Soundings

American Cetacean Society- Monterey Bay Chapter JUNE 2012

PO Box H E, Pacific Grove, CA 93950

INSIDE THIS ISSUE

AMERICAN CETACEAN SOCIETY-
MONTEREY BAY CHAPTER

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

Date: Thursday, June 28, 2012 Time: 7:30 PM.

PLEASE JOIN US AT 7:00 FOR REFRESHMENTS

Speaker: Sean R. Van Sommeran, Executive Director, The Pelagic Shark Research Foundation

Subject: Highlights of the Last 22 Years of Scientific Efforts by The Pelagic Shark Research Foundation

The Pelagic Shark Research Foundation ("Foundation") is a local non-profit that has been around since 1990. Directed by Sean Van Sommeran, the Foundation and has been involved in a broad array of projects investigating mega fauna in the Monterey Bay and surrounding waters. Sean was born and raised in Santa Cruz and his local roots and early life oceanic adventures make him especially suited to carry out interesting research in our local waters.

Our speaker's Highlights Report will include: the first tagging, tracking and 'ID'ing of basking sharks and white sharks in the Monterey Bay National Marine Sanctuary ("MBNMS"); the first tagging and tracking of blue and mako sharks originating in the Monterey Bay and traveling to the eastern Pacific; the first tagging and tracking of sharks from the Monterey Bay north to San Francisco Bay and Humboldt Bay; the recovery of the first specimen of giant squid from Monterey Bay and the MBNMS; and many more interesting and entertaining stories about the activities of this cutting edge, non-profit, research organization.

Please join us for what will surely be a revealing presentation about some of the amazing denizens and visitors of our own Monterey Bay.

See you there,

Bob Mannix, Chair, ACS MB Programs

CALENDAR

July 18: MBARI Lecture. Dr. Mary Silver UCSC Historical Knowledge of Phytoplankton Blooms 3PM Wednesday MBARI Pacific Forum

July 21: 25 Year Anniversary Celebration
12-5pm MBARI Open House

Aug. 4: 9am—1pm Monterey Bay Chapter ACS Summer Whale Watch To See Blue and Humpback Whales Aboard the Sea Wolf. Departs from Fisherman's Wharf. $40 per adult/ $30 per child (15 and under). Sponsored by Monterey Bay Whale Watch. Send payments to 1235 Sylvan Road Monterey, CA 93940. Call Carol Maehr at 373-3752 for information.

Aug 11: ACS Nat'l Fundraiser- Blue Whales: Behemoths of the Deep, Santa Barbara. Boat-Condor Express. Cost $95 includes a Continental Breakfast. For reservations and info please call Kaye Reznick at 310-548-6279

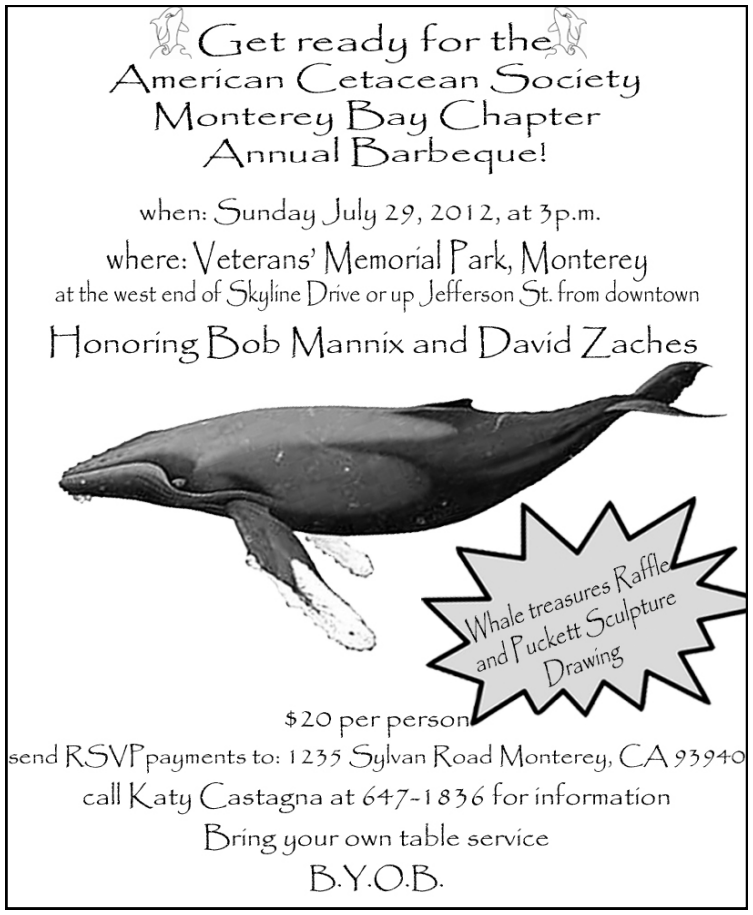
Aug 12-17: The Fifth International Albatross and Petrel Conference. Wellington, New Zealand.

