

Soundings



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

NOVEMBER/DECEMBER 2013

**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**

MEETING DATE:

Thursday, December 5, 2013

**Time: 7:30 PM. PLEASE JOIN US AT 7:00 FOR
REFRESHMENTS**

**Speaker: Cynthia Fernandez, Cove Monitor with Ric
O'Barry's Dolphin Project**

Title: Taiji, after "The Cove"

Cynthia Fernandez is a volunteer Cove Monitor with Ric O'Barry's Dolphin Project. She has also presented outreach programs at many schools for the Dolphin Project, educating others about why dolphins are special animals, dolphin captivity, the dolphin drives in Taiji, Japan, as well as the Grind in the Faroe Islands. Her goal has been to educate children and teenagers about the cruelty of captivity in the hopes of someday seeing all dolphins and orcas wild and free. Cynthia believes that the end of the captive dolphin trade will also bring about the end of the dolphin drives in Taiji.

Cynthia will speak about her fieldwork as a Cove Monitor in Taiji in December 2012 and into January of 2013. She will discuss changes in Taiji since the release of "The Cove." After the popularity of "The Cove," the small fishing village has been inundated with activists, forcing changes. Cynthia will discuss her experiences in Japan and the links between the captive dolphin trade and the dolphin slaughters in Taiji. She will provide the latest information in the struggle to end the dolphin drive fisheries in Japan.

Cynthia will be traveling to Taiji again, from November 16th to December 1st, so she will have the latest information about what is happening in Taiji. She will also present a video she produced about her trip (there are no graphic images of the dolphin slaughter), and will offer suggestions for what individuals can do to help end this slaughter.

INSIDE THIS ISSUE

CALENDAR	2
SIGHTINGS.....	10
HUMAN IMPACTS ON TOP OCEAN PREDATORS ALONG US WEST COAST MAPPED.....	2
YANGTZE FINLESS PORPOISE.....	4
NEW SPECIES OF DOLPHIN FOUND IN AUSTRALIA.....	5
CALIFORNIA AND INDONESIA LAUNCH PARTNERSHIP TO SAVE ENDANGERED SEA TURTLES	6
TEN THOUSAND WALRUSES GATHER ON ISLAND AS SEA ICE SHRINKS.....	7
FOSSIL HUNTERS IN SANTA CRUZ MAKE WHALE OF A FIND	8
JAPAN'S COASTAL SEA HUNTS RISK FOR SPECIES	9
MEMBERSHIP.....	12

**Please note that the November
and December programs have
been combined into a single
program for the holiday
season.**

Coming in January: Thursday,
Jan. 30, at 7 p.m., Dr. James
Harvey, director of Moss
Landing Marine Laboratories,
will be our speaker.

CALENDAR

Dec. 9-13: 20th Biennial Conference on the Biology of Marine Mammals: Dunedin, New Zealand. Workshops will be held on Dec. 7-8, prior to the conference. For a full list of programs, workshops, and field trips go to www.marinemammalscience.org

Jan. 14: Hopkins Marine Station is extending a special invitation to members of the ACS-MB to attend the January Friends of Hopkins lecture. Titled “Natural History of the World's Biggest Mouthful: Lunge-feeding in Baleen Whales,” the lecture will be given by Jeremy Goldbogen, HMS’ newest faculty. Dr. Goldbogen is a specialist in the feeding biomechanics of *rorquals*, the largest group of baleen whales. **Tuesday, January 14th at 7:30 pm, HMS Boatworks Hall.** *This meeting will be in addition to the regular January meeting of ACS-MB.*

Jan. 25-26: Whalefest at Custom House Plaza and Fisherman’s Wharf #1, Monterey. Fun and family-friendly activities from 10am – 5pm both days. Free.

Jan. 31-Feb. 1: 2014 Southern California Marine Mammal Workshop, Newport Beach, CA. For more info go to SCMMWorkshop@gmail.com

Feb. 19-22: Pacific Seabird Group 41st Meeting. Centennial Hall Convention Center, Juneau, Alaska.

Apr. 10-17: 34th Annual Symposium on Sea Turtle Biology and Conservation, New Orleans, LA. *More information to follow.*

Sep. 22-26: The 5th Bio-logging Science Symposium, Strasbourg (France).

Save The Date:

Jan 26th 2014, 8-10 am: ACS Monterey Bay Gray Whale Fundraiser. Cost \$40. Boat-Princess Monterey. For reservations and more info please call Jerry Loomis at 831-419-1051

BOOK RECOMMENDATIONS

Drawn from Paradise: The Natural History, Art and Discovery of the Birds of Paradise with Rare Archival Art by D. Attenborough and E. Fuller. 2012 Harper Design.

Blue Mind: The Surprising Science That Shows How Being Near In, On, or Under Water Can Make You Happier, Healthier, More Concentrated, and Better at What You Do by Wallace J. Nichols. 2014 Little, Brown, and Co.

