Soundings AMERICAN CETACEAN SOCIETY

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

Join us for our Annual Fundraiser!

ACS MONTEREY BAY CHAPTER SUMMER WHALE WATCH TO SEE BLUE AND HUMPBACK WHALES WITH DISCOVERY WHALE WATCH (DEPARTS FROM FISHERMAN'S WHARF) SATURDAY, AUGUST 11TH

8 AM - 12 NOON

\$45 PER PERSON

Sponsored by Discovery Whale Watch

Mail check to: ACSMB, P.O. Box HE, Pacific Grove, CA 93950, or call Katlyn Taylor at 971-322-8425

Next month: For our next meeting on Thursday, August 30, we will NOT be meeting at Hopkins Marine Station due to renovations taking place there. Instead, we will be meeting at the Center for Spiritual Awakening at 522 Central Ave. in Pacific Grove. Our tentative speaker will be John Calambokidis, research biologist with Cascadia Research. Please save the date and join us!

JULY 2018

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ACS Monterey Bay chapter needs you!

Please consider volunteering to serve on the ACS Board of **Directors. Current openings** include Membership Chair and Publicity Chair.

If you enjoy learning about whales and sharing your passion with others, we'd like to speak with you. Please contact any board member for more information.

Soundings BOOK RECOMMENDATIONS

Spying on Whales: The Past, Present, and Future Of Earth's Most Awesome Creatures, by Nick Pyenson. 2018 Viking.

<u>The Curious Life Of Krill: A Conservation Story from</u> <u>the Bottom of the World</u>, by Stephen Nicol. 2018 Island Press.

Orca: How We Came to Know and Love the Ocean's Greatest Predator, by Jason M. Colby. 2018 Oxford University Press.

CALENDAR

Jul. 16-20: Superpod 6 in Friday Harbor San Juan Island, Washington. This five-day symposium on Southern Resident Killer Whales will include international killer whale scientists, filmmakers, authors, journalists, and naturalists! Whale watching opportunities will be ubiquitous.

Jul. 21: ACS/LA Summertime Blues (and Humpbacks) Whale Watching Adventure on the *Condor Express*. 8 AM – 4 PM, departing from Sea Landing in Santa Barbara Harbor.

Jul. 24: ACS SF Bay presents a talk by Dr. Shawn Johnson, Director of Veterinarian Science at the Marine Mammal Center: "Not Just Seizing Sea Lions: How Domoic Acid is Impacting Southern Sea Otters."

Aug. 11: Whalewatching with ACS Monterey Bay and Discovery Whale Watch on Fisherman's Wharf. Join us for our annual fundraiser! 8 AM – 12 Noon. \$45. Mail check to ACS MB, P.O. Box HE, Pacific Grove, CA, 93950 or call Katlyn Taylor at 971-322-8425.

Sep. 28-29: Monterey Birding Festival, which will include field trips, workshops, and lectures. For more information please go to www.montereybaybird.org

Oct. 17-20: Society for Vertebrate Paleontology 78th Annual Meeting at the Albuquerque Convention Center in Albuquerque, New Mexico.

Nov. 2-4: American Cetacean Society 16th International Conference at the Hyatt Regency in Newport Beach,

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CA. Conference Theme: Whales & Us: The Next Generation.

Nov. 8-11: Western Society Of Naturalists Annual Meeting in Tacoma, WA.

Feb. 16 – Mar. 5, 2019: Antarctic Peninsula Whales and Landscape Expedition, in partnership with ACS. Itinerary, ship details and how to signup at cheesemans.com/Ant-Whales-Feb2019.

Feb. 27 – Mar. 2, 2019: Pacific Seabird Group 46th Annual Meeting in Kauai, Hawaii at the Aqua Kauai Beach Resort. For more information please go to www.pacificseabirdgroup.org

WRAP YOUR MIND AROUND A WHALE

By Nick Pyenson

Jun. 23, 2018 — The facts of a blue whale seem improbable; it is hard to wrap your mind around an animal with jaws the height of a football goal post. Those jaws are not just the ocean's utmost bones (to borrow from Melville) but the utmost bones in the history of life on Earth.

