

Soundings



JUNE 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, June 25, 2015**

Time: 7:30 PM

PLEASE JOIN US AT 7:00 FOR REFRESHMENTS

Speaker: Scott Benson

Sea Turtle Research Program, NOAA's Southwest Fisheries Science Center

**Leatherback Turtles in the California Current:
Why Leatherbacks Cross the Pacific**



Scott Benson has been concentrating his research on leatherback turtles for the past 14 years, studying them from their nesting areas in New Guinea and Indonesia to their feeding areas in Monterey Bay. He will tell us about the declining populations that recently got the Pacific Leatherback Sea Turtle added to NOAA's list of 8 endangered species most at risk of extinction in the near future.

The other species on the list are white abalone, Southern resident killer whale, Sacramento River winter-run Chinook salmon, Central California Coast Coho evolutionarily significant unit, Hawaiian monk seal, Cook Inlet beluga whale, and Atlantic Salmon Gulf of Maine distinct population segment.

Scott will also be discussing the endangered sea turtles' biology, distribution, movements and foraging ecology.

He has been a marine scientist with NOAA's Southwest Fisheries Science Center for more than 20 years and became part of the sea turtle program in 2001, coordinating research on the leatherbacks in Central California and the Western Pacific. He earned his master's degree from Moss Landing Marine Labs in 2002.

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

Next month: Instead of our regular program in July, we'll have our annual BBQ and raffle on Saturday, July 25. Details are on page 6 of this *Soundings*. Our programs at Hopkins Marine Station will resume on Thursday, August 27 (the last Thursday of the month).

INSIDE THIS ISSUE

CALENDAR	2
ECUADOR SEIZES 200,000 SHARK FINS.....	2
THE STRONGEST WHALE IN THE WORLD.....	3
THE VAQUITA ON TIMES SQUARE	4
DRONES TAKE WHALE SCIENCE TO NEW HEIGHTS....	5
EL NIÑO TRIGGERS TEMPORARY DRIFT GILLNET FISHERY CLOSURE OFF SOUTHERN CALIFORNIA.....	6
SIGHTINGS.....	7
MEMBERSHIP.....	8



CALENDAR

May 2 - Jun. 14: 2015 Illustrating Nature Exhibit at the Pacific Grove Museum of Natural History. The work on display is by students in the Science Illustration program at CSUMB, one of the nations most prestigious science illustration programs.

Jun. 15 – 21: Bio 348 - Techniques and Theories of Animal Training. SLEWTHS 2015 Summer Marine Mammal Course. This interactive class is designed to provide students with an in-depth understanding of animal training in both aquatic and terrestrial ecosystems. For more information please go to <http://slewths.mlml.calstate.edu/>

Jun. 29 – Jul. 4: Bio 347: Working with Marine Mammals. SLEWTHS 2015 Summer Marine Mammal Course. This course is designed to assist people who are interested in developing a career in marine mammalogy.

Jul. 11: International Save the Vaquita Day will be celebrated locally at the Pacific Grove Museum of Natural History, 165 Forest Avenue, Pacific Grove, from 10am-3pm. As part of a global day of recognition of the most endangered cetacean, ACS MB naturalists will provide information and updates about the vaquita. Free admission for Monterey County residents. Questions or to volunteer: Diane Glim, 831-214-1016.

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.

Dec. 13-18: 21st Biennial Conference on the Biology of Marine Mammals: Bridging the Past Toward the Future. Hilton San Francisco, Union Square.

BOOK RECOMMENDATIONS

The Biology and Ecology of Giant Kelp Forests, by David R. Schiel and Michael S. Foster. 2015 UC Press.

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David Attenborough's Rise of Animals: Triumph of the Vertebrates. Available on DVD. 2013 Atlantic Productions.

Winged Leviathan: The Story of the Humpback Whale, by Phil Clapham with photographs by Colin Baxter. 2013 Colin Baxter Photography.

ECUADOR SEIZES 200,000 SHARK FINS

NEW OPTIMISM FOR THE FUTURE OF THE VAQUITA

May 29, 2015 — Yesterday, the Ministry of Interior of Ecuador released a video showing Vice Minister Diego Fuentes explaining that 200,000 shark fins (which corresponds to roughly 40,000 sharks) had been seized in a series of operations. The Ecuador government arrested three people and confiscated several fire arms.

In the video, the Vice Minister explained that according to the Presidential Decree 486 (2007) sale of shark fins is permitted, but only if the sharks have been landed as bycatch.