An Appetite For Wonder: The Making Of A Scientist by Richard Dawkins. 2013 Ecco.

Marine Mammals of the Salish Sea, a poster by Uko Gorter. Natural History Illustration.

HUMAN IMPACTS ON TOP OCEAN PREDATORS ALONG US WEST COAST MAPPED

Oct. 28, 2013 — The California Current System along the U.S. west coast is among the richest ecosystems in the world, driven by nutrient input from coastal upwelling and supporting a great diversity of marine life. Like coastal regions in general, it is also heavily impacted by human activities. A new study led by scientists at the University of California, Santa Cruz, reveals areas along the west coast where human impacts are highest on marine predators such as whales, seals, seabirds, and turtles.

The study, published October 28 in *Nature Communications*, found that many of the high impact areas are within the boundaries of National Marine Sanctuaries. This means there are good opportunities

for improving management strategies, according to first author Sara Maxwell, who led the study as a graduate student in ocean sciences at UC Santa Cruz and is now a postdoctoral scholar at Stanford University's Hopkins Marine Station.

"The sanctuaries are located close to the coast in areas where there are a lot of human activities and a lot of marine life, so it's not surprising that we see a lot of impacts there," Maxwell said, noting that oil spills were a big concern when the sanctuaries were established, and many do not limit activities such as fishing, although they are actively engaged in managing industries such as shipping.

"With the sanctuaries already in place, we have an opportunity to increase protections. The results of this study allow us to be more specific in where we focus management efforts so that we can minimize the economic impact on people," she said.

There are five National Marine Sanctuaries along the west coast, covering nearly 15,000 square miles. A proposed expansion of the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries would extend protections north to Point Arena, a key area identified in the study.

Marine mammals and other predators are critical to the health of marine ecosystems. The study used tracking data for eight species of marine predators: blue whales, humpback whales, northern elephant seals, California sea lions, black-footed and Laysan albatrosses, sooty shearwaters, and leatherback sea turtles. These are among the 23 species whose movements have been tracked since 2000 as part of the Tagging of Pacific Predators (TOPP) program. The eight species included in the new study are ecologically important but are not commercially exploited, Maxwell said.

The TOPP studies showed that many marine predators travel thousands of miles every year, yet often concentrate within small-scale "hotspots" to breed or feed on fish and other prey. Many such hotspots are found within the California Current System.

Maxwell and her coauthors combined the TOPP tracking data with a database of human impacts in the California Current System that was developed by a group led by coauthor Benjamin Halpern at UC Santa Barbara. The relative impact on each species was determined for each of 24 stressors associated with human activities, such as fishing, shipping, climate change, and pollution. The analysis yielded maps showing where the greatest impacts on each species are likely to be.



California sea lions are among 23 species whose movements have been tracked since 2000 as part of the Tagging of Pacific Predators (TOPP) program. (Credit: Dan Costa, UC Santa Cruz)

"Areas where key habitats and human impacts overlap represent important areas for conservation efforts," Maxwell said. "In other cases, areas of high human activities are not key habitats for predators. As a result, we can maximize both conservation of marine predators and human uses that our coastal communities depend on."

The study suggests that protecting key habitat without considering human uses may result in missed opportunities for sustainable resource use. "Having this detailed spatial information will help us move toward a more sustainable management approach," said coauthor Elliott Hazen, a research biologist at UCSC and the NOAA Southwest Fisheries Science Center.

Providing information to support management and policy decisions was one of the goals of the TOPP program, which was conceived by coauthors Dan Costa at UC Santa Cruz, Steven Bograd at NOAA, and Barbara Block at Stanford. TOPP researchers used sophisticated tags with satellite- or light-based geolocation capabilities to track the movements of top predators throughout the Pacific Ocean.

"A major component of the TOPP program was to identify important conservation areas of the North Pacific Ocean. This paper is a significant step forward in increasing our awareness of the 'blue Serengeti' that lies just off the west coast of the U.S.," Costa said.

<http://www.sciencedaily.com/releases/2013/10/131028090825.htm>

YANGTZE FINLESS PORPOISE: HIGHLY ENDANGERED MAMMAL TRYING TO COPE WITH CONSTANT SHIPPING, DREDGING AND UNDERWATER CONSTRUCTION

Oct. 21, 2013 — The Yangtze finless porpoise, which inhabits the high-traffic waters near the Three Gorges Dam in China, is highly endangered, with only about 1,000 animals alive today. Scientists from Woods Hole Oceanographic Institution (WHOI) and their Chinese colleagues are using medical technology to shed new light on this species' critical sense of hearing in a waterway punctuated by constant shipping, dredging, and underwater construction.

"We want to understand how they may be impacted by noise," said Aran Mooney, a biologist at the Woods Hole Oceanographic Institution (WHOI) and a lead author on the study published online this week in the *Journal of Experimental Biology*.