And yet these superlative whales haven't been huge that long. In fact, they emerged just about 4.5 million years ago, coinciding almost perfectly with the human era.

We are living right now in the age of giants. Blue whales, fin whales, right whales and bowhead whales are the largest animals, by weight, ever to have evolved. How did this happen? And what does this tell us about how evolution works?

Fossils show that the earliest whales were more obviously mammalian — they had four legs, a nose, maybe even fur. They had bladelike teeth and lived in habitats that ranged from woodlands with streams to river deltas, occasionally feeding in the brackish waters of shallow equatorial coasts. And they were the size of a large dog.

If you were somehow able to return to an ancient shoreline and happened upon the entire assemblage of early whales, you wouldn't be able to guess which four-legged creature would beget the whales we know. In their own times and habitats, each was as well adapted as any sea lion or otter living today. But it was the whales that completely severed their ties to land that eventually won the evolutionary sweepstakes.

Still, it took these whales most of their 50-millionyear history to become giants. It was not the parade of

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evolutionary transformations and innovations to their bodies (the refashioning of forelegs into flippers or the appearance in some species of baleen, for feeding, for example) that made them big. Instead, my colleagues and I argued in a 2017 study that the onset of ice ages, a few million years ago, affected the distribution of their prey, making it hyper abundant in warmer seasons along the coasts. This set the stage for longrange migration, while enhancing advantages that baleen whales already had for living large.

This brings up a theoretical question: Can whales continue to get bigger?

A lot about an animal's biology — how quickly its heart races, how many young it produces, how long it lives — can be predicted from its size alone, whether it is enormous or microscopic. The mathematics that describes how biology changes across these scales is called allometry (the same math is used to explain economies and traffic jams). Applying allometry to the study of whales is the key to understanding not just what it takes to be a giant, but also the limits of living things on Earth.

There are disadvantages to being enormous. The largest whales are so big and thick with blubber that overheating in warmer waters is a risk.

Whale lungs are so large and specialized that they present their own quandaries. They must be able to collapse quickly enough to avoid rupturing when the whales dive deep (as some toothed whales do), but also to reinflate rapidly at the surface after two hours underwater. Blue whales don't dive anywhere close to the depths you'd expect for their body size. In part it's because their prey live near the light, but it also seems that it takes too much energy to breathe all the oxygen necessary for a deeper plunge.

As organisms scale up, physics dictates what's possible for any kind of movement and function, be it blood flow, digestion or locomotion. Sauropod dinosaurs, for example, had limbs like columns to support their massive weight, yet their load was most likely lightened by an avian-like respiration system, which permeated their skeleton with air sacs.

Whales obviously haven't had to deal with the force of gravity since they became fully aquatic; underwater, they are essentially weightless. Instead, forces such as drag have shaped their bodies, especially when feeding. When scientists used allometry to calculate drag on mathematical models of different-size whales, they found that beyond lengths of 110 feet a blue whale would not be able to close its mouth fast enough around quickly escaping prey. Others have found that a whale that big wouldn't gain



enough calories from the mouthful to make up for the energy lost from the act.

In other words, the largest whales ever measured, at 109 feet, are theoretically the largest whales that can exist.

Of course, physics isn't the only factor imposing limits on these leviathans. Whaling is estimated to have killed nearly three million whales in the 20th century alone.

Human hands have imperiled other cetaceans. Not a whistle or splash of the Yangtze River dolphin has been recorded since the first decade of the 21st century. Responsibility for the extinction of this species can be placed squarely on our shoulders: We dammed the only river in which it lived. Other species such as the vaquita, a small porpoise that has never been spotted outside the Gulf of California, remain on the extinction watch list; there are only one or two dozen left.

The news isn't all dire: Some whale species, such as humpbacks, have rebounded from the brink; gray whales, icons of the West Coast, are even expanding to new habitats as climate and oceans change.