“How do we determine that this is not bycatch? There are catch records from vessels when they arrive in port, which must show how much bycatch is landed along with the target catch. Over the past six months of police investigation, we found that the vessels were basically only bringing shark fins, and in most cases

American Cetacean Society
Monterey Bay Chapter

Annual Blue Whale Fundraiser Saturday, June 27, 2015

This annual search for the world's largest animal will also be on the lookout for humpback whales, killer whales, dolphins, porpoises, pinnipeds and various early summer marine seabirds.

Cost: \$55

Time: 9:00 am - 2:00 pm

Boat: *Sea Wolf 2* or *Black Fin*

Location: 84 Fisherman's Wharf, Monterey

For reservations call Monterey Bay Whale Watch at 831-375-4658.

All proceeds benefit ACS Monterey Bay

www.acsmb.org

the bodies were dumped at sea. The Decree bans shark finning at sea. Bycatch should be a minimal part of the total catch, while here it is clear that there is a targeted operation. The plan was to smuggle the fins to Peru, from where they could be exported legally to Asian markets. In these installations they had a dedicated processing facility set up, a transport infrastructure and a framework for hiding their activities. Each set of five fins is worth about \$60-\$80 U.S. dollars so we are talking about a huge sum of money involved. It is important to highlight that all these fins were taken in the last month or 20 days. This is not a long term storage facility.” See the full video in Spanish here.

In 2004, Ecuador set a regional precedent by banning the possession, sale and export of shark fins. However, this ruling was overturned in 2007 due to concerns that the shark finning industry had gone underground, and due to pressure from fishermen claiming that shark meat was an important source of additional income as marketable bycatch. The current regulations ban the targeted fishing for sharks in all Ecuadorian waters, and prohibit the use of certain types of hook and steel leaders on fishing lines typically used to catch sharks. It does allow for the

use and sale of sharks caught as by-catch, so long as these are landed whole and declared to the Fisheries Agency.

“While the Government of Ecuador should be congratulated on its investigation and decisive action against these criminals, it is clear that a targeted fishery for sharks does exist in Ecuador, and this needs to be addressed,” said Turtle Island Restoration Network’s Conservation Science Director Alex Hearn. “At the time of the Decree, there was concern about the definition of bycatch and how this might be used as a loophole. We will be following the judicial processes with great interest, in the hopes that an exemplary conviction will be meted out.”

Turtle Island is a leading shark and marine conservation organization that works in the Ecuador and the Eastern Tropical Pacific. Turtle Island is working to create a marine protected ‘swimway’ that will protect endangered sharks in Ecuadorian waters.

<https://seaturtles.org/newssection/ecuador-seizes-200000-shark-fins/>

THE STRONGEST WHALE IN THE WORLD: A NEW STUDY REVEALS WHICH IS THE MOST POWERFUL OF ALL WHALES AND DOLPHINS

by Matt Walker

Some animals just look strong. Male gorillas parade their ripped muscular bodies, while elephants are capable of great displays of power, such as tipping over trees.

But the strongest animals in the world live somewhere else – in the ocean.

Whales, being the largest animals alive, also have the largest muscles.

Now a new study has determined which is the strongest whale of all.

And crucially, it has revealed that despite being massively powerful, whales are impotent when entangled by fishing gear, as they are just not strong enough to break free.

The study, published in the journal *Marine Mammal Science*, was conducted by a team of US-based researchers led by Logan Arthur of the University Of North Carolina in Wilmington.

The team investigated which is the strongest of all cetaceans, the group that includes whales and dolphins.

It has established that blue whales are the strongest, in terms of the absolute amount of force they can generate. They are stronger than other large whales, including the massive sperm whale, the largest toothed cetacean, although they are not the strongest relative to their body size.



Shark fins for sale. (Credit: Seaturtles.org).

But despite their massive strength, whales are not powerful enough to break free from fishing gear, the research reveals. Whales often become entangled in fishing lines or nets that have been set or discarded in the ocean. Yet even a blue whale would struggle to break a single strand of a fish net, the scientists have discovered.

“I am fascinated by the sheer size of cetaceans,” Mr Logan told BBC Earth.

“As mammals, cetaceans have the same body systems as we do, however they are massive animals that thrive in a completely different habitat than humans. I wanted to understand how they were able to do it.”

Prior to the study, scientists had only measured the amount of force and thrust that bottlenose dolphins can produce.

Dolphins and whales power themselves using large fluked tails that move up and down, with each movement generating a similar force that propels their bodies forward.

“This motion is primarily powered by two muscles groups called the epaxial muscles, which power the up stroke, and the hypaxial muscles, which power the down stroke,” says Mr Logan.