Marine mammals such as dolphins and porpoises rely on their hearing to navigate, communicate, and find food in the typically deep, dark, and murky waters they inhabit. But what we know about how they hear has been limited to research on just a few species, particularly bottlenose dolphins, because they are relatively common in marine parks and aquaria. This can be a problem when natural resource managers and regulators base aquatic

noise pollution policy decisions on data from a limited number of "representative species" when there are over 70 species of toothed whales or odontocetes that live in a variety of aquatic habitats.

This new research shows how variability in the size and shape of toothed whales' heads across species can result in marked differences in how they receive sound and how sensitive they are to a range of frequencies.

"We've learned that there's more variation than we've taken into account on how different species hear," Mooney said.

He and colleagues at WHOI and the Institute of Hydrobiology of the Chinese Academy of Sciences in Wuhan, China applied live acoustic sensitivity

examinations and computed tomography (CT) scans on Yangtze finless porpoises to begin to identify the auditory variability among toothed whales.

Porpoise populations are declining rapidly worldwide. The Yangtze finless porpoise shares the same habitat as the Baiji river dolphin, seemingly the first toothed whale that has become extinct by humans. Like all toothed whales, the Yangtze finless porpoise do not have external ears. It hears when sound reverberates through its head, throat, jaw, and acoustic fat within the mandible.

Scientists conducted hearing examinations on two Yangtze finless porpoises that were originally from the wild, but have resided at the Institute of Hydrobiology in Wuhan for six and 14 years. The hearing exams were similar to hearing tests regularly given to infants.

"Porpoises, like babies, can't tell us if they can hear in their left or right ear, so we measure their hearing physiologically from the surface of the skin,"

Mooney said.

Broadband clicks and low, mid, and high frequency tones within a normal threshold were transmitted through silicon suction cup sensors on nine parts of the animal's head and body. The scientists non-invasively recorded the porpoises' neuron responses.

The exam results showed that the finless porpoises are sensitive to sound nearly equally around their heads while bottlenose dolphins and

beluga whales exhibit a substantial 30-40 decibel difference in sound sensitivity from their jaw to other parts of their head.

The researchers then CT scanned two stranded Yangtze finless porpoise specimens at a hospital associated with Wuhan University to gather information on their skeletal and tissue structure.

"We had the opportunity to scan them in Wuhan and work with the Chinese radiologists, which was very interesting to get a chance to see their facility and how they operate in comparison to WHOI," said Darlene Ketten, a biologist and director of the Computerized Scanning and Imaging (CSI) facility at WHOI. "We've done a lot of these here. But, they had never scanned any porpoises."



A Yangtze finless porpoise at the Institute of Hydrobiology, Chinese Academy of Sciences in Wuhan, China. (Credit: Photo by Aran Mooney, Woods Hole Oceanographic Institution)

The CT images revealed that the acoustic fat pads in Yangtze finless porpoises are thicker and more disc-like in shape compared to the elongated shape of these fat deposits found in other toothed whales.

"Now that we have some hearing data, we are working on modeling how the conformation of these pads and their dimensions and shapes relate to the frequencies and sensitivities," Ketten said.

The morphology of the Yangtze finless porpoise implies that it hears omni-directionally, which means it may have difficulty discerning signals among the clutter of constant noise.

"In a noisy environment, they'd have a hard time hearing their prey or their friend. It makes it more difficult for them to conduct basic biological activities such as foraging, communicating, and navigating in the river," Mooney said.

The differences in hearing sensitivities between the finless porpoise and other species such as bottlenose dolphins and belugas indicate further auditory variations among species. Mooney believes that effective management strategies must consider these variations. He would like to broaden this study to include examinations of other toothed whales, such as the Risso's dolphin, harbor porpoise, and white-sided dolphin, and continue to examine noise impacts on the endangered Yangtze finless porpoise.

<http://www.sciencedaily.com/releases/2013/10/131021104246.htm>

NEW SPECIES OF DOLPHIN FOUND IN AUSTRALIA

A NEW SPECIES OF HUMPBACK DOLPHIN IS FOUND CRUISING THE OCEAN.

Oct. 29, 2013 — Hiding in plain sight, researchers have discovered a new species of humpback dolphin living off the northern coast of Australia.

The discovery came when scientists with the Wildlife Conservation Society(WCS) tried to settle a decades-old argument among marine mammal researchers.

"For many years, there's been this debate about the number of species of humpback dolphins," said Howard Rosenbaum, director of the WCS ocean giants program. Scientists have proposed everything from two to four species within the group's genus *Sousa*.

But there was never enough good evidence supporting claims of more than two species, Rosenbaum said. So about ten years ago, the community decided that until they had more

information, they'd recognize only two species—the Atlantic humpback dolphin and the Indo-Pacific humpback dolphin.

