

# Soundings



AUGUST 2015

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

**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 28, 2015  
Time: 7:30 PM**

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

**Speaker: Paul Clerkin**  
Pacific Shark Research Center, Moss Landing Marine Laboratories



**Paul J. Clerkin** is a graduate researcher at the Pacific Shark Research Center of Moss Landing Marine Laboratories. Clerkin specializes in rare and deep-sea chondrichthyans and is focusing on new species descriptions and life histories of poorly understood sharks species.

**His thesis work** is with David A. Ebert, studying sharks encountered during two surveys in the Southern Indian Ocean in 2012 and 2014, a total of 126 days at sea. He has also conducted research for other projects aboard ships in the Bering Sea, South East Atlantic, Philippines Sea, and across the Pacific. He is currently describing some of the 15 new species he discovered in the Indian Ocean and planning his next expedition.

**Please join us** for refreshments before the program begins. More information is available on our website, [www.acsmb.org](http://www.acsmb.org).

**Next month:** Our next program will be on Thursday, September 25, at Hopkins Boatworks Hall at 7 PM.

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## CALENDAR

**Aug. 29:** ACS National and ACS LA host Summertime Blues Whale Watch Fundraiser. This all day whale watch will search the Santa Barbara Channel aboard the *Condor Express* in search of both blue and humpback whales. For more info please contact Diane Alps at 310-597-0449.

**Aug. 31 – Sep. 2:** Big Blue Live. Tune in to PBS to see Monterey Bay National Marine Sanctuary on Live TV from 8 PM to 9 PM each day. Footage will include cetaceans, pinnipeds, seabirds, fish and a plethora of Sanctuary inhabitants.

**Sep. 12:** Channel Islands Adventure: Santa Rosa Island. Cetaceans including Blue Whales are often encountered on this trip. 8 AM to 6 PM. For information please call 310-548-7562.

**Sep. 19:** California Coastal Cleanup Day.

**Nov. 5-8:** Western Society of Naturalists, 96<sup>th</sup> Annual Meeting in Sacramento, CA.

**Dec. 13-18:** 21<sup>st</sup> Biennial Conference on the Biology of Marine Mammals: Bridging the Past Toward the Future. Hilton San Francisco, Union Square. San Francisco, and the greater central California coast region, is home to one of the greatest diversity of marine mammals in the world, with over 30 species having been observed. It also hosts one of the greatest assemblages of marine mammal scientists and marine science institutions in the world. Upwards of 3,000 scientists from more than 30 countries are expected to attend.

## BOOK RECOMMENDATIONS

Voices in the Ocean: A Journey into the Wild and Haunting World of Dolphins, by Susan Casey (author of *The Wave, Devils Teeth*). 2015 Doubleday.

Whales, Dolphins, and Porpoises: A Natural History and Species Guide, by Annalisa Berta (ed.). 2015 University of Chicago Press.

American Cetacean Society  
Monterey Bay Chapter  
Presents

## NATIONAL GEOGRAPHIC LIVE!

On August 18, Jodi Cobb introduces her film, **Stranger in a Strange Land**, at 7pm.

Are you curious about remote areas of the world and hidden societies, such as the world of the Geishas or Bedouins? Bring your family and friends to travel the world with Jodi Cobb, a National Geographic award-winning photographer, live at the Golden State Theatre in Monterey on Tuesday, August 18, at 7pm. Mention ACS when purchasing your tickets, and a portion of the proceeds will be donated to our organization to fulfill our mission of cetacean research, conservation, and education.

Tickets and more information are available online at [goldenstatetheatre.com](http://goldenstatetheatre.com) or by calling 831-649-1017.

Please call Diane Glim, 214-1016, with any questions, and enjoy the show! Thank you for your support.

Our Ocean Backyard: Collected Essays About Monterey Bay, by Dr. Gary Griggs (Director of Marine Science UCSC). 2014 CreateSpace Independent Publishing Platform.

## CHAPTER AWARDS THREE RESEARCH GRANTS THIS YEAR

The Monterey Bay Chapter of the American Cetacean Society has awarded 2015 research grants to three graduate students this year, two of them at UC Santa Cruz and one at Sonoma State University.

The student grants have been awarded to:

Sarah Chinn, a master's candidate at Sonoma State University, to study the health of female sea

otters as they finish lactation. \$2,000 Baldridge Award.

Christopher Law, a doctoral candidate at UC Santa Cruz, to study Southern Sea Otters bite forces in relation to their specialized diets. \$1,500 ACSMB Grant.

