Soundings

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

AUGUST 2016

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, August 25, 2016
Time: 7:30 PM
PLEASE JOIN US AT 7:00 FOR REFRESHMENTS

Speaker: **Sarah Peterson, Ph.D.**
Title: What Can Elephant Seals Tell Us about Their Deep Ocean Habitat?

Sarah is currently a Wildlife Biologist, working at both USGS and as a Research Fellow at UC Santa Cruz. She received her Ph.D. in Ecology from UC Santa Cruz, where she studied northern elephant seals and California sea lions. She also obtained a Masters in Biology with a focus on Marine Science at Western Washington University in Bellingham, WA, where she studied harbor seals.

In addition to science research, Sarah has worked as a naturalist and science educator off and on since 2004, up and down the west coast of the United States. Sarah is broadly interested in animal movement and foraging behavior and how we can study animals to learn about environmental contamination.

Photo obtained under NMFS permit 14636.

Please join us for refreshments before the program begins. More information is available on our website, www.acsmb.org.

Next month: Join us for our September meeting and presentation at 7:30 PM on Thursday, September 29.

INSIDE THIS ISSUE

Humpback whale spyhopping on July 25, 2016 (Credit: Daniel Bianchetta).

CALENDAR

Now through Sep. 5: Whales: Giants of the Deep, an exhibit at the San Diego Museum of Natural History. Interactive and immersive exhibit featuring the latest international cetacean research.

Aug. 27: American Cetacean Society's National Blue Whale Fundraiser. This Saturday trip will depart from Santa Barbara, CA aboard the *Condor Express*. Trip time is 8:00 AM - 4:00 PM. Over the last 25 years, the Santa Barbara Channel has been one of the best places in the world to observe the great blue whale. For more information please go to asconline.org.

Aug. 31: Lecture: Ray Troll, "Fin" Artist: Arctic palm trees, desert walrus and the mysterious "Desmos" of yore: The best of the fossil west from Baja to Barrow." 11:00 AM at the Monterey Bay Aquarium Research Institute (MBARI) in Moss Landing.

Sep. 23-25: 12th Annual Monterey Birding Festival at the Watsonville Civic Plaza in Watsonville, CA. This festival will include lectures and field trips to Big Sur (Condors) and Pinnacles, one of America's newest National Parks. For more information go to montereybaybirding.com.

Oct. 3-7: 9th Annual California Islands Symposium at the Marriot Beach Hotel in Ventura, CA. This symposium will present the most recent scientific findings on the Channel Islands and islands off the west coast of Baja California. All day field trips will be scheduled to the Channel Islands with Island Packers in Ventura, CA. For more information go to www.mednscience.org/CaliforniaIslandsSymposia

Nov. 10-13: Western Society of Naturalists 97th Annual Meeting in Monterey, CA. The 100th Anniversary of the Society will be held at the Hyatt Regency Monterey Hotel and Spa. For more information go to www.wsn-online.org.

Nov. 11-13: American Cetacean Society's Biennial Meeting at the Embassy Suites in Monterey, CA. This conference will bring together some of the world's pre-eminent marine mammal scientists for a three day symposium in one of the world's most bio-diverse cetacean hotspots. This conference will also offer an all day whale watching trip on Friday, November 11 with Monterey Bay Whale Watch.

MYSTERIOUS NEW WHALE SPECIES DISCOVERED IN ALASKA

By Craig Welch

Jul. 26, 2016 — Like many good mysteries, this one started with a corpse, but the body in question was 24 feet (7.3 meters) long.

The remains floated ashore in June of 2014, in the Pribilof Islands community of St. George, a tiny oasis of rock and grass in the middle of Alaska's Bering Sea. A young biology teacher spotted the carcass half-buried in sand on a desolate windswept beach. He alerted a former fur seal researcher who presumed, at first, that she knew what they'd found: a Baird's beaked whale, a large, gray, deep-diving creature that occasionally washes in dead with the tide.

But a closer examination later showed that the flesh was too dark, the dorsal fin too big and floppy. The animal was too short to be an adult, but its teeth were worn and yellowed with age.