His team related the amount of force produced by the dolphin to a cross-section of its epaxial tail muscles.

That reveals a ratio of force per unit area of muscle, commonly referred to as “muscle stress”.

By measuring the cross-section of muscles in larger cetaceans, they could then use this ratio to scale up and estimate the force output from a bottlenose dolphin to a blue whale.

“Blue whales are the strongest and it is due to their massive size,” says Mr Logan.

The blue whale measured in the study had an estimated body mass of 70,800 kg. It produced a maximum force of 60 kN. Given that blue whales can reach twice this weight, others are likely to be even more powerful.

“Blue whales are capable of generating really large forces, the largest we calculated for any swimming cetacean.”

However the study also reveals that smaller cetaceans are relatively stronger. “When compared to smaller cetaceans [blue whales] produce less force relative to their body size.”

So when body size is taken into account, large whales are actually weaker than dolphins.

The strength of each species may relate to its lifestyle.

Blue whales have the most slender body shape. That generates less drag, allowing blue whales to cruise at high speed. So while they are the absolute strongest, they might require less power relative to their size to overcome drag than smaller, less slender species.

The sperm whale was, perhaps surprisingly, not that powerful compared to other large whales. It is not clear why. But sperm whales have much larger heads than other whales, perhaps leaving less of their body to be devoted to muscle.

Overall, though having greater absolute strength, large whales aren’t that strong relative to their size when compared to some land animals.

For example, an elephant, the largest of the terrestrial mammals, cited by the study had a total body mass of 2,500 kg. It produced a force while running of 27 kN.

“A young minke whale has a similar total body mass but is calculated to produce a force of only 6.4 kN,” says Mr Logan.

“A buffalo had a total body mass of 500 kg and produced a force of 12 kN. In comparison a small pilot whale is calculated to produce only 2.7kN of force.”

“The difference in force output between the terrestrial and marine mammals illustrates a fundamental difference in the kinds of selective pressures these animals are exposed to,” Mr Logan told BBC Earth.

Land animals need to use their skeleton and muscles to support their body mass against the force of gravity, for example, whereas marine mammals are supported by the buoyant force of water.

Despite their great size and power, whales may be helpless when confronted by floating fishing lines.

The researchers also examined the force required to break various lines used in commercial fishing. The breaking strength of each single line is often higher than the forces whales can produce.

“That would suggest they would have an issue breaking out of the line,” says Mr Logan.

Indeed, much of the time, it may be impossible.

<http://www.bbc.com/earth/story/20150529-the-strongest-whale-in-the-world>

THE VAQUITA ON TIMES SQUARE

Save the Whales, founded by mother/daughter duo, Maris Sidenstecker I & II, secured the opportunity to display the Vaquita on Times Square in New York City on a huge 56 foot wide digital banner through July. With over a million people passing by the banner each day, the ability to introduce a huge

new audience to the vaquita at a fraction of the regular cost was compelling. ACS Monterey Bay contributed \$3000 from the targeted Vaquita Fund towards the overall expense. Any additional donations towards the banner is appreciated.

To see the banner in motion, visit http://www.savethewhales.org/vaquita82_Times-Square.html.



Vaquita on display on digital banner in Times Square. (Credit: Savethewhales.org).



DRONES TAKE WHALE SCIENCE TO NEW HEIGHTS

May 30, 2015 — Instead of standing on the shore with binoculars, scientists are turning to drones to monitor wild populations of whales off the US coast.

A hexacopter hovers 40m or more above the ocean, kitted out with a high-resolution camera to record valuable images of these huge beasts.

Researchers can use these pictures to count the whales, but also to study their health and their behaviour.

This will allow a thorough survey of the gray whales living off California.

"We can't put a gray whale on a scale, but we can use aerial images to analyze their body condition - basically, how fat or skinny they are," said John Durban, a marine mammal biologist at NOAA Fisheries.

Gray whales reach up to 15m in length and can live for more than 50 years. The amount of fat that they carry is crucial - especially for a mother nursing a calf.

This is because the beasts don't eat during the long months they spend migrating. So they need a healthy stock of blubber if they are to reach their summer feeding grounds in the Arctic.

Studying the animals from the air allows Dr Durban and his colleagues to compare their size, between different animals but also over time.

"By studying the body condition of females, we hope to connect the dots between conditions in the Arctic one year and calf production the next," he explained. "Ultimately, we're trying to understand how environmental conditions affect the reproductive success of the population."