But on today's planet, large body size is correlated with a higher extinction risk. Almost all of the largest whale species today, including blue whales and right whales, are navigating an increasingly urbanized ocean, full of larger and faster ships, noise and detritus. The extreme size of the largest whales puts them at risk of entanglement in fishing gear and trauma from ship strikes.

Their size can also be a liability if the environment changes rapidly, which we know is happening now, thanks to the behavior of our own species. Features of past whale worlds, such as sea-level rise and the acidification of ocean water, will return in the near future as a result of widespread burning of fossil fuels driving climate change.

How successfully whales and humans can share this evolutionary moment is a high-stakes story that's

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still being written. The more we learn about these giants that can live more than twice as long as we do, and whose migrations take them across entire oceans, the better their chances of survival on Earth in the age of humans.

I think we have reason to hope that these largest creatures on the planet will continue to awe us for centuries to come, living, as they do, on the knifeedge between perfect and perilous adaptation.

https://www.nytimes.com/2018/06/23/opinion/sunday/wr ap-your-mind-around-a-whale.html

Researchers Describe Abundant Marine Life at the "White Shark Café"

By Kim Fulton-Bennett

Jun. 13, 2018 — In May 2018, an interdisciplinary group of researchers from Stanford University's Hopkins Marine Station, the Monterey Bay Aquarium, MBARI, the Schmidt Ocean Institute (SOI), and other organizations conducted a month-long research cruise to the "White Shark Café." Half way between California and Hawaii, this remote part of the Pacific Ocean is a gathering area for white sharks, and the researchers were trying to find out why.

The researchers tracked 20 individual sharks to the Café using pop-up satellite tags. The tags were programmed to pop off the sharks during the cruise. The researchers were able to recover 10 of these tags, containing invaluable data about the sharks' migration. These tags also gave the researchers new details about deep dives that the sharks make while at the White Shark Café.

The researchers then used a variety of oceanographic instruments and sea-going robots, along with SOI's state-of-the-art research vessel *Falkor*, to study ocean conditions and marine life at the White Shark Café.



A white shark with a tracking tag swims through the ocean depths. (Credit: Monterey Bay Aquarium).

MBARI deep-sea biologist Bruce Robison used SOI's remotely operated vehicle (ROV) *SuBastian* to study the animals at depths frequented by the sharks. In the video below Robison describes some of the animals he observed during these dives.

Robison said, "For me, there is no substitute for direct observation. I want to see what's there. If I can't go down myself, then the next best thing is to use a remotely operated vehicle."

Other researchers used echo sounders and dragged nets through the depths to find out what kinds of squids, fish, and other hard-bodied animals live in the depths. They also used "environmental DNA" to test for the presence of sharks and their prey.

Lead researcher Barbara Block described the initial results of this research, "We found a high diversity of deep sea fish and squids (over 100 species), which in combination with observations made by the ROV and DNA sequencing, demonstrate a viable trophic pathway to support large pelagic organisms such as sharks and tunas."

Although this part of the Pacific Ocean has been considered an "oceanic desert," the researchers found deep layers of phytoplankton (microscopic marine algae) that were not visible in satellite images. These algae, along with the larger animals observed, suggest that the area is more biologically productive than the researchers expected.

In addition to showing that this area is an "ocean oasis" rather than a desert, Robison noted, "Our survey using a variety of oceanographic tools provides a benchmark on how to census the open ocean."

https://www.mbari.org/shark-cafe-marine-life/

PROTECTING BLUE WHALES AND BLUE SKIES

Apr. 2, 2018 — Home to cold, blue, productive waters, the state of California is a host to many charismatic ocean species, including the largest on the planet, the elusive blue whale. Though some types of whales are spotted year round in sanctuary waters, blues and most populations of large whales typically gather in large numbers in these rich waters from May through November to feed on krill and copepods, socializing and filling their bellies with up to 2,200 pounds of small invertebrates per day. Beyond being amazing animals to bear witness to, these large aggregations of hungry giants have an important ecological impact on the communities around them and play a key role in the dynamic food webs in which they intersect.

