hawaiian Islands (NWHI), also known as Papahānaumokuākea Marine National Monument (PMNM).

Humpback whales, an endangered species, were once on the brink of extinction due to commercial whaling practices of the last century. Today, thanks to international protection, their numbers have dramatically increased, resulting in a greater presence of these singing mammals during the winter months. Song is produced by male humpback whales during the winter breeding season. All males on a wintering ground sing roughly the same song any given year, but the song changes from year to year. No one is exactly sure why the whales sing but some researchers believe it could be a display to other males. Between 8,500 and 10,000 whales migrate to Hawai'i each winter; while the rest of the population can be found in places like Taiwan, the Philippines, the Mariana Islands, Baja

California, Mexico, amongst other Pacific locations (Calambokidis et al. 2008).

Over the past three decades, population recovery has resulted in a steady increase in the number of whales and a geographic expansion of their distribution in the MHI. Until recently, however, no empirical evidence existed that this expansion included the Northwestern Hawaiian Islands. This changed recently when scientists from HIMB and NOAA published their findings in the current issue of the journal *Marine Ecology Progress Series*, detailing the presence of humpback whale song in the Northwestern Hawaiian Archipelago. These researchers deployed instruments known as Ecological Acoustic Recorders (EARs) in both the NWHI and MHI to record the occurrence of humpback whale song, as an indicator of winter breeding activity. Humpback whale song was found to be prevalent throughout the NWHI and demonstrated trends very similar to those observed in the MHI.

Dr. Marc Lammers, a researcher at HIMB and the lead scientist of the project explains "these findings are exciting because they force us to re-evaluate what we know about humpback whale migration and the importance of the NWHI to the population." The results are also of particular relevance in light of recent suggestions that an undocumented wintering area for humpback whales exists somewhere in the central North Pacific. Dr. Lammers and his colleagues believe that the NWHI could be that area.

www.sciencedaily.com/releases/2011/03/110308172840.htm

NZ FISHING CUTS WHALE NUMBERS IN ANTARCTICA

By MICHAEL FIELD, March 19, 2011

Industrial-scale fishing by New Zealand is throwing Antarctica's delicate ecosystem off balance with disastrous consequences, an expert warns.

It is creating an explosion in penguin populations while cutting the number of killer whales.

US penguin researcher David Ainley, in California, said pushing an ecosystem so far out

of kilter would have long-term impacts wrecking the world's last pristine ocean and the only natural laboratory for studying climate change.

New Zealand is leading the hunt for toothfish (*dissoctichus mawsoni*) in the Ross Sea, the world's southernmost fishing grounds, taking around 3000 tonnes and earning \$18 million a year. A late-maturing, slow-growing, long-lived species that can grow up to 2m long, toothfish fetches around \$US70 (\$95) a kilogram.

Toothfish have now largely disappeared from McMurdo Sound. Scientists had been catching, tagging and releasing 200 to 500 adult toothfish a year for the past 40 years. Recently they have been lucky to catch one or two fish.

Ainley said the fishing caused an Adelie penguin population explosion at Cape Royds on Ross Island. He saysid Toothfish were the main predator of the penguins. Ross Sea killer whales, which ate the toothfish, had declined and Weddell seals and skuas had also been affected.

Ainley said the Ross Sea had provided 50 years of comprehensive climate data and was the best place in the world to work out what was happening with global climate change.

But the fishing had altered the ecosystem.

"It confuses everything. Now it is no longer easier to separate climate effects from fishing effects. Fishing has destroyed the science."

There should be no commercial fishing in the Ross Sea, he said.

"It is far more valuable to society as a reference area for looking at climate change and its effects, and not just the last place on earth to catch



DISRUPTED: A researcher says New Zealand fishing has caused an Adelie penguin population explosion at Cape Royds on Ross Island.

www.starrsites.com/acsmf/

toothfish for a while."

Toothfish fishery was based on luxury, he claimed. "There are very few people on earth who can afford to eat toothfish. It's just going to the top one per cent of the population."

Peter Bodeker, chief executive of the Seafood Industry Council, said the Ross Sea has been managed on "a conservative basis" for 14 years by the Commission for the Conservation of Antarctic Marine Living Resources.

"The fishery makes up a relatively small part of human activity in an area that has seen continuous human habitation for some 50 years," he said.

While there were 15 relatively small fishing vessels there for three months each year, the place was also visited by numerous transportation vessels, aircraft, tourism operations, coast guard and naval vessels.

"It is unreasonable to single out New Zealand fishing activity, given that the area is governed by a regional entity that annually allows fishing by vessels from a wide range of countries," Bodeker said.

www.stuff.co.nz/southland-times/news/nationalnews/4788118/NZ-fishing-cuts-whale-numbers-in-Antarctica

NAVAL SONAR EXERCISES LINKED TO WHALE STRANDINGS, ACCORDING TO NEW REPORT

ScienceDaily (Mar. 16, 2011) — Scientists have long been aware of a link between naval sonar exercises and unusual mass strandings of beaked whales. Evidence of such a link triggered a series of lawsuits in which environmental groups sued the U.S. Navy to limit sonar exercises to reduce risk to whales. In 2008, this conflict rose to the level of the US Supreme Court which had to balance potential threat to whales from sonar against the military risk posed by naval forces inadequately trained to use sonar to detect enemy submarines. The court ruled that the Navy could continue training, but that it was essential for the Navy to develop better methods to protect the whales.