New Science

Rosenbaum and colleagues decided to revisit this old argument, and started collecting physical and genetic samples from humpback dolphin populations throughout their range. This included samples from West Africa, the Indian Ocean, the Pacific Ocean, and off the coast of Australia.

"From a management standpoint, the marine mammal community has specified that they need at least two different forms of evidence to justify different species [designations]," said Rosenbaum.

So he and his colleagues tried to collect as comprehensive a data set as possible to get the best chance of putting this argument to rest. Usually, genetic analyses into the question of new species consider only DNA from an organism's mitochondria—the cell's battery pack.

This is because mitochondrial DNA is inherited only through the mother and is easier to work with than DNA from a cell's nucleus, said Martin Mendez, assistant director for the Latin American and Caribbean program at WCS.



Two individual animals from an as-of-yet unnamed species of humpback dolphin jump in the waters off northern Australia.

But Mendez and colleagues looked at DNA from both parts of the cell. That, combined with physical characteristics including the length of the dolphins' beaks and the number and position of their teeth, suggested there were four species of humpback dolphin. Not two.

Three of those species were ones researchers had previously proposed. They encompass a species off of West Africa (*S. teuszii*), one in the central and west Indian Ocean (*S. plumbea*), and one in the eastern

Indian and west Pacific Oceans (*S. chinensis*).

The fourth species, an as-yet unnamed group off the north coast of Australia, was a pleasant surprise, said Rosenbaum.

In some ways, this species is new to science, said Mendez. But in other ways, it isn't because researchers have known about this group down in Australia for a while. They just didn't realize it was a different species.

It's rare to find a new species of mammal, said Mendez. "[But] it's also not crazy to find new species when you're using the kind of [genetic] information we're using.

"One of the reasons we're finding new species is because we're finding new tools," he explained. "Genetics opens a new window into these kinds of questions."

Aiding Conservation

Mendez is hopeful that this discovery—reported this week in the journal *Molecular Ecology*—will help in the management of this IUCN Red List group. The Atlantic humpback dolphin is considered vulnerable, and the Indo-Pacific group is considered near threatened.

The legal framework used to protect vulnerable species is based on species designations, he explained. "We're proposing that Australia has its own humpback [dolphin] species, which has implications for conservation strategies."

"Countless dolphins die every year as bycatch in fisheries," said Rosenbaum. The humpback dolphin is subject to particularly high rates of bycatch, and in some places is hunted directly.

"By describing these different species, we hope that this sets the stage not only for the appropriate conservation protections to be put in place by different countries, [but that] it also helps reduce threats like bycatch."

<http://news.nationalgeographic.com/news/2013/10/131029-new-humpback-dolphin-species-ocean-animals-science/>

CALIFORNIA AND INDONESIA LAUNCH PARTNERSHIP TO SAVE ENDANGERED SEA TURTLES

Oct. 18, 2013 — On California's first Pacific Leatherback Conservation Day, California and Indonesia established a conservation partnership between the two regions that the endangered sea turtle calls home. Governments, schools, and ocean protection organizations came together to form the

partnership.

The summit was spurred largely by a new California law passed last year, introduced by Assemblymember Paul Fong (D-Cupertino) and signed into law by Governor Jerry Brown, establishing Pacific leatherback sea turtles as the state marine reptile and encouraging international collaboration.

"Like the leatherbacks' migration across the ocean, this trans-Pacific conservation agreement



Signing the Leatherback Summit Declaration

bridges the gap between two distant coasts and cultures that share a common vision of ocean protection," said Teri Shore, Program Director, Turtle Island Restoration Network (SeaTurtles.org).

"It is an honor to collaborate with our coalition of partners across the state and important dignitaries from Indonesia in recognizing the importance of Leatherback Sea Turtles, a majestic creature that has swam our ocean's for millions of years and plays a vital part of the biological diversity of our ocean's ecosystem," said Assemblymember Fong. "The first ever Pacific Leatherback Sea Turtle Conservation Day pays homage to this species in the hope, that this inaugural event and future events will raise the awareness of the need to protect this species for generations to come."

"The leatherback sea turtle is an integral part of cultural and natural heritage of Tambrauw, Indonesia, as symbolized by its inclusion in the official Tambrauw logo. It also represents a shared asset of the trans-Pacific nations," said Bupati Tambrauw, a government official from the region of Indonesia where California's leatherbacks nest. "Because of its unique characteristics and biology, the leatherback represents a biological ambassador for unifying conservation efforts throughout the Pacific. This is exemplified by this inaugural leatherback summit

between Tandrau and California which will serve as a foundation for Pacific-wide leatherback conservation.”

At the inaugural Pacific Leatherback Sea Turtle Conservation Summit hosted by California in Monterey, dignitaries from both sides of the Pacific signed a declaration agreeing to work together to ensure that leatherback sea turtle populations survive and thrive both on nesting beaches in Indonesia and in the ocean waters off the California coast where they spend most of their time.