CAMP SEA LAB: Science, Education and Adventure
2012 Sea Camps Include- School of Sharks, Flukes and Flippers, Journey to the Abyss, Girls and Science, Between the Tides and much more. For more info please call Chris at 831-582-3681

Sept 24--30: 2012 Blue Ocean Film Festival & Conservation Summit in Monterey, CA. Blue brings together some of the finest scientist and filmmakers from around the world for 6 days in Monterey to try and find solutions to our oceans most urgent problems

SUPPORT THE DOLPHIN DASH!
WHAT: 3rd annual Dolphin Dash 50-mile fundraiser run to support ACS registration fees and travel/ lodging to-and-from the International Whaling Commission, located in Panama City, Panama, July 2-July 6, 2012. Executive Director Cheryl McCormick will be running solo and will be attending the IWC on behalf of ACS.
WHERE: The Dolphin Dash begins at 5 a.m. from Embassy Suites, Monterey Bay. The course runs to Carmel Valley and returns to the starting point for a total of 50 miles.

WHEN: Thursday, June 28, 2012
HOW: Blood, sweat, and tears... we're earning it the old-fashioned way!
Members and supporters can make a contribution to the Dolphin Dash in one of three ways:
1) Writing a check to ACS Headquarters, P.O. Box 1391, San Pedro, CA 90733-1391;
2) Writing a check to ACS-MB with "Dolphin Dash" in the memo line;
3) By visiting the ACS website homepage (www.acsonline.org) and clicking on "Support Cheryl's 50 Miles to IWC" below the Dolphin Dash logo



NEW SENSE ORGAN HELPS GIANT WHALES TO COORDINATE THE WORLD'S BIGGEST MOUTHFULS

The world's largest animals have been hiding something. The bodies of the giant rorqual whales—including the blue, fin and humpback—have been regularly displayed in museums, filmed by documentary makers, and harpooned by hunters. Despite this attention, no one noticed the volleyball-sized sense organ at the tips of their lower jaws. Nicholas Pyenson from the Smithsonian Institution is the first, and he thinks that the whales use this structure to coordinate the planet's biggest mouthfuls.
The rorquals sieve tiny prey from the water with a unique hunting technique called lunge feeding. They surge forwards, open their mouths and swallow everything in front of them. This seemingly simple tactic is one of the most extreme in the animal kingdom. In one move, a lunging fin whale can engulf a volume of water that's bigger than its own body. Its bigger cousin – the blue whale – can swallow half a million calories in one gulp.

Here's what happens in slow-motion prose. A hunting rorqual detects the movements of their prey with pressure-sensitive whiskers on the underside. It accelerates to high speed and opens its mouth to almost a right angle. The two halves of its lower jaw – the largest bones that ever existed – are connected to its skull by flexible joints, and their tips aren't fused together. This allows them to swing outwards, widening the mouth.

As water floods in, the mouth balloons out. Blubbery pleats that run along the underside of the whale's throat allow it to expand without tearing (the name 'rorqual' comes from the Norwegian for 'furrow whale'). The tongue (which, in a blue whale, is the size of an elephant) inverts into a large flattened sac, partly retreating through the floor of the mouth. This creates more room. In just a few seconds, the whale has transformed from "a cigar shape to the shape of an elongated, bloated tadpole". Finally, the whale closes its gigantic mouth. The pleats contract and the tongue pops back into shape, pushing the engulfed water against bristly plates of baleen hanging from the roof of the mouth, and sieving out any tasty morsels.