Jillian Sills, a doctoral candidate at UC Santa Cruz, to study the hearing and susceptibility to anthropogenic noise of ice-living seals in Alaska, specifically spotted, ringed and bearded seals. \$1,500 ACSMB Grant.

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### STUDYING KILLER WHALES WITH AN UNMANNED AERIAL VEHICLE

Jul. 30, 2015 — Last year, for the first time, scientists used an unmanned aerial vehicle, or UAV, to study killer whales from above. In an article published this month in the *Journal of Unmanned Vehicle Systems*, scientists describe how they configured their UAV, turning it into a precision scientific instrument.

The international team of scientists from NOAA Fisheries and the Vancouver Aquarium used the UAV to take straight-down photos of the Northern resident killer whales, a group of animals that frequent waters near Vancouver Island, British Columbia, and that are listed as threatened under Canada's Species At Risk Act.

The photos from the UAV are not only stunningly beautiful, but loaded with data and diagnostic detail.

"We're taking photographs not just because they



Killer whales travel in their family group for most of their lives. This family group includes a two-year-old calf (second from top), and a young-of-the-year (middle). These whales were photographed by an unmanned aerial vehicle from 100 feet. (Credit: NOAA, Vancouver Aquarium).

look good, but because we can make very precise measurements from them," said John Durban, a marine mammal ecologist with NOAA Fisheries. "We can't put a whale on a scale, but we can use aerial images to analyze their body condition--basically, how fat or skinny they are."

By analyzing the photos, scientists are able to determine, among other things, whether the whales are getting enough to eat. This is important because the Northern residents feed mainly on Chinook salmon, and scientists suspect that low Chinook numbers may be limiting the growth of the whale population.

#### A Precision Instrument

The team used a type of UAV called a hexacopter, so-named for the six helicopter-type rotors that bear it aloft. According to the journal article, at least two characteristics of the hexacopter contributed to its success.

First, the vehicle is relatively quiet. Scientists kept the hexacopter at least 100 feet above the whales at all times, and at that altitude, the whales appeared to be unaware of its presence. This is important because marine mammals are extremely sensitive to sound. To minimize risks, the scientists are trained to recognize whether their activities disturb the whales, and they operated the UAV according to the rules specified in their research permit.

Second, in addition to being outfitted with a high-resolution digital camera, the hexacopter also carried a pressure altimeter. Knowing the precise altitude at which each photo was taken, and the focal length of the camera's lens, scientists were able to calculate the size of objects in the photos to within 5 centimeters.

#### A Powerful New Tool

Scientists have been using manned aircraft for photogrammetry studies like this for decades. But manned aircraft are expensive to operate, especially in remote locations. Also, hexacopters can get much closer to the whales than manned aircraft, which have to maintain a greater altitude both for safety reasons and to avoid disturbing the whales.

Being able to get close to the whales is what makes this technology so useful.

"Because the image resolution is so great, we can monitor very small changes in an animal's condition from year to year," Durban said, noting that scientists can recognize individual killer whales based on their unique pigmentation patterns. That will allow scientists to analyze how ups and downs in Chinook salmon populations impact the killer whales.

"We're using technology to answer some very simple questions about these animals based on their

size and shape," Durban said. "I don't think science has to be complicated to be powerful, and this is an extremely powerful new tool."

<http://www.sciencedaily.com/releases/2015/07/150730111032.htm>

## POLAR BEAR AWES WITH RECORD-BREAKING DIVE

by Elizabeth Palermo

July 30, 2015 — Polar bears are known to be excellent swimmers, but new research suggests that they are also superb divers.

Scientists recently observed a polar bear dive that lasted 3 minutes, 10 seconds, shattering the previous known record by about 2 minutes. The researchers — Ian Stirling from the University of Alberta in Canada, and Rinie van Meurs, a naturalist and polar expedition leader from the Netherlands — were studying polar bears in the Norwegian archipelago of Svalbard (located between continental Norway and the North Pole, east of Greenland), when they witnessed this epic underwater swim. The researchers described the dive in the August edition of the journal *Polar Biology*.

Polar bears are known to dive for food, said Stirling and van Meurs, who noted in their report that these animals typically stay submerged for anywhere between 3 and 30 seconds when diving. Sometimes, they'll stay submerged longer to look for kelp, but the longest recorded kelp dive lasted only about 1 minute, 12 seconds, they said.