These whale were hunted nearly to extinction but after legal protection was introduced in the second half of the 20th Century, they recovered. In 1994, the Pacific population of gray whales officially came off the US endangered species list.

This makes them a valuable subject for research - since most other large whales are still threatened or endangered, there are very few opportunities to see how larger populations interact with each other and their environment.

"With gray whales, we're just beginning to understand what a recovered population of large whales looks like," said Dr Durban.

The team has also used drones to look at killer whales off the coast of British Columbia, in Canada.

The height of the hexacopter is a key concern, because whales and other marine species are sensitive to disturbances in their environment. So the contraption is fitted with a precise altimeter to monitor



Blubber is crucial for survival: the skinny mother on the left may not have enough reserves for her to reach the Arctic while nursing her calf (Credit: NOAA).



Dr Durban's team also used drones to observe killer whales - like this family of seven (Credit: NOAA / Vancouver Aquarium).

how high it is. That helps with analysing the pictures, but also means it can keep a safe distance.

The researchers keep their drone at least 40m above the water, and flying at that height requires a special research permit. For amateur drone or wildlife enthusiasts, regulations require a minimum distance of at least 300m.

<http://www.bbc.com/news/science-environment-32935898>

EL NIÑO TRIGGERS TEMPORARY DRIFT GILLNET FISHERY CLOSURE OFF SOUTHERN CALIFORNIA

Jun. 2, 2015 — The National Marine Fisheries Service (NMFS) has announced it will close southern California ocean waters to drift gillnets in order to protect endangered loggerhead sea turtles. This legally mandated closure went into effect June 1 according to regulation and is prompted by current El Niño conditions—warmer than normal ocean waters. The closure will stay in effect until August 31, 2015.

Conservationists support this interim measure to protect the endangered turtles. This action should be part of a larger fishery management change to phase out drift gillnets in the swordfish fishery altogether. Drift gillnets used to catch swordfish tangle and kill many other marine animals wherever they are used off California's coast, and must ultimately be replaced with cleaner fishing gear. These drift gillnets discard, on average, over 60 percent of their catch. In addition to sea turtles, discarded bycatch includes marlins, dolphins, whales, sharks, seals, ocean sunfish, and dozens of other species whose populations are unassessed. The vast majority of air-breathing marine animals drown when captured by these nets.

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“California’s drift gillnet swordfish fishery is deadly for all kinds of marine wildlife, so this closure will offer temporary relief as warm waters bring sea turtles to our shores in search of food,” said Geoff Shester, California campaign director with Oceana. “Ultimately, this dirty fishing gear needs to be replaced with cleaner fishing methods.”

In El Niño events, endangered loggerhead sea turtles follow the warmer than usual waters off southern California in search of food such as pelagic red crabs. Once here, the turtles are at risk from entanglement in drift gillnets used to catch swordfish. When El Niño is occurring or forecasted, the more than 25,000-square-mile Pacific Loggerhead Conservation Area (California ocean waters east of 120 degrees latitude) is, by law, closed to drift gillnet fishing from June 1 to August 31 and the public must be notified. Normally found further south in Mexican waters, pelagic red crabs are already being observed this year on Southern California beaches (see image below). The swordfish drift gillnet fishery operates from May 1 to January 31, but over 90 percent of the fishing occurs after August 15.

“The California drift gillnet fishery is among the world’s most destructive,” said Doug Karpa of Turtle Island Restoration Network. “We must keep these

American Cetacean Society
Monterey Bay Chapter

Annual Chapter BBQ Saturday, July 25, 2015

After last year's hiatus, we are ready to celebrate cetaceans at a new venue this year. Please join us for a fun afternoon with great people, good food and a fabulous raffle & silent auction at George Washington Park in Pacific Grove.

What: BBQ and Raffle

Menu includes grilled tri-tip, chicken, sausage, salads, beans, rolls and cake.

Water, soft drinks and coffee

BYOB and table setting

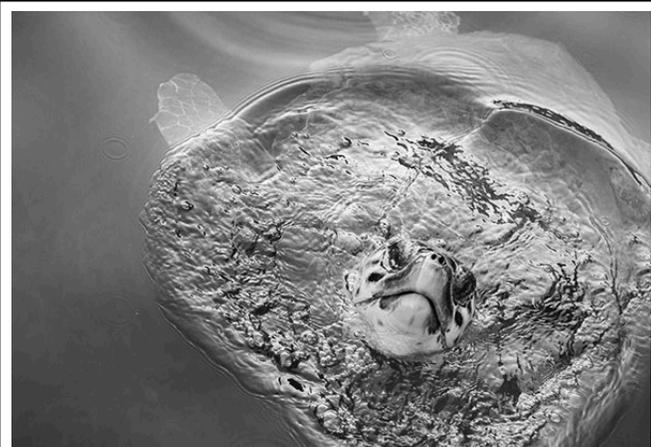
Where: George Washington Park picnic grounds in Pacific Grove