DISCOVERING A NEW ORGAN

Pyenson thinks that the new sense organ helps to coordinate this process. Together with Bob Shadwick, he discovered the structure by dissecting a dozen fin and minke whales, and by placing the jaws of one specimen in medical imaging scanners. "We had no idea what to make of it when we first saw it," says Pyenson. "It's a bit messy and gooey in life. Imagine a gel-filled balloon-like structure lodged between two telephone poles."

The organ was mentioned by Paul Brodie in 1993, but he interpreted it as a ball-and-socket joint. Pyenson disagrees. The gel around the organ contains many blood vessels and nerve endings, which come from a structure in the jawbone that was once the tooth socket of the first incisor, back when these whales still had teeth. These traits mark it out as a sense organ, and Pyenson thinks that it helps the whales to control the movement of their jaws during their titanic lunges.

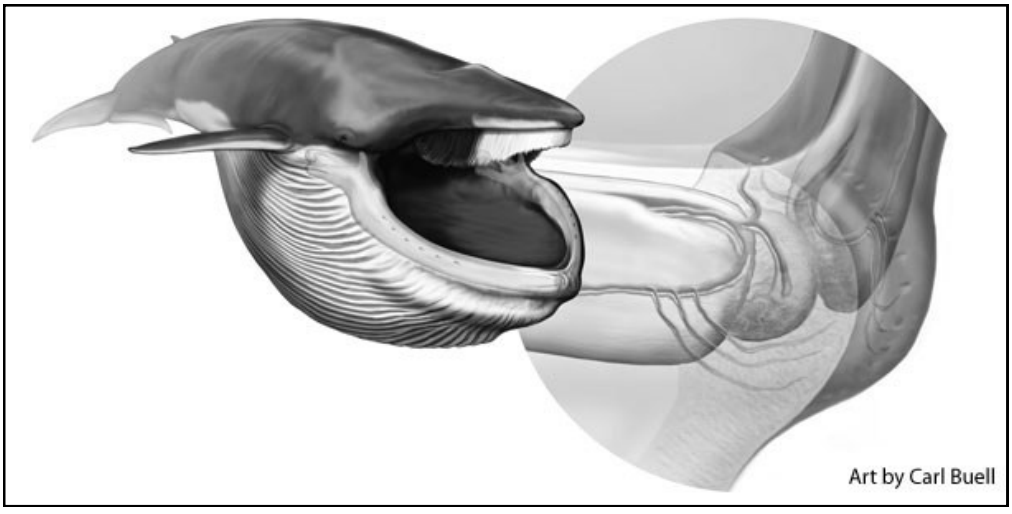
Lunge-feeding isn't a passive process, where the incoming water inflates the mouth like a parachute. If that was the case, simulations show that either the whale's mouth would experience "catastrophic blow-out", or the water would just rebound back out. Obviously, that doesn't happen—the oceans aren't littered with ruptured rorquals. Instead, the whale actively uses muscles in it mouth to push water forward during a lunge. This seems counterintuitive, but it smoothes out the drag forces acting upon the mouth, and prevents prey from clogging up the baleen.

To coordinate this, the whale needs to gauge what's going on in its mouth. Nerves in its pleats certainly help, but the newly discovered organ provides the clincher. It sits in a spherical cavity at the front of the mouth, nestled snugly between the disconnected halves of the lower jaw. It also rests on top of a Y-shaped piece of cartilage, which extends back along both sides of the jaw .It's in a prime position, connected up to the hard and soft parts of the whale's mouth, and wired into to its brain.

During a lunge, the organ picks up signals from the jawbones, which compress it as they swing outwards. It also gets signals from the Y-shaped cartilage, which bends as the mouth expands. "A sense of stretch isn't new, but a gross organ devoted to this sense is unique," says Joy Reidenberg, a whale anatomist who appears on Inside Nature's Giants. "It's very exciting work!"

SECRETS STILL UNTOLD

This organ is unique to the rorquals. Other baleen whales, like the bowhead and right, don't have it. This means that it evolved in conjunction with the lunge-feeding lifestyle, or just before it. Either way, it was part of the



adaptive apparatus that allowed these animals to grow enormous on a diet of tiny.