It turns out, according to new research published Tuesday, that this was not a Baird's beaked whale at all, but an entirely new species—a smaller, odd-shaped black cetacean that Japanese fishermen have long called *karasu*, or raven.

"We don't know how many there are, where they're typically found, anything," says Phillip Morin, a molecular geneticist at the National Oceanic and Atmospheric Administration's Southwest Fisheries Science Center. "But we're going to start looking."

It's rare to uncover a new species of whale. Advances in DNA research have helped scientists identify five new cetaceans in the past 15 years but two were dolphins and most were simple category splits between fairly similar species. This animal, in the genus *Berardius,* looks far different than its nearest relative and inhabits an area of the North Pacific where marine mammal research has been conducted for decades.

"It's a really big deal," says study co-author Paul Wade of NOAA's National Marine Mammal Laboratory. "If you think about it, on land, discovery of new species of large mammals is exceptionally rare. It just doesn't happen very often. It's quite remarkable."

Skeletons, Beaks, and Bone Powder

Morin and his team examined the St. George carcass, took bone powder from old museum specimens, and reviewed DNA tests of whales from the Sea of Okhotsk. They studied skulls and beaks and analyzed records from whaling fleets in Japan. They even tracked down a skeleton hanging from the ceiling in a high school gymnasium in the Aleutian Islands.

This whale washed up dead on Alaska's St. George Island in June 2014. Scientists say it is a newly discovered species of beaked whale. (Credit: Karin Holser).

The scientists conclude in their study published in *Marine Mammal Science* that this type of whale, which has not yet been named, is nearly as far removed genetically from the Northern Hemisphere's Baird's beaked whales as it is from its closest known relative, Arnoux's beaked whales, which swim in the Antarctic Ocean. The differences, in fact, are so dramatic that the animal has to be something else, they say.

"It's just so exciting to think that in 2016 we're still discovering things in our world—even mammals that are more than 20 feet long," Morin says.

He is not alone in his enthusiasm. Robert Pitman serves on a taxonomy committee for the Society for Marine Mammalogy, which publishes an annual list of all recognized marine mammal species. He is not among the 16 co-authors on Morin's paper. But at a time when the diversity of marine mammals is shrinking—the Yangtze River dolphin is now functionally extinct and Mexico's vaquita porpoise is dangerously close—Pitman calls the discovery "heartening."

"It boggles my mind to think that a large, very different-looking whale has gone unnoticed by the scientific community for so long," Pitman says. "It sends a clear message about how little we know about what is in the ocean around us."

The discovery also raises new questions about how well humans are understanding the threats posed by marine activities, from energy exploration to sonar use, given that so few people even knew such a creature existed.

An Unrecognizable, Baffling Creature

Of the 88 recognized living cetacean species, including orcas and humpbacks, bottlenose dolphins and Dall's porpoises, 22 are beaked whales. The largest of those, Baird's beaked whales, also called giant bottlenose whales, can reach 35 to 40 feet (10.7 to 12 meters) and weigh more than 24,000 pounds (10,900 kilograms). They travel in large groups, may dive 3,000 feet (914 meters), and can be underwater for an hour. While beaked whales are still hunted in Japan, little about them is known. In part that's because they spend so much time feeding and exploring vast, deep canyons far from shore.

When Christian Hagenlocher on St. George, a 35-square-mile (91-square-kilometer) island inhabited by 100 people, frequented by hundreds of thousands of seals, and visited by 2.5 million birds, pointed out the dead whale in Zapadni Bay to former seal researcher Karin Holser, she thought it was a Baird's beaked whale. But later, as tides and currents revealed more of the animal, Holser realized she didn't recognize it at all. She consulted a colleague's cetacean identification book and sent pictures to other experts in Alaska.

"This dorsal fin was larger, further aft, and had more curvature than that of a Baird's beaked whale," says independent ecologist Michelle Ridgway, who arrived on the island days later. "The jaw structure and the shape of the melon were not quite right, either." And this whale, while clearly an adult, was just two-thirds the size of full-grown Baird's beaked whales.

Holser and other island residents measured the whale. Ridgway collected tissue, arranging to ship the slightly fetid samples through intermediaries to Morin's lab in Southern California.