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Also at home in California's blue waters are another kind of ocean giant - container ships - which frequent our state's busy ports in a steady stream in the thousands, delivering the goods and products on which we all rely. Though virtually unnoticed by the public - do most people think about the 1,200 foot container ship that carried their toothbrush? - more than 80% of global trade takes place by container at sea, making the international shipping industry a major and influential player in the global economy. Though all of this activity is a great thing for our regional economy and for the countless consumers whom these shipments serve, it can also pose serious problems for populations of whales when these shipping lanes intersect with critical feeding habitats, resulting in these fast-moving ships fatally striking and killing these federally protected animals.

More commonly referred to as ship strikes, many efforts have been taken to explore this issue regionally and internationally.In 2014, realizing that further action was needed in the short term, the Foundation, Channel Islands National Marine Sanctuary, Environmental Defense Center, the Ventura County Air Pollution Control District and the Santa Barbara County Air Pollution Control District rolled out an unconventional pilot program to work alongside the elusive shipping industry to slow their vessels down in southern California, improving local air quality (slower ships also means fewer harmful air emissions) and reducing the risk of ship strikes on whales in this region.

Rather than mandate the shipping industry to comply with regulations, this voluntary, incentivebased program works in direct partnership with the shipping lines to achieve these air quality and conservation benefits. And, because the methods are non-regulatory, this collaborative and voluntary effort can achieve benefits right away.

Since 2014, the program, now dubbed the Protecting Blue Whales and Blue Skies Vessel Speed Reduction Program, has seen continued success and expansion, with eleven major shipping companies (CMA CGM, EVERGREEN, Hamburg Sud, Hapag Lloyd, Hyundai Merchant Marine, K Line, Maersk, Matson, MSC, NYK Ro-Ro, and Yang Ming) engaged in 2017 to ultimately slow 140 previously fast transits along the California coast. In 2016, the partnership was expanded to include the Volgenau Foundation and in 2017, it was scaled up even further to include transits in the San Francisco Bay area and incorporate great partners like Cordell Bank National Marine Sanctuary, Greater Farallones National Marine



A blue whale and car carrier in the Santa Barbara Channel. (Credit: John Calambokidis/Cascadia Research).

Sanctuary, Monterey Bay National Marine Sanctuary, and the Bay Area Air Quality Management District.

On March 1, 2018, at the Port of Los Angeles, the Foundation organized and hosted an Awards Ceremony event to recognize and celebrate the shipping industry participants of the 2017 program and engage them on future conservation initiatives.

And while no silver bullet solution has yet been identified to solve the issue of ship strikes, we here at the National Marine Sanctuary Foundation are heartened by the continued progress being made to engage the shipping industry on these important conservation issues. Plans for a bigger and more impactful 2018 slow down program are still underway, but engagement and interest levels within the industry and partners provide a promising foundation for future expansions. Through these collaborative efforts that maximize the power of partnerships, the forecast looks hopeful that we can continue to find ways to protect blue whales and blue skies in California for years to come.

https://marinesanctuary.org/blog/blues-whales-blueskies-2018/

NEW ZEALAND THE MOST PERILOUS PLACE FOR SEABIRDS DUE TO PLASTIC POLLUTION

By Eleanor Ainge Roy

Jul. 2, 2018 — Seabirds are more at risk of dying due to plastic in New Zealand than anywhere else in the world, new research presented to parliament has shown.

New Zealand is considered "the seabird capital of the world," according to the country's Department of Conservation, with the northern royal albatross raising their chicks on the Otago Peninsula, unique species of oystercatchers on the Chatham Islands and more penguin species than any country in the world.

There are 36 seabird species that breed only in New Zealand. Mexico is a distant second with just five. More than a third of all seabird species are known to spend time in New Zealand's waters.







Graphics from the Royal Forest and Bird Protection Society of New Zealand showing the density of seabirds and plastic pollution in waters around the world. (Credit: Royal Forest and Bird Protection Society of New Zealand).