Erich Fitzgerald, who studies whale evolution at Museum Victoria, says that the next step is to get some data on how the organ is used during feeding. For example, why do the nerves running into the organ only come from one of the two jawbones, making it the only asymmetric part of the rorqual's entire body? No one knows, but Pyenson notes that rorquals often roll to one side when they gulp. Perhaps whales with nerves coming in from one side might prefer to feed on that side. "We'll admit that it's a bit suggestive and speculative," he says.

It might be surprising that such familiar animals still hold secrets, but there is much we don't know about the giant whales. "Whale anatomy is really an opportunistic venture," says Pyenson. "Even if you are lucky enough to find a carcass cast ashore in decent condition, you may not have the tools at your disposal to investigate everything properly. I wouldn't be surprised if more strange tissues and organs were discovered."

Fitzgerald agrees. "We still have so much to learn about the basic biology of some of the most storied, controversial, popular and enormous animals on Earth," he says. "There is still much to learn from investigating the fundamentals of anatomy and natural history—sciences that are as relevant and dynamic today as they were in the 18th century. The great days of zoological exploration are clearly not yet done!"

OVER 30 YANGTZE PORPOISES FOUND DEAD IN CHINA AS POPULATION NEARS EXTINCTION

Jeremy Hance, mongabay.com May 01, 2012

Six years after the Yangtze river dolphin (*Lipotes vexillifer*), or baiji, was declared "functionally extinct" by scientists, another marine mammal appears on the edge of extinction in China's hugely degraded Yangtze River. In less than two months, 32 Yangtze finless porpoises (*Neophocaena asiaeorientalis asiaeorientalis*), a subspecies of the finless porpoise, have been found dead in Dongting and Poyang Lakes in the Yangtze, reports the World Wide Fund for Nature (WWF).

The porpoises are suffering from many of the same impacts that pushed the baiji to extinction: illegal electrofishing, strikes by boat propellors, poisons, and possibly pollution and food shortages from lower water levels linked by officials to climate change. Autopsies show that at least two of the animals were killed by electrofishing and boat propellers.

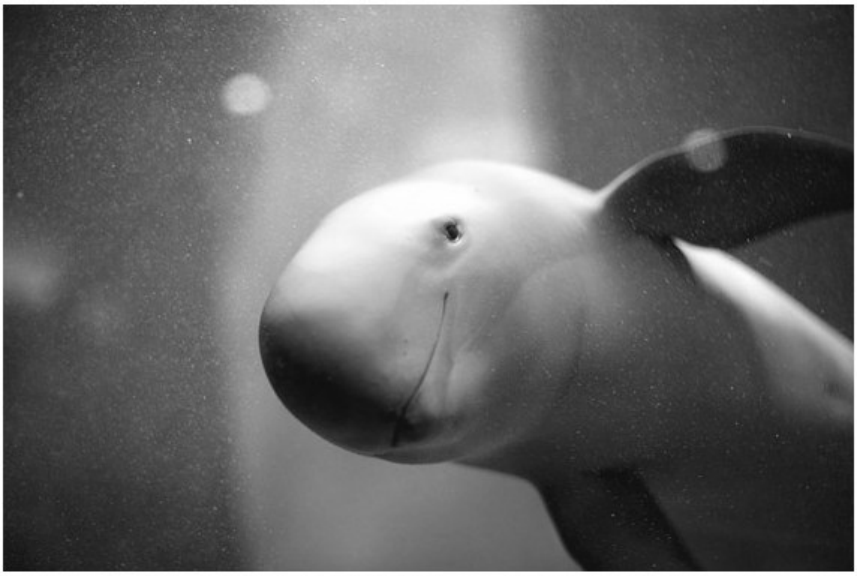
"This tragedy shows that Yangtze finless porpoise is facing enormous challenges," Lei Gang, head of WWF China's Central Yangtze program, said in a press release. "The porpoise deaths illustrates that without effective measures to fundamentally reverse the trend of ecological deterioration, future of the incredible creature is far from certain. We have to act immediately."

Researchers believe that around 1,000 Yangtze finless porpoises survive in the river with the population in dramatic decline. Currently, the IUCN Red List is evaluating the subspecies to see if the situation warrants classifying the population as Critically Endangered.