This record-breaking dive was also for food, but this bear had bigger prey in mind. The emaciated polar bear, which the researchers observed from the deck of a ship, was hunting a group of three bearded seals that were lounging about on a sheet of floating ice, called an ice floe. The bear slipped into the water and started swimming toward the seals before diving below the surface to continue what the researchers called his "aquatic stalk."

After spending more than 3 minutes underwater, the polar bear "exploded" out of the water and propelled itself halfway onto the ice floe, right in front of where one of the seals was resting. Unfortunately for the hungry bear, the seal got away, the researchers said. But the entire hunt was recorded on video and on film, allowing the researchers to confirm that the polar bear had not come up for air before lunging onto the ice.

To put the bear's dive into perspective, the average human being can hold his or her breath for about 2 minutes underwater, though even that is a

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This thin polar bear recently impressed researchers with his excellent diving skills. (Credit: Rinie van Meurs).

stretch for some folks. And some people can train themselves to hold their breath for much longer than that. (There are various techniques for increasing the time between breaths.)

The polar bear's ability to hold its breath for so long is interesting to the researchers because it could be a sign that these animals are evolving to survive in a habitat that is rapidly changing. Global warming is leading to a dearth of sea ice, the researchers said, meaning polar bears have less ice on which to hunt. As such, the animals must spend more time in the water than they did previously when hunting for seals and other terrestrial prey.

"It is possible that the ability to hold its breath for so long may indicate the initial development of a significant adaptation for living and hunting in its marine environment," the researchers wrote in the study.

Polar bears diverged from their ancestors, brown bears (*Ursus arctos*), between 400,000 and 500,000 years ago, which is quite recent in evolutionary terms. The polar bear's propensity for underwater breath holding may be a trait that still hasn't fully evolved, but it's unlikely that the animal can evolve fast enough to adapt to life at the quickly shrinking polar ice caps, Stirling and van Meurs said.

<http://news.yahoo.com/polar-bear-awes-record-breaking-dive-140658559.html>

## CHINA'S KRILL PUSH THREATENS PENGUINS AND WHALES

by Eric Niiler

Apr. 16, 2015 — Conservation groups and scientists worry that China's push to boost its harvest of krill -- a shrimp-like creature used for aquaculture

[www.acsmb.org](http://www.acsmb.org)

feed and human supplements -- may leave Antarctica's whales, seals and penguins struggling to survive.

China is one of several nations, including Norway, Korea and Chile, harvesting krill with massive factory ships dragging miles-long trawl nets through the productive cold waters of the Southern Ocean. The krill is quickly frozen and into processed into pellets for aquaculture and livestock operations, fish bait, and high-value "nutraceuticals" such as omega-3 dietary supplements.

China's leaders say they want a seven-fold increase in krill production, according to a recent report in the state-owned China Daily newspaper.

### **Underwater World Captured in Stunning Photos**

That sharing may be tough for the animals that rely on krill as their main source of food. When penguins and other animals breed, they can only travel so far while raising their young. That's especially true around the Antarctic Peninsula, which happens to be a hotspot for both krill and the larger creatures that eat it.

"We will increase our investment in the Antarctic area in terms of krill fishing," said Liu Shenli, chairman of the China National Agricultural Development Group and a member of the National Committee of the Chinese People's Political Consultative Conference. "Krill provides very good quality protein that can be processed into food and medicine. The Antarctic is a treasure house for all human beings, and China should go there and share."

"The issue isn't so much the size of the entire (krill) population, but where they are taking it," said Claire Christian, a spokeswoman for the Antarctic and Southern Ocean Coalition, a Washington-based advocacy group. "Some of these larger ships could deplete all the krill in a local area. That would create problems."

Fishing around Antarctica is governed by the Conservation of Antarctic Marine Living Resources, (CCAMLR), a Hobart-Australia-based treaty organization. China is a signatory to the treaty.

### **Killer Shrimp Could Invade the Great Lakes**

While the current 4.2 million metric ton catch limit for Antarctic krill is much higher than the amount currently harvested, the problem is that the science behind the krill population estimates may be outdated.

George Watters, a fisheries scientist at the National Oceanic and Atmospheric Administration's Southwest Marine Fisheries Center in La Jolla, Calif.,

says the surveys that resulted in the limit were conducted more than 15 years ago. Watters says that new studies are needed to get a better picture of how abundant krill is today, especially around the Antarctica Peninsula.

The water and air temperature around the peninsula has warmed faster than any other place on Earth, leading to concerns about populations of several penguin species, whales and other marine mammals. Krill forms the base of the food chain, and may be at risk as well, explained Watters.