Karen Baird from conservation group Forest & Bird, which produced the report, said: "Rubbish that ends up in our seas has a far worse effect on seabird species than anywhere else in the world."

"Even though we don't have the most plastic pollution, we are unique in the world in having so many seabirds species. We also have the most threatened seabird species, many of which are found nowhere else."

Seabirds are particularly vulnerable to eating plastic because they are surface feeders, spotting food from the air and swooping down on it, scooping it up and swallowing it before the mistake is realised. Seabird chicks and adults face starvation when their stomachs fill up with plastic rather than food.

Forest & Bird called on the government to ban single-use plastic bags and commit to further research into how marine life is affected by plastic in New Zealand waters.

One in three turtles that are found sick or dead in the country are caused by the animals eating plastic, Forest & Bird found, with marine mammals such as seals and sea lions also at risk.

In neighbouring Australia, nine out of ten fledglings in some shearwater colonies surveyed had

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eaten significant quantities of plastic, Baird said. New Zealand's ten shearwater species could be in for the same fate if plastic pollution wasn't urgently addressed, Baird said.

Plastic accounts for 78% of all rubbish on New Zealand beaches, with a study this year finding Wellington's scenic Oriental Bay has some of the worst plastic pollution in the world.

Associate environment minister Eugenie Sage said the government was tackling ocean pollution at its source, and "bold, decisive" action was needed to combat the estimated 1.5bn plastic bags used each year in New Zealand. "Dealing with waste on land means less makes it into the ocean," said Sage. "In March, New Zealand signed up to the United Nations-led CleanSeas

campaign to rid our oceans of plastic, and we accepted the Greenpeace petition seeking a ban on single use plastic bags."

"We are working on how to get rid of single use plastic bags but in the meantime it's great that many retailers and supermarkets are showing leadership by phasing them out."

Microbeads have been banned in New Zealand, and single-use plastic bags

are being phased out by some major supermarkets, but the government is yet to pass legislation for stricter, nationwide plastic reform.

https://www.theguardian.com/world/2018/jul/02/newzealand-the-most-perilous-place-for-seabirds-due-toplastic-pollution

www.acsmb.org

Soundings <u>SIGHTINGS</u>

July 2018

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)		
	9	Humpback Whales		
6/30 8 am	100	Pacific White-sided Dolphins		
	130	Risso's Dolphins		
	12	Humpback Whales (breaching, pec-		
		slapping, tail throws)		
6/29 9 am	75	Risso's Dolphins		
	5	Harbor Porpoise		
	1	Black-footed Albatross		
	15	Humpback Whales (breaching, tail		
C/20.0		throws, pec-slapping)		
6/28 9 am	110	Risso's Dolphins		
	2	Harbor Porpoise		
	20	Humpback Whales		
(127.0	40	Pacific White-sided Dolphins		
6/27 9 am	60	Risso's Dolphins		
	3	Black-footed Albatross		
	18	Humpback Whales (breaching)		
	50	Risso's Dolphins		
<i>C</i> 12 <i>C</i> 0	5	Harbor Porpoise		
6/26 9am	1	Tufted Puffin		
	1	Juvenile Nazca Booby		
	1	Mola Mola (ocean sunfish)		
	20	Humpback Whales (breaching &		
		lunge-feeding)		
6/25 8 am	150	Risso's Dolphins (breaching)		
	1	Mola Mola (ocean sunfish)		
	11	Humpback Whales (lunge-feeding)		
	2	Blue Whales		
6/24 8 am	200	Risso's Dolphins		
	2	Mola Mola (ocean sunfish)		
<i>c</i> (a a a	25	Humpback Whales		
6/23 8 am	250	Risso's Dolphins		
8 hour All Day	2	Mola Mola (ocean sunfish)		
	14	Humpback Whales (cow/calf pair		
C 122 0		& pec-slapping)		
6/22 9 am	2	Blue Whales		
	20	Risso's Dolphins		
	12	Humpback Whales (breaching and		
		lunge-feeding)		
6/21 8 am	50	Pacific White-sided Dolphins		
	300	Risso's Dolphins		
6/20 8 am	33	Humpback Whales		
8 hour All Day	300-400	Risso's Dolphins		
J	8	Humpback Whales (breaching)		
C/10.2	4	Fin Whales		
6/19 8 am	20	Pacific White-sided Dolphins		
	200	Risso's Dolphins		
	2	Humpback Whales		
	4	Blue Whales		
6/18 8 am	25	Fin Whales		
0/10 0 am	100	Risso's Dolphins		
	5	Harbor Porpoise		
	1	Humphack Whale		
6/17 2 pm	3	Blue Whales		
	5	Blue Whates		