Time: 3-6pm

Cost: Please send payment of \$20 per person to ACSMB, P.O. Box HE, Pacific Grove, CA 93950

Questions? Call the Ternullos at 831-373-4281

www.acsmb.org



(Credit: Seaturtles.org).

massive nets away from the world’s few remaining endangered sea turtles when they are in our waters.”

In 2000, NMFS first announced that the drift gillnet fishery jeopardized the continued existence of loggerhead sea turtles during El Niño years and in 2003 the agency established the Pacific Loggerhead Conservation Area, which was closed for the first time last year from July 25 through August 31. The closure came almost two months late, and only in response to a request from the Center for Biological Diversity, Oceana, and Turtle Island Restoration Network. This year the Agency put the closure into effect on June 1, as required by regulations.

The Pacific Loggerhead Conservation Area closure comes as federal fishery managers prepare for the June 11-16 Pacific Fishery Management Council meeting in Spokane, WA, where the Council will discuss further actions to reduce bycatch in the swordfish drift gillnet fishery, including implementing “hard caps” on the bycatch of sea turtles, whales, and dolphins that would close the fishery if the caps were reached. The Council is also considering the long-term management of the swordfish fishery, including alternative low-bycatch methods to catch swordfish. In particular, recent experimental trials with deep-set buoy gear fished during the day off California have demonstrated that swordfish can be caught profitably with minimal bycatch.

“The high bycatch of iconic ocean species must be capped, controlled and ultimately put to a stop”, said Oceana’s Geoff Shester. “Hard caps should serve as an interim measure while the Council establishes a transition plan to prohibit drift gillnets in this fishery and replace them with cleaner gear types to catch swordfish, such as deep-set buoy gear”.

<https://seaturtles.org/newssection/el-nino-triggers-temporary-drift-gillnet-fishery-closure-southern-california/>

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)
5/31 late pm	30	Humpback Whales
5/31 pm #2	20	Humpback Whales
	5	Killer Whales
5/31 pm	25	Humpback Whales
	400	Long-beaked Common Dolphins
5/31 am	55	Humpback Whales
	1	Minke Whale
	400	Long-beaked Common Dolphins
5/30 late pm	32	Humpback Whales
5/30 pm	60	Humpback Whales
5/30 am	65	Humpback Whales
	250	Long-beaked Common Dolphins
	50	Pacific White-sided Dolphins
	75	Risso’s Dolphins
5/29 pm	50	Humpback Whales
	150	Pacific White-sided Dolphins
	6	Dall’s Porpoise
5/29 am	60	Humpback Whales
	1	Minke Whale
	175	Pacific White-sided Dolphins
	300	Northern Right-whale Dolphins
5/28 am	35	Humpback Whales
	30	Pacific White-sided Dolphins
	100	Risso’s Dolphins
	15	Northern Right-whale Dolphins
5/27 pm	39	Humpback Whales
5/27 am	45	Humpback Whales
	1	Minke Whale
	100	Pacific White-sided Dolphins
	20	Risso’s Dolphins
5/26 pm	60+	Humpback Whales (multiple friendly encounters)
5/26 am	12	Humpback Whales
	1	Fin Whale
	40	Pacific White-sided Dolphins
	20	Risso’s Dolphins
	80	Northern Right-whale Dolphins
5/25 late pm	27	Humpback Whales
	2	Harbor Porpoise
5/25 pm	25	Humpback Whales
	500	Long-beaked Common Dolphins
5/25 am	58	Humpback Whales
	400	Long-beaked Common Dolphins
5/24 late pm	20	Humpback Whales
5/24 pm	35	Humpback Whales
	600	Long-beaked Common Dolphins
	6	Harbor Porpoise
5/24 am	23	Humpback Whales
	1	Killer Whale
	1	Minke Whale
	100	Pacific White-sided Dolphins
	56	Harbor Porpoise
	1	Fur Seal

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American Cetacean Society Membership Application Chapter#24

Membership/Subscription Type: New Gift Renewal

Name _____

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Membership Level _____

Membership Levels and Annual Dues

Lifetime \$1000	Patron \$500	Contributing \$250
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Individual \$45	Student \$35	Teacher \$35
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