“Just as our two countries are interconnected by the oceans, all of the species living in the oceans are interconnected as well,” said Rep. Sam Farr, D-Calif. and co-chair of the House Oceans Caucus. “It is important that we work together to protect the leatherbacks, not just to save this majestic species but to protect the health of our shared ocean.”

“Cooperation between California and Indonesia will strengthen the work of both governments by connecting the two regions critical to the leatherback’s life cycle,” said California Natural Resources Agency Undersecretary Janelle Beland. “We look forward to working with Indonesia to develop innovative conservation approaches to protect the Pacific leatherback sea turtle.”

While U.S. federal agencies were unable to attend the summit due to the federal shutdown, NOAA Fisheries and Sanctuaries remain key partners for the agreement and newly established partnership.

The new conservation declaration was the culmination of the historic Pacific Leatherback Sea Turtle Conservation Summit, where scientists and political leaders convened to craft a new international agreement to forward an international conservation plan to speed the recovery and long-term survival of critically endangered Pacific leatherback sea turtles. Participants in the summit also drafted an international Memorandum of Agreement that is expected to be signed by Indonesia, California, and the U.S. federal government in the coming months, which will make the partnership official. One potential outcome of the summit is a Sister Sanctuary arrangement between the Monterey Bay National Marine Sanctuary and protected areas off Indonesia.

Ricardo Tapilatu, a leading leatherback researcher with the State University of Papua, Indonesia, explains, “The nesting population of leatherbacks at the two main nesting beaches in the Tandrau jurisdiction of Papua Barat, Indonesia has declined 78 percent during the past three decades. We have initiated science-based conservation efforts on the nesting beach in an attempt to reverse this decline and

initiate its recovery. However, the recovery of the leatherback is dependent upon a Pacific-wide approach. The current leatherback summit unifies conservation efforts at both ends of the leatherback’s trans-Pacific migration, the primary nesting beach and the major foraging ground.”

“If we are going to prevent the extinction of species that cross international borders, we need to take action beyond our own borders,” said Geoff Shester, California Program Director for Oceana, whose organization served as the lead organizer of the event. “Our leatherbacks are ambassadors that link Californians to our new partners on the other side of the world.”

Every summer and fall, Pacific leatherbacks migrate from their nesting beaches in Indonesia to ocean waters off the West Coast of the United States to feed on jellyfish — a 12,000-mile round-trip journey. According to Scott Benson, marine ecologist with the National Marine Fisheries Service, “Leatherback turtles don’t recognize international borders, so it is the responsibility of people in all Pacific nations to protect this species wherever it occurs. Improved international coordination that is implemented at the local level is essential for the conservation and recovery of leatherback populations in the Pacific.”

<http://www.seaturtles.org/article.php?id=2538>

TEN THOUSAND WALRUSES GATHER ON ISLAND AS SEA ICE SHRINKS

THE MARINE MAMMALS, WHICH USUALLY SPEND THEIR TIME RESTING ON SEA ICE, ARE INCREASINGLY FORCED TO HAUL OUT ON LAND.

Oct. 2, 2013 — An estimated ten thousand Pacific walruses have huddled together on a remote island in the Chukchi Sea, an unusual phenomenon that’s due to a lack of sea ice, experts say.

The giant marine mammal is known to “haul out”—literally haul its body onto ice or land to rest or warm up—on various places along the Arctic coast.

But with the Arctic warming up and melting much of its floating ice, there are limited areas for the walruses to gather. This forces them to cluster on land in huge aggregations rarely before seen.

In 2011, 30,000 walruses hauled out along a stretch of beach less than a mile long, according to the National Oceanic and Atmospheric Administration, which took aerial pictures of the most recent walrus gathering.

Scientists first noted that such large terrestrial haulouts along Alaska’s coast in 2007 and reports

have increased in the past five years, said Pam Tuomi, senior veterinarian at the Alaska SeaLife Center in Seward.

That mirrors the effect of warming temperatures in the Arctic, which is in the throes of a "long-term, downward trend" in sea ice cover, according to the National Snow and Ice Data Center.

In 2013, the Arctic experienced its sixth lowest minimum extent, or the period when sea ice cover is at its smallest.

The walrus haulouts are "another one of the symptoms of the changes that are occurring in the Arctic Ocean," Tuomi said, "and they are causing cascading effects."

On Thin Ice

The Pacific walrus as a species is suffering due to its shrinking habitat—the animal's numbers are declining, and it is currently listed as "threatened" and may soon be upgraded to "endangered" under the U.S. Endangered Species Act, Tuomi said.

Meanwhile, the large haulouts are putting individual animals at risk. For one, if something like an airplane flying overhead spooks one of the mammals, it may spark a stampede into the water. During their panic, the heavy animals—which can weigh up to 1.5 tons (1.4 metric tons)—may trample other walruses to death, especially young ones, she said.