Morin was intrigued.

So Mysterious It's 'Almost Folklore'

Just nine months earlier, he'd spied new research by Japanese scientists attempting to describe differences between Baird's beaked whales and a rare black form that whalers had whispered about since the 1940s. Groups of these smaller whales were sometime spotted in Japan's Nemuro Strait, but only between April and June. There was no record of scientists ever seeing one alive.

"They're almost folklore," Morin says.

The Japanese scientists had speculated in fall of 2013 that this may be an unknown species of beaked whale. But they were forced to draw conclusions from DNA taken from just three of the creatures that had stranded off Hokkaido. They concluded more evidence was needed.

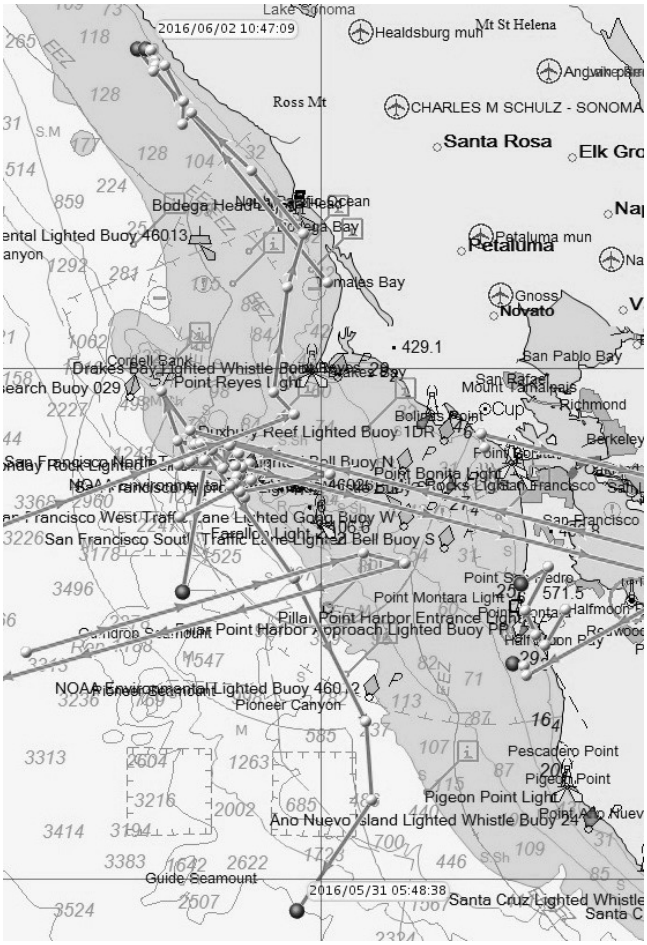
Even before receiving the samples from St. George, Morin had been trying to hunt down more specimens.

He went through NOAA's tissue collection, pulling all 50 or so that had previously been identified as a

Baird's beaked whale. Using DNA testing he found that two were actually a closer genetic match to the small black whales tested by Japanese scientists in 2013. One of those was from a whale that washed ashore in 2004 and now hangs in a school gym in Dutch Harbor. Scientists there had long assumed it was a younger Baird's beaked whale.

Morin also took the suggestion of one of the Japanese scientists, who had identified a skeleton from 1948 with an unusual shaped head at the Smithsonian Institution. And he tracked down another skeleton from the Los Angeles County Museum of Natural History with body measurements that suggested they were the small black form. Morin took bone powder from both, and tested their DNA. They, too, were a match for karasu.

Along with the whale from St. George, Morin now had found five new specimens that were similar to the three found in Japan.



Map of some of the satellite hits on the humpback and blue whales tagged. Satellite based positions are not very accurate and GPS positions from tagswill provide more frequent and accurate positions once downloaded off recovered tags. (Credit: Cascadia Research).

To describe a new species, however, "you build up lines of evidence, but that's very hard with an animal we've never seen alive," Morin says. But body measurements between Baird's beaked whales and the smaller black creature proved vastly different, as did their DNA.

Baird's beaked whales range throughout the North Pacific from Russia and Japan to Mexico. Genetic variation among Baird's beaked whales was tiny. But for the five new black specimens Morin tested, all initially from the Bering Sea or the Aleutians, the sequences differed from the Baird's beaked whales significantly.