The knowledge most critical to protecting these whales from risk of sonar involves measuring the threshold between safe and risky exposure levels, but until now it has not been known how beaked whales respond to sonar, much less the levels that pose a problem. "We know so little about beaked whales because they prefer deep waters far offshore, where they can dive on one breath of air to depths of over a mile for up to an hour and a half," said Peter Tyack, a senior scientist at Woods Hole Oceanographic Institution (WHOI). Now, an international team of researchers reports in a paper led by Tyack the first data on how beaked whales respond to naval sonar exercises. Their results suggest that sonar indeed affects the behavior and movement of whales.

Tyack and his colleagues used two complementary methods to investigate behavioral responses of beaked whales to sonar: "an opportunistic approach that monitored whale responses to multi-day naval exercises involving tactical mid-frequency sonars, and an experimental approach using playbacks of simulated sonar and control sounds to whales tagged with a device that records sound, movement, and orientation," the researchers report in the current issue of the online journal *PLoS ONE*, published by the Public Library of Science.

That research team developed experiments to slowly increase the level of sonar at a tagged whale, to stop exposure as soon as the whale started responding, to measure that exposure, and to define the response. The experimental approach used tags to measure acoustic exposure and behavioral reactions of beaked whales to one controlled exposure each of simulated military sonar, killer whale calls, and band-limited noise.

"These experiments were very difficult to develop, and it was a major breakthrough simply to be able to develop a study that could safely study these responses," Tyack said. "All three times that tagged beaked whales were exposed experimentally to playback of sounds when they

were foraging at depth, they stopped foraging prematurely and made unusually long and slow ascents to the surface, moving away from the sound.

Beaked whales use their own biosonar to find prey when they are foraging; this means that one can monitor cessation of foraging by listening for when they stop clicking. Once the researchers found that beaked whales responded to sonar by ceasing clicking, they were able to monitor reactions of beaked whales during actual sonar exercises on the range. The research was conducted on a naval testing range where an array of underwater microphones, or hydrophones, covered the seafloor, allowing whale sounds to be monitored over 600 square miles. "During actual sonar exercises, beaked whales were primarily detected near the periphery of the range, on average 16 km away from the sonar transmissions. Once the exercise stopped, beaked whales gradually filled in the center of the range over 2-3 days," they report.

A satellite tagged whale moved outside the range during an exercise, returning over 2-3 days post-exercise. "The combined results indicate similar disruption of foraging behavior and avoidance by beaked whales in the two different contexts, at exposures well below those used by regulators to define disturbance," the scientists report.

"This suggests that beaked whales are particularly sensitive to sound. Their behavior tended to be disrupted at exposure levels around 140 decibels (dB), so they may require a lower threshold than many current regulations that anticipate disruption of behavior around 160 dB," said Tyack. "But the observations on the naval range suggest that while sonar can disrupt the behavior of the whales, appropriate monitoring and management can reduce the risk of stranding."

The research was supported by the United States Office of Naval Research, the U.S. Strategic Environmental Research and Development, the Environmental Readiness Division of the U.S. Navy, the U.S. Chief of Naval Operations

Submarine Warfare Division (Undersea Surveillance), NOAA and the Joint Industry Program on Sound and Marine Life of the International Association of Oil and Gas Producers. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

SIGHTINGS compiled by Monterey Bay Whale Watch. For complete listing and updates see www.gowhales.com/sighting.htm

Date	#	Type of Animal(s)
3/30 a.m.	6	Gray Whales
	1	Pacific White-sided Dolphin
	35	Risso's Dolphins
3/29 a.m.	5	Gray Whales
	5	Risso's Dolphins
3/28 a.m.	4	Gray Whales
	50	Risso's Dolphins
3/27 p.m.	14	Gray Whales
	100	Risso's Dolphins
3/27 a.m.	6	Gray Whales
	300	Pacific White-sided Dolphins
	200	Risso's Dolphins
	20	Northern Right Whale Dolphins
3/27 early a.m.	12	Gray Whales
	300	Long-beaked CommonDolphins
	100	Risso's Dolphins
3/26 a.m.	2	Harbor Porpoise
	1	Gray Whale
3/25 a.m.	10	Risso's Dolphins
	2	Gray Whales
3/23 a.m.	100	Long-beaked CommonDolphins
	50	Risso's Dolphins
	7	Gray Whales
3/22 a.m.	50	Risso's Dolphins (with calves)
	7	Gray Whales
3/21 p.m.	150	Risso's Dolphins (with calves)
	7	Gray Whales
3/21 a.m.	175	Risso's Dolphins
	5	Gray Whales
3/20 a.m.	250	Long-beaked CommonDolphins
	9	Gray Whales
3/19 a.m.	30	Killer Whales (Offshore type)
	10	Gray Whales
	75	Pacific White-sided Dolphins
3/19 early a.m.	5	Risso's Dolphins
	4	Gray Whales
	50	Pacific White-sided Dolphins
3/17 p.m.	5	Risso's Dolphins
	12	Gray Whales
	100	Risso's Dolphins

Skipped dates indicate no trips

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