"It's like yelling fire at a movie theater," she said.

In addition, so many animals in such close quarters could increase the likelihood of a disease outbreak. In 2011 a mysterious, fatal disease swept through a population of ringed seals in Alaska and there was concern that some walruses might also have been affected, she noted.

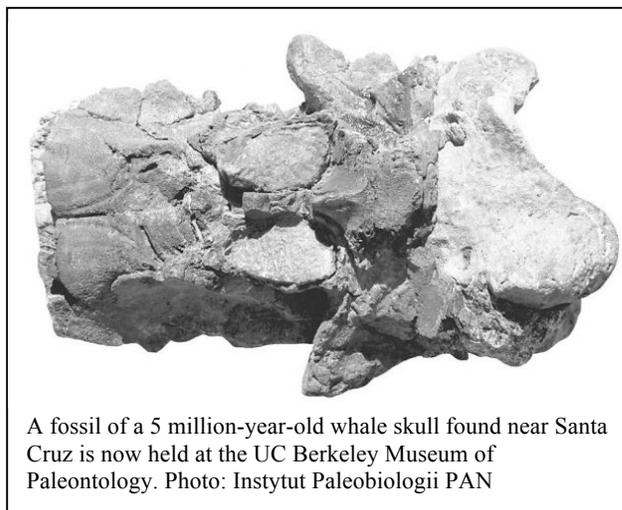
The disease may have spread from one population of marine mammal to another—for instance, ringed seals in Russia—and they weren't mixed together in a dense aggregation. A disease outbreak in a crowded haulout could be even deadlier.

<http://news.nationalgeographic.com/news/2013/10/131002-walruses-arctic-haulout-science-animals-alaska-global-warming/>

FOSSIL HUNTERS IN SANTA CRUZ MAKE WHALE OF A FIND

Sept. 8, 2013 — The fossil hunters of the Purisima Formation are avid collectors of the dead - they probe the beaches and sandy cliffs around Santa Cruz to find the stony bones of birds and whales and sea creatures that lived and died there millions of years ago.

To scientists, those amateur hunters provide an



A fossil of a 5 million-year-old whale skull found near Santa Cruz is now held at the UC Berkeley Museum of Paleontology. Photo: Instytut Paleobiologii PAN

endlessly renewing source of material that bears witness to the ebb and flow of evolution as environments change over the millennia and life adapts to the changes and moves on into ever-new forms.

Two of those amateurs recently passed on a few of their trophies to Robert W. Boessenecker - known as Bobby to his surfing friends in Capitola - who is now a 27-year-old paleontology graduate student in New Zealand.

Evolutionary ancestors

He and two colleagues have just published a scientific report on the fossil discoveries: a primitive whale skull and two ear bones from two members of the dolphin family that swam in the sea some 5 million years ago and appear to have shared the features of modern whale species. The ancient animals might well have been the common evolutionary ancestors of their modern descendants, Boessenecker believes.

His detailed description of the primitive bones is published in the international paleontology journal *Acta Paleontologica Polonica*. In the report, Boessenecker credits Stanley Jarocki of Watsonville and Robin Eisenman, a one-time Aptos beachcomber, as the fossils' finders.

Probing the cliffs

Jarocki, now retired from construction engineering and a longtime Santa Cruz surfer, has been probing the nearby cliffs and beaches for more than 30 years - both to add to his own fossil collection and to give away to eager scientists.

"In this fossil-hunting business they say that what you find is yours, but I'm just a hunter and a donator," Jarocki said. "I remember that I once gave Bobby some fossil bird bones I found, and he studied them, and this time I gave him the ear bones I found

embedded in the cliffs that I didn't really need."

Jarocki also donates many of his finds to the Santa Cruz Museum of Natural History, where he is a valued contributor to the museum's fossil collections, said research associate Frank A. Perry, a co-author of Boessenecker's report.

"He donates lots of small stuff he finds and that other fossil hunters overlook," Perry said. "I first met him 20 years ago, when he donated a whole collection of early shark teeth that dated from 10 or 12 million years ago.

"They were the inspiration for an entire report on the sharks of that era that the museum published."

Robin Eisenman, who found the ancient whale skull on a beach north of Aptos, has since reportedly left to live in Idaho, where the ocean is more than 600 miles away.

The beachside fossil hunters working around Santa Cruz are vital to his research, Boessenecker said, and that's how he met Jarocki five years ago.

"You'll see people with their kids, walking their dogs, people surfing, and occasionally someone who's paying a bit too much attention to the rocks, standing out like a sore thumb as a fossil collector," Boessenecker said. "So I went up to introduce myself and we chatted."

Fossil-rich area

The result was Jarocki's gift of the fossil ear bones that, like Eisenman's fossil skull, came from animals long buried in what geologists term the Purisima Formation.