"The genetic variation within the forms was little, while the divergence between them was much larger," Morin says. "That's our strongest argument."

The whale still needs to be formally described and named, and Morin's findings would have to be accepted by outside experts who track cetacean taxonomy. But Pitman and others say the case is strong that it's a new species.

"We're doing increasing damage to our environment, and we can't even begin to conserve the biodiversity we know is out there," Morin says. "Yet there's so much more about our world we don't even understand."

http://news.nationalgeographic.com/2016/06/great-white-sharks-attack-sea-otters-california/

New Data on Humpback and Blue Whales from Tag Deployment off California

May 2016 — On 22 and 23 May 2016, Cascadia deployed six dart-attached archival tags on humpback and blue whales off the Bay area to examine whale diving behavior and movements and test a new medium duration acoustic tag design. These were also strategically deployed to gather information important for better understanding and addressing the impacts of ship strikes and entanglement. These deployments consisted of the following:

- Two deployments on humpback whales feeding on fish close to shore between Half Moon Bay and the entrance to San Francisco Bay that were in among high densities of crab pots and lines. There has been a dramatic increase in the number of humpback whale entanglements in crab pot gear in recent years in this region and these tag will help understand the movement and diving behavior of humpback whales in the vicinity of this

gear to better identify reasons for this entanglement and possible solutions.

- Two deployments on humpback whales west of the Farallon Islands feeding on krill near the shelf edge. The ACCESS surveys conducted by the National Marine Sanctuary and Point Blue that examine distribution of whales and seabirds in relation to oceanographic conditions were completed the previous week and had identified high concentrations of whales in this area and the data from the tags will provide an important information on how deep and what the whales were feeding on.
- Two deployments were conducted on blue whales to serve multiple purposes including the link mentioned above but in one case to examine whale behavior in the shipping lanes and response to ships (one whale was feeding in the western shipping lanes leading to San Francisco and we had to maneuver to avoid being in its path). One of these also represented the first deployment of a longer term archiving acoustic tag on a whale. The tag consisted of the Acousonde acoustic tag but with increased floatation and the addition of Fast-loc GPS and a satellite transmitter as well as small darts for attachment. Both of these tags will be used to also examine the vocalizing behavior and rate for blue whales to aid in developing a way to better infer density/abundance from remote detections of calls.

http://cascadiaresearch.org/tag_deployments_May2016.htm

White Eyes – The World's Best Known Blue Whale

Jul. 13, 2016 — With roughly 10,000 Blue whales left on planet earth they represent a shell of their former population, which numbered in the hundreds of thousands. Blue whales are primarily solitary migratory animals and due to their diminished numbers there are few places in the world where we get to see the same individual on both ends of their annual migration. Of all the places where we can see this the Gulf of California also known as the Sea of Cortez down in Mexico and the waters off the coast of California represent the most reliable example. Not that all individuals from California go to the Gulf of California or visa versa, but many do. White Eyes is the most often sighted whale in the past quarter century or so in the winter down in Mexican waters. I should know as I myself have seen him eleven of the past twenty years in my work off Baja California. In fact my now twenty year old daughter Delphi first drew me a picture of "White Eyes our best Blue whale" when she was two years old!

I had seen White Eyes, who is an adult male, four years running from 2012-2015 but did not see him in thirty-five days at sea off Baja California this past 2016 season. So it was with joy that I learned that the Condor Express operating a whale watch out of Santa Barbara saw and photographed him on July 7th.

White Eyes who carries a very unique fluke pattern which is dark with a large distinct white patch on each fluke lobe, surely must be one of the most recognizable or easily identifiable Blue whales to be found anywhere in the world. In face he appeared briefly in the recently release Oceanic Preservation Society film "Racing Extinction". He also will appear in the BBC special due out this fall called "Wild West". In both cases he dutifully showed up for film crews which were filming off my boat down in Baja California. He seems to be seen about the same amount of years both off Baja and upper California and in a few of those years he has been seen in both places. White Eyes shows us a fine example of habitat preference, usually choosing to make the long swim back and forth between the same general places each year, when other Blue whales vary their migration more. In fact recently a Blue whale was re-sighted by myself down in Baja, that had previously been seen only twenty-seven years earlier by the folks at the Mingan Island Cetacean Study, who are based in Canada but used to work the winter season in Baja.