"Climate change is a major force in that region, and is creating big changes in the (Antarctic Peninsula) ecosystem," Watters said. "A legitimate concern is to how productive will the krill stock be in the future. There are papers to suggest it will be less productive. That's a reason why there is an effort to change the catch limit for krill so it is updated more regularly."

Since the ocean around Antarctica is considered international waters, enforcement of fisheries rules relies on self-reporting by countries that sign the CCAMLR treaty. That could make China's new effort harder to monitor at sea, especially since it has eight 5,000 to 7,000 metric ton factory krill trawling ships, more than any other nation.

"It is worrying when people want to fish more krill," Christian said, "but the management system hasn't gotten the right rules in place."

<http://news.discovery.com/animals/chinas-krill-push-threatens-penguins-and-whales-150416.htm>



Humpback whales feed in the sea by blowing bubbles to concentrate prey of krill and small fish. (Credit: Momatiuk - Eastcott / Corbis).

## SIMULTANEOUS TRACKING OF BLUE WHALES AND LARGE SHIPS DEMONSTRATES LIMITED BEHAVIORAL RESPONSES FOR AVOIDING COLLISION

By Megan F. McKenna, John Calambokidis, Erin M. Oleson, David W. Laist, and Jeremy A. Goldbogen

Apr. 29, 2015 — Collisions between ships and whales are reported throughout the world's oceans. For some endangered whale populations, ship strikes are a major threat to survival and recovery.

Factors known to affect the incidence and severity of collisions include spatial co-occurrence of ships and whales, hydrodynamic forces around ships, and ship speed. Less understood and likely key to understanding differences in interactions between whales and ships is whale behavior in the presence of ships.

In commercial shipping lanes off southern California, we simultaneously recorded blue whale behavior and commercial ship movement.

A total of 20 ship passages with 9 individual whales were observed at distances ranging from 60 to 3600 m. We documented a dive response (i.e. shallow dive during surface period) of blue whales in the path of oncoming ships in 55% of the ship passages, but found no evidence for lateral avoidance. Descent rate, duration, and maximum depth of the observed response dives were similar to whale behavior immediately after suction-cup tag deployments.

These behavioral data were combined with ship hydrodynamic forces to evaluate the maximum ship speed that would allow a whale time to avoid an oncoming ship.

Our analysis suggests that the ability of blue whales to avoid ships is limited to relatively slow descents, with no horizontal movements away from a ship.

We posit that this constrained response repertoire would limit their ability to adjust their response behavior to different ship speeds. This is likely a factor in making blue whales, and perhaps other large whales, more vulnerable to ship strikes.

*The full text of this article appeared in Vol. 27, pages 219–232, of the Journal Endangered Species Research. doi: 10.3354/esr00666.*

### BUMBLE BEE: SAVE THE SHARKS!

Many of us harbor a deep, primal fear of sharks. But in reality, humans are much more of a danger to sharks than they are to us. Millions of these

fascinating creatures die a brutal, excruciating death every year at the hands of shark-finners – and the cruel practice is being made possible by the tuna industry.

Leading US tuna company Bumble Bee Foods is one of the worst offenders. In theory it is against the illegal practice of cutting off sharks' fins to put in expensive soup. In practice, the way it operates keeps the lucrative shark-finning industry alive.

Shark-finning tends to happen on independent tuna fishing vessels that then sell their legal catch on to companies like Bumble Bee. These companies turn a blind eye to the vicious practice in return for paying a low price for their tuna. To mark 'Shark Week,' Greenpeace has launched a campaign telling Bumble Bee to end its complicity in this appalling industry.

When a shark is caught by one of these illegal vessels, either as 'by-catch' or deliberately, it has its dorsal fin hacked off. Then it is thrown, still alive but in agony, back into the sea. It is left to die a painful death, either through blood loss or suffocation.

Nearly half of all shark species are currently at risk of extinction – we need to end this cruelty now, before it is too late. If the tuna industry were to truly clamp down on shark-finning, it would be possible to end it.

This is why it's so important to show Bumble Bee that we are not fooled by its corporate social responsibility statements. The seafood company needs to be able to publicly prove that all aspects of its supply chain, including the independent vessels that it buys fish from, are not finning sharks.

Specifically, Greenpeace wants Bumble Bee to stop relying on wire leaders on its fishing boats, which are unnecessary for catching tuna but ensure high rates of shark bycatch. It must also stop using transshipment at sea, which allows tuna boats to hide illegal practices. And crucially, Bumble Bee should pay living wages to all the fishermen and women it deals with, thus removing the incentive to make



Pile of shark fins. (Credit: Alex Hofford, Greenpeace).

money on the side shark-finning.