Breakneck development, including a series of dams, with little environmental regard has left the ecology of the Yangtze River in shambles. Aside from the baiji's extinction, many of the river's key species are vanishing. The Chinese paddlefish (*Psephurus gladius*), arguably the world's biggest freshwater fish, is listed as Critically Endangered with only two fish confirmed since 2002. Scientists fear the fish may be soon gone for good, if not already, after a 2009 survey couldn't find a single fish. In addition the Chinese alligator (*Alligator sinensis*), the Yangtze sturgeon (*Acipenser dabryanus*), and the Yangtze soft-shell turtle (*Rafetus swinhoei*) are all listed as Critically Endangered.

Still, a controversial new hydroelectric project, the Xiaonanhai Dam, is moving ahead despite concerns that it will finish off a number of the river's endangered fish, many found no-where else in the world. The looming mass extinction of the Yangtze River's key species and widespread environmental degradation has left fishermen bereft of livelihoods on the once plentiful river. A report in 2007 by China's State Environmental Protection Administration (SEPA) found that 30 percent of the Yangtze river's tributaries are "seriously polluted" and 600 kilometers of the river is in "critical condition". Such degradation has lessened the river's annual fish harvest 77 percent from the 1950s to the 1990s. Pessimistically, the SEPA report called the damage to the Yangtze River "largely irreversible."

Despite such challenges, WWF and local Chinese



There are two subspecies of the finless porpoise, one is found in the Yangtze River, the other in Japan, Taiwan, and South Korea. This individual is the latter and was photographed in a Japanese aquarium. Photo by: Kenichi Nobusue.

authorities hope it's not too late to save the Yangtze finless porpoise. The local government is working on a plan to better regulate fishing and traffic in the porpoise's habitat, meanwhile conservationists are also mulling a plan to move some of the porpoises to a more secure ecosystem.

ELEPHANT SEAL TRACKING REVEALS HIDDEN LIVES OF DEEP-DIVING ANIMALS

May 15, 2012 in Biology & Nature

Researchers at the University of California, Santa Cruz, who pioneered the use of satellite tags to monitor the migrations of elephant seals have compiled one of the largest datasets available for any marine mammal species, revealing their movements and diving behavior at sea in unprecedented detail. A new study published May 15 in the journal *PLoS ONE* focuses on the annual migrations of adult female elephant seals, with data from nearly 300 animals. The results show elephant seals traveling throughout the entire northeast Pacific Ocean on foraging trips in search of prey such as fish and squid.

"This work is unprecedented in terms of the number of animals tracked. For the first time we can truly say that we know what the elephant seal population is doing," said Daniel Costa, professor of ecology and evolutionary biology and leader of the elephant seal research group at UC Santa Cruz. "This represents the efforts of a large number of graduate students, postdoctoral researchers, and undergraduate volunteers who have all worked very hard to make this happen."

The researchers found that individual seals pursue a variety of different foraging strategies, but most of them target one oceanographic feature in particular--a boundary zone between two large rotating ocean currents, or gyres. Along this boundary, the cold nutrient-rich waters of the sub-polar gyre in the north mix with the warmer waters of the subtropical gyre, driving the growth of phytoplankton and supporting a robust food web. Presumably, this leads to a concentration of prey along the boundary, said Patrick Robinson, a postdoctoral researcher in Costa's lab and lead author of the paper.

"The highest density of seals is right over that area, so something interesting is definitely going on there," Robinson said.

Previous studies by Costa and other participants in the Tagging of Pacific Predators program have shown that this boundary zone is important for a wide range of marine predators, including elephant seals, sharks, tuna, and albatrosses. A surface feature associated with the boundary zone, caused by blooms of phytoplankton, is detectable in satellite images, but it moves seasonally as much as 1,000 kilometers to the south. The deep-diving elephant seals do not follow this surface feature, but continue to target the deep boundary zone between the two gyres.

Smaller numbers of female elephant seals feed in coastal regions, pursuing bottom-dwelling prey along the continental shelf, or in other areas outside of the boundary zone such as around seamounts. Among these is a large female that feeds near Vancouver Island and holds the record for deepest recorded dive by an elephant seal. The data analyzed in the *PLoS ONE* paper include one dive to 1,747 meters (5,765 feet, well over a mile), and the same seal dove even deeper on a more recent foraging trip, reaching 1,754 meters (5,788 feet), Robinson said.