It's a series of fossil-rich sandstone outcrops along the coast, from Point Reyes to the Santa Cruz area, that were thrust upward by earthquakes some 7 million to about 2.6 million years ago, when the Pacific Ocean reached into what is now the Central Valley.

Surfers have long discovered fossils in the cliffs above the beaches in the Santa Cruz area, and Boessenecker is both a surfer and a fossil hunter.

Now a graduate student at the University of Otago in New Zealand, he has teamed with Perry in Santa Cruz and with Jonathan Geisler, a mentor at the New York Institute of Technology's College of Osteopathic Medicine in Old Westbury, N.Y., for his report on the Purisima Formation's ancient whales.

Bones a bit of a mystery

The fossil bones are something of a mystery; there are too few to link them precisely to any modern whale species, Boessenecker said. But they clearly come from a group known as Globicephalines - otherwise known as blackfish - that include pilot whales, false killer whales and some dolphins,

he reports.

"The fossil skull shares features with both pilot whales and false killer whales and may be the common ancestor to both," Boessenecker reported. "They probably would have lived in environments like the modern California shelf and Monterey Bay of the Purisima Formation."

Says Perry of the mystery that remains about the fossil whale bones:

"I see the study of fossils akin to assembling a gigantic jigsaw puzzle. Little by little paleontologists collect and put together the pieces, giving us a better picture of the past. We'll never have the entire picture, but every little part helps."

<http://www.sfgate.com/science/article/Fossil-hunters-in-Santa-Cruz-make-whale-of-a-find-4797539.php> - skip

JAPAN'S COASTAL SEA HUNTS RISK FOR SPECIES

Oct. 30, 2013 — Japan's hunts of smaller whales, dolphins and porpoises threaten some species with extinction, an environmental group said Thursday.

Catch quotas are based on data collected as much as 20 years ago and some species have been overhunted beyond the point of recovery, the Environmental Investigation Agency said in its report.

The lucrative market in live catches for aquariums, especially in China, poses another risk, the report said. Live animals can sell for between \$8,400 and \$98,000, sometimes more than the roughly \$50,000 from sales of meat for a single bottlenose dolphin.

Japan set its catch limit for small cetaceans at 16,655 in 2013, far below the 30,000 caught annually before limits were set in 1993 but still the largest hunt in the world. It defends its coastal whaling as a longstanding tradition, source of livelihood and as necessary for scientific research.

The London-based independent conservation group said Japan is failing to observe its stated goal of sustainability and urged the country to phase out the hunts over the next decade.

"The government has a responsibility to restore and maintain cetacean species at their former levels," said Jennifer Lonsdale, a founding director of the EIA.

The small cetaceans are among a number of species facing severe declines in Japan. They include Japanese eels, a delicacy usually served roasted with a savory sauce over rice, and torafugu, or puffer fish.

The status of each species varies, depending on its range and hunting practices. Catch limits for Dall's

porpoises are 4.7-4.8 times higher than the safe threshold, the report said.

For the striped dolphin, once the mainstay of the industry but now endangered and disappearing from some areas, catches have dropped from over 1,800 in the 1980s to about 100.

That is still four times the sustainable limit, the report said. It urged that the government update its data on the abundance of it and other species and stop transferring quotas from already overfished areas to areas that exceed their quotas.

Under a 1946 treaty regulating whaling, nations can grant permits to kill whales for scientific research.

In July, Japan defended its annual harpooning of hundreds of whales in the icy seas around Antarctica, insisting the hunt is legal because it gathers valuable scientific data that could pave the way to a resumption of sustainable whaling in the future.

Australia has appealed to the World Court to have the whaling outlawed.

<http://www.sfgate.com/news/science/article/Grou-p-Japan-sea-hunts-risk-for-species-consumers-4941302.php>

SIGHTINGS

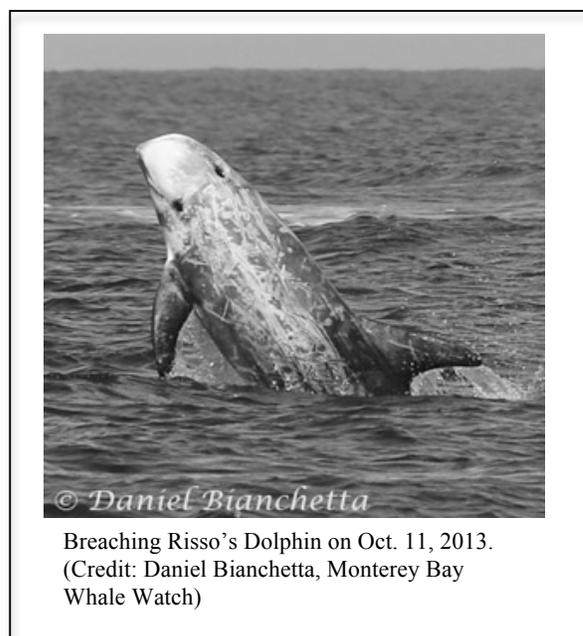
Sightings are compiled by Monterey Bay Whale Watch. For complete listing and updates see www.gowhales.com/sighting.htm