Add your name to the petition to tell Bumble Bee CEO Chris Lischewski to ensure his company's tuna is legal and sustainable by following this link:

<https://secure3.convio.net/gpeace/site/Advocacy?cmd=display&page=UserAction&id=1675>

## SIGHTINGS

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

Date	#	Type of Animal(s)
7/31 late pm	3	Humpback Whales
	3	Harbor Porpoise
	6	Dall's Porpoise
7/31 pm	3	Humpback Whales
	12	Killer Whales
	10	Dall's Porpoise
	2	Blue Sharks
	1	Mola Mola (Ocean Sunfish)
7/31 am	10	Humpback Whales
	10	Risso's Dolphins
	32	Dall's Porpoise
7/30 late pm	12	Humpback Whales (lunge feeding)
	10	Dall's Porpoise
7/30 pm	20	Humpback Whales
	2	Minke Whales
	100	Long-beaked Common Dolphins
	20	Risso's Dolphins
	5	Harbor Porpoise
7/30 am	13	Humpback Whales
	2	Minke Whales
	210	Long-beaked Common Dolphins
	15	Dall's Porpoise
	1	Blue Shark
7/29 late pm	12	Humpback Whales
	100	Long-beaked Common Dolphins
	40	Risso's Dolphins
	20	Dall's Porpoise
	1	Mola Mola (Ocean Sunfish)
7/29 pm	14	Humpback Whales
	2	Blue Whales
	70	Long-beaked Common Dolphins
7/29 am	20	Humpback Whales
	2	Blue Whales
	100	Long-beaked Common Dolphins
	40	Risso's Dolphins
	2	Harbor Porpoise
	3	Dall's Porpoise
7/28 late pm	11	Humpback Whales
	70	Long-beaked Common Dolphins
7/28 pm	21	Humpback Whales
	150	Long-beaked Common Dolphins
7/28 am	10	Humpback Whales
	1	Fin Whale

	100	Pacific White-sided Dolphins
	170	Long-beaked Common Dolphins
	15	Dall's Porpoise
7/27 pm	15	Humpback Whales
	100	Long-beaked Common Dolphins
	100	Short-beaked Common Dolphins
	40	Risso's Dolphins
7/27 am	25	Humpback Whales
	250	Long-beaked Common Dolphins
	40	Risso's Dolphins
7/26 late pm	15	Humpback Whales
7/26 pm	15	Humpback Whales
7/26 am	25	Humpback Whales
	2	Blue Whales
	200	Long-beaked Common Dolphins
7/25 am	31	Humpback Whales
	3	Blue Whales
	1	Possible Fin Whale
	280	Pacific White-sided Dolphins
	30	Long-beaked Common Dolphins
	10	Short-beaked Common Dolphins
7/24 pm	1	Humpback Whale
	10	Dall's Porpoise
7/24 am	4	Humpback Whales
	5	Blue Whales
	1	Fin Whale
	200+	Short-beaked Common Dolphins
7/23 pm	2	Humpback Whales
	9	Blue Whales
	3	Dall's Porpoise
7/23 am	4	Humpback Whales
	5	Blue Whales
	1	Fin Whale
	8	Harbor Porpoise
	5	Dall's Porpoise
7/22 late pm	4	Humpback Whales
	1	Mola Mola (Ocean Sunfish)
7/22 pm	6	Humpback Whales
	2	Mola Mola (Ocean Sunfish)
7/22 am	6	Humpback Whales
	500	Risso's Dolphins
	4	Harbor Porpoise
	23	Dall's Porpoise
	2	Mola Mola (Ocean Sunfish)
7/21 late pm	6	Humpback Whales
	5	Harbor Porpoise
	1	Mola Mola (Ocean Sunfish)
7/21 pm	4	Humpback Whales
	1	Harbor Porpoise
	1	Mola Mola (Ocean Sunfish)
7/21 am	8	Humpback Whales
	3	Harbor Porpoise
7/20 late pm	1	Humpback Whale
	2	Harbor Porpoise
7/20 pm	7	Humpback Whales
	8	Harbor Porpoise
7/20 am	10	Humpback Whales
	12	Harbor Porpoise
	1	Elephant Seal
7/19 late pm	3	Humpback Whales
	6	Harbor Porpoise

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 Evelyn Starr, *Webmaster*  
 Tony Lorenz, Oren Frey, *Editors*  
 Email: tonylorenz@bigbluebay.com  
 soundingsnewsletter@gmail.com