White Eyes also goes by the name "Bunny" in California and the locals in Baja call him "Calabaza", but after 20 years of calling him White Eyes it is hard to think of him having any other name. Plus I'm

White Eyes was spotted on July 7, 2016 off of Santa Barbara (Credit: Robert Perry).

confident that his first name was White Eyes, coined by Richard Sears down in Baja in the early 1990's. He has become the Great Whale Conservancy's poster child. I have seen him vertical lunge feeding, swimming after females on numerous occasions, and one time pulling his fluke as hi in the air when diving as any Sperm whale does. I sure wish White Eyes the best of fortune in negotiating the busy shipping lanes off the coast of California where far too often the paths of these majestic animals and those of the mega ships merge. We will look eagerly for White Eyes this coming February and March in what will be our 21st season down in Baja.

Attached you will find an image of him taken by Robert Perry on July 7th of this year as well as one taken by me just before sunset in February of 2014 down in Baja. You can play the role of matching the flukes of these two images and coming to the inevitable conclusion that both are of the same individual, the one and only White Eyes. We hope to see White Eyes for many years to come, and with Blue whales believed to live from 70-90 years old perhaps we will.

http://www.greatwhaleconservancy.org/white-eyes-best-known-blue-whale/

WHERE HAVE ALL THE SALMON GONE?

By Heather Spaulding

Jul. 27, 2016 — Once tipping the scales at over 120 pounds, Chinook salmon have always been the staple of Southern resident orca whales, according to Deborah Giles, research director and projects manager for the Center of Whale Research.

"Today we think a 30-pound Chinook is big," Giles said, pointing out an old photo of two fisherman in Astoria, at the mouth of the Columbia river.

The men are holding up a photo of a pair of fish, which appear to be more than four feet long, and easily weigh 110 pounds.

"These are what the southern residents evolved to eat," she added.

According to Giles, these salmon eaters pretty much stick to Chinook.

"They don't really know what to do with pinks or humpies [pink salmon or humpback salmon]; it's almost like they don't register them as fish," Giles said. "Calves will sort of mouth them, but they don't really eat them."

She said studies on orcas' fecal matter have backed up these observations. Only one Northern resident orca, the salmon-eating orcas in Canada, showed signs of eating a pink salmon once, she said.

The National Oceanic and Atmospheric Administration's website lists many salmon species, including Chinook, as threatened and endangered. As a major source of the residents' diet, this does not bode well.

Chinook are facing habitat loss, overfishing, pollution, global warming, ocean acidification, harmful algae blooms, and a general oceanic ecosystem collapse due to ocean temperature shifts, according to Rich Osborne.

Osborn is the former executive director of the Whale Museum, restoration ecologist at the University of Washington Olympic Natural Resources Center in Forks, and is the program director for the Washington Coast Sustainable Salmon Partnership.

Part of the reason for decline of the 2016 runs, according to Osborne, is a severe warm water pattern in the Pacific Ocean that lasted from 2013-2015, nicknamed, The Blob.

"The Blob moved prey and disrupted salmon routes for the ocean migrants during that period, affecting those year classes of adult salmon," Osborne said, "The fish starved those years."

He went on to explain that The Blob's impact will continue to be felt for the next couple of years. Chinook runs were extremely low in 2012, and there were very few sightings of J, K and L pods that combined, make up the travel groups of the Southern resident population. Pods usually consist of five to thirty whales.

This year, Chinook runs are predicted to be even lower than 2012, and according to Giles, as of mid July, only a few matrilines, (mothers and their offspring) amounting to 10 individuals, have been spotted in inland waters.

According to Giles, when there are coast-wide shortages of Chinook there are more Southern residents deaths. In 2012, seven whales were lost.

"They are breaking into smaller and smaller groups because there isn't enough salmon to share with their normal larger groups," Osborne explained, "they are not following normal patterns because they are on a desperate search for salmon anywhere they can find them."