Date	#	Type of Animal(s)
10/31 pm	100	Humpback Whales
	50	Rissos's Dolphins
10/31 am	50	Humpback Whales
	10	Killer Whales
	300	Risso's Dolphins
10/30 pm	30	Humpback Whales
	300	Risso's Dolphins
10/30 am	60	Humpback Whales
		Risso's Dolphins
10/29 pm	35	Humpback Whales
	300	Risso's Dolphins
	5	Dall's Porpoise
10/29 am	45	Humpback Whales
	300	Risso's Dolphins
	1	Olive Ridley Sea Turtle (rare sighting)
10/27 am	85	Humpback Whales
	1	Killer Whale (Fat Fin)
	40	Risso's Dolphins
	20	Harbor Porpoise

10/26 pm	80	Humpback Whales
10/26 am	75	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
10/25 pm	50	Humpback Whales (some breaching)
10/25 am	100	Humpback Whales (some breaching)
	70	Risso's Dolphins
10/24 pm	25	Humpback Whales (in foggy conditions)
10/24 am	20	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
10/23 pm	25	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
10/23 am	40	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
	70	Risso's Dolphins
10/22 pm	28	Humpback Whales
10/22 am	50	Humpback Whales
	3	Dall's Porpoise
	5	Harbor Porpoise
10/21 pm	50+	Humpback Whales
	3	Killer Whales
10/21 am	38	Humpback Whales (in foggy conditions)
10/20 pm	42	Humpback Whales
	2	Killer Whales (Fat Fin & Stumpy)
10/20 am	48	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
	60	Pacific White-sided Dolphins
	200	Risso's Dolphins
10/19 pm	60	Humpback Whales (very active)
10/19 am	150	Humpback Whales
	300	Risso's Dolphins
10/18 pm	150	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
10/18 am	220	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)
	150	Risso's Dolphins
10/17 pm	120	Humpback Whales
	2	Killer Whales (Fat Fin and Stumpy)

10/17 am	90 2 800 15	Humpback Whales Killer Whales Risso's Dolphins Harbor Porpoise
10/16 pm	120 2 700 8	Humpback Whales Killer Whales (Fat Fin and Stumpy) Risso's Dolphins Harbor Porpoise
10/16 am	120 700 10	Humpback Whales Risso's Dolphins Harbor Porpoise
10/15 pm	100+ 2 100	Humpback Whales Killer Whales Risso's Dolphins
10/15 am	60+ 2 600 6	Humpback Whales Killer Whales (Fat Fin and Stumpy) Risso's Dolphins Dall's Porpoise
10/14 pm	35 250	Humpback Whales (including calf breaching & surface feeding) Risso's Dolphins
10/14 am	90 1 5	Humpback Whales Killer Whale (Fat Fin) Dall's Porpoise
10/13 pm	90 1 75	Humpback Whales Killer Whale (Fat Fin) Risso's Dolphins
10/12 pm	90 1	Humpback Whales Killer Whale (Fat Fin, breaching)
10/12 am	34 1 45	Humpback Whales Killer Whale (Fat Fin) Risso's Dolphins
10/11 pm	60 1 700	Humpback Whales Killer Whale (Fat Fin, breaching) Risso's Dolphins (breaching)
10/11 am	60 1 700	Humpback Whales Killer Whale (Fat Fin) Risso's Dolphins
10/10 pm	20	Humpback Whales
10/10 am	24 35	Humpback Whales Risso's Dolphins
10/8 pm	15 30	Humpback Whales Risso's Dolphins
10/8 am	50 10	Humpback Whales Pacific White-sided Dolphins

	700	Risso's Dolphins
10/7 pm	30+ 300	Humpback Whales Risso's Dolphins
10/7 am	30+ 1 300	Humpback Whales Killer Whale (Fat Fin) Risso's Dolphins
10/6 pm	35 1 100	Humpback Whales Killer Whale (Fat Fin) Pacific White-sided Dolphins
	700	Risso's Dolphins
10/6 am	60 1 700 8	Humpback Whales Killer Whale (Fat Fin) Risso's Dolphins Bottlenose Dolphins
10/5 pm	45 12	Humpback Whales Harbor Porpoise
10/5 am	80 120 15	Humpback Whales Risso's Dolphins Harbor Porpoise
10/4 pm	50 30	Humpback Whales Risso's Dolphins
10/4 am	19 100 30	Humpback Whales Risso's Dolphins Northern Right Whale Dolphins
10/3 am	15	Humpback Whales
10/2 am	25 2	Humpback Whales Harbor Porpoise
10/1 am	45+	Humpback Whales



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