,		5		
	5	Fin Whale (lunge feeding)		
	10	Humpback Whales (hour long		
<i>c 11</i> – 0		breaching Humpback Whale)		
6/17 8 am	2	Blue Whales (lunge-feeding)		
8 hour All Day	4	Fin Whales (lunge-feeding)		
	100	Fin whates (lunge-feeding)		
	100			
	25	Humpback Whales		
	2	Blue Whales		
6/16 9 am	1	Fin Whale		
	80	Risso's Dolphins		
	5	Harbor Porpoise		
	25	Humpback Whales		
6/15 9 am	30	Risso's Dolphins		
	3	Harbor Poropoise		
	22	Humpback Whales		
6/15.8 am	10	Risso's Dolphins		
0/15/0 am	10	Black footed Albatross		
	1	Hummhaelt Whales		
(11.4.0)	18	Humpback whates		
6/14 9 am	3	Fin Whales		
	30	Risso's Dolphins		
6/13 8 am	29	Humpback Whales		
0/15 0 am	10	Harbor Porpoise		
6/12 9 am	25	Humpback Whales		
6/11.0	20	Humpback Whales		
6/11 9 am	1	Mola Mola (ocean sunfish)		
	24	Humpback Whales		
6/10 9 am	6	Harbor Porpoise		
	17	Humphools Wholes		
	17	Humpback whates		
6/10 8 am	45	Pacific white-sided Dolphins		
	50	Risso's Dolphins		
	1	Mola Mola (ocean sunfish)		
6/0 9 am	19	Humpback Whales (cow/calf pair)		
0/)) ani	4	Harbor Porpoise		
	11	Humpback Whales		
C 10, 0	100	Risso's Dolphins		
6/8 8 am	1	Blue Shark		
	3	Mola Mola (ocean sunfish)		
6/7 9 am	15	Humpback Whales		
0// 9 um	7	Humpback Whales		
6/6 0 am	2	Harbor Porpoise		
0/0 9 alli	ے 1	Mole Mole (acception fight)		
	12	Il une al a la Will 1		
	15	Humpback whales		
6/5 9 am	15	Bottlenose Dolphins		
	1	Mola Mola (ocean sunfish)		
	7	Humpback Whales		
6/4 9 am	2	Harbor Porpoise		
	1	Mola Mola (ocean sunfish)		
	40	Humpback Whales		
6/2.9	1,200	Pacific White-sided Dolphins		
0/3 8 am	400	Northern Right-whale Dolphins		
8 hour All Day	250	Risso's Dolphins		
	25	Harbor Porpoise		
	33	Humphack Whales		
	300	Disso's Dolphing		
6/28	10	Harbor Dorpoiss		
0/2 0 alli	10	Mala Mala (access section)		
	1	Miola Miola (ocean sunfish)		
	1	Black-footed Albatross		
<i></i>	11	Humpback Whales		
6/1 9 am	300	Risso's Dolphins		
	2	Harbor Dornaica		

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City, State, Zip						
Phone						
Membership Level						
Membership Levels and Annual Dues						
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Supporting \$85	International \$55	Family \$55				
Individual \$45	Student \$35	Teacher \$35				
Senior (62 plus) \$35						
Subscription only * \$1	5/11 issues (*not entitled	to membership be	nefits)			
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July 2018

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