The infamous whale board, showing visitors when whales were last seen at Lime Kiln Park, is dotted with week-long stretches of Southern resident absences. Last year's board showed only two or three-day absences. This behavior has Ripon College Professor Bob Otis, who has led research at Lime Kiln Park for decades, and his researchers concerned. To help educate, researchers have been giving

information to park visitors about ways individuals can help.

"We love it that people come out to see the whales," said Rylee Jensen, a researcher back with Otis' team for the second year, "I wish that they would make the connection this is a special, and endangered group of whales."

She added that when the resident whales were listed in 2005, the population was 85, compared to this year's count of 83.

Mark Anderson, the founder of Orca Relief, a nonprofit organization working to reduce cetacean mortality rates, cites studies from biologist Dave Bain and others, showing that when vessel traffic is present, orcas' metabolism goes up, they take deeper dives, and echo-locate louder to be heard over motor noise. As a result, Anderson said, Southern residents need to eat 17 percent more when they are already struggling to find enough food.

In an attempt to help bring Chinook back from the brink, many researchers are calling to breach four dams in the lower Snake River, opening up more spawning ground. Anderson agrees that breaching the lower Snake's dams would be helpful, along with any Chinook restoration. He is concerned that results from those efforts could take 20 years or more, and fears the whales may not have that much time to wait.

"Requiring whale watch boats to stay further back especially along the west side [of San Juan] would have an immediate impact [in helping orcas hunt,]" Anderson said. "We could see an improvement today."

So far this year, they are barely using that prime hunting ground; instead, an abundance of humpbacks, minkes and transients have been seen throughout the islands.

Transients are the marine mammal-eating orcas, who hunt seal, sea lions and porpoise.

"If we were to begin researching orcas today, we would think the transients were residents, the ones that lived here, and the residents were transients, only occasionally cruising through," Giles said, explaining that the baseline for orca research in the Salish Sea is shifting.

Transients, the marine mammal-eating orcas, are currently doing well, despite the fact that due to being higher on the food chain, they have a higher toxin level than the salmon-eating residents. This, according to Giles, is because seals, sea lions and porpoise are all at record population levels giving transients plenty to eat. During fasting and famine situations, when the animals are using the blubber where the toxins are stored, is when problems like suppressed immune systems occur. That, according to Giles, seems to be what researchers are seeing, "If Southern residents had enough food, it [toxins] still would not be good, but it wouldn't be as bad of an issue," he said.

What can we do?

Anderson pointed out that to increase a population, it takes more than counting heads; we must look to the core viable breeding members. That core of Southern residents is getting smaller and smaller.

He is not hopeless however, saying, "We thought minkes were a goner when we began studying them. Whales can come back," Anderson said.

Osborne also believes orcas are resilient, but "they "need wild salmon that do not require humans and barges to complete their life cycle."

"We need to spend 100 percent of our energy getting fish into the mouths of these whales," Giles said.

http://www.sanjuanjournal.com/news/388349611.html

SIGHTINGS

Sightings are compiled by Monterey Bay Whale Watch. For complete listing and updates see *http://www.montereybaywhalewatch.com/slstcurr.htm*

Date	#	Type of Animal(s)
7/31 5:30 pm	26	Humpback Whales
	6	Blue Whales
	2	Fin Whales
	6	Harbor Porpoise
	1	Elephant Seal
7/31 9 am	50	Humpback Whales
	6	Blue Whales
	3	Fin Whales
	14	Harbor Porpoise
	6	Dall's Porpoise
7/30 4 pm	24	Humpback Whales
	3	Blue Whales
	2	Fin Whales
	6	Dall's Porpoise
	1	Black-footed Albatross
7/29 4 pm	30	Humpback Whales
	6	Blue Whales
	3	Fin Whales
	10	Dall's Porpoise
7/29 12:30 pm	16	Humpback Whales
	5	Blue Whales
	2	Fin Whales
	1000	Pacific White-sided Dolphins
	100	Northern Right Whale Dolphins
7/28 5:30 pm	11	Humpback Whales
	1	Blue Whale
	1	Fin Whale

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