Female northern elephant seals make two foraging trips every year. After the breeding season in February and March, they head out to sea for two months before returning to the rookery to molt. Then they leave on a long post-molting migration that often lasts eight months, from June to January. The amount of food a female is able to find on these foraging trips directly affects her breeding success and, if she gives birth, her pup's growth rate and chances of survival.

"If foraging is not good, the pups are smaller at weaning because the females produce less milk," Robinson said.

In addition to tracking the foraging migrations, the researchers monitor the health of the seals and track birth rates over time. Tags are attached harmlessly onto the animals' fur and recovered when they return to the rookery. Before and after each migration, the researchers get weights and blood samples from the tagged seals, which always return to the same rookery. The tags used today are far more sophisticated than the first ones deployed by UCSC researchers in the 1980s. Current devices, used on a subset of the seals in this study, can capture an animal's location, swim speed, and depth and duration of dives, as well as the temperature and salinity of the seawater and how that changes with depth.

Most of the animals in this study were tagged at the rookery on Año Nuevo Island, where UCSC researchers have been studying elephant seals for decades. But the study also involved a collaboration with researchers in Mexico to tag elephant seals at Islas San Benito, which is 1,150 kilometers (690 miles) southeast of Año Nuevo. "A lot of those animals travel much further to get to foraging areas in the north, so they might spend an extra week traveling, and we wanted to see how that affects them," Robinson said. "The animals from San Benito that do go up to feed at the boundary zone do fine, but we also found that many of them stayed closer to home, feeding along the continental shelf, and they were successful too."

These findings highlight the adaptability of elephant seals, suggesting that they may be able to withstand environmental perturbations such as climate change because the population is not dependent on a single foraging strategy.

This research is also providing valuable oceanographic data. While ocean surface temperatures can be measured by satellites, oceanographers have limited temperature data from deep waters. Costa's group has organized the temperature data collected by the elephant seals into a format that oceanographers can use and uploaded it

to the World Ocean Database, providing millions of ocean temperature data points not otherwise available.

In addition to Robinson and Costa, the coauthors of the paper include Daniel Crocker, a longtime collaborator who earned his Ph.D. at UCSC and is now a biology professor at Sonoma State University; Juan Pablo Gallo-Reynoso at Unidad Guaymas in Sonora, Mexico; UCSC graduate students Cory Champagne, Melinda Fowler, Chandra Goetsch, Kimberly Goetz, Jason Hassrick, Luis Huckstadt, Jennifer Maresh, Sarah Peterson, and Nicole Teutschel; UCSC postdoctoral researchers Sara Maxwell, Birgitte McDonald, and Stella Villegas-Amtmann; Carey Kuhn of the National Marine Mammal Laboratory in Seattle; Samantha Simmons from the Marine Mammal Commission; and Ken Yoda of Nagoya University in Japan.

This project was supported by the Office of Naval Research, the International Association of Oil and Gas Producers, gifts from Steve Blank, the Rebecca and Steve Sooy Graduate Fellowship in Marine Mammals, and the Ida Benson Lynn Chair in Ocean Health.

DNA Fingers Real-Life Captain Ahabs for Precipitous Decline of Gray Whales

By Katherine Harmon | May 9, 2012

Tens of thousands of whales were slaughtered each year for decades from the mid 1800s to the early 1900s, in the service of lighting city streets, painting ladies' lips and providing multitudinous other modern conveniences. This monomaniacal hunt led many species to the brink of extinction. But recent research has suggested that gray whale (*Eschrichtius robustus*) populations in the Pacific might have already been on their way down. So are the real life Ahabs really off the hook—at least for the gray whale's plight?

Getting a picture of pre-whaling whale populations is tricky. Early- and mid-19th century population estimates and whaling records can be as convoluted as Queequeg's tattoos. And attempting to estimate ancient populations by assessing contemporary populations' DNA relies on assumptions that do not always hold water.

Historic data estimated the pre-1850 gray whale population to be somewhere between 15,000 and 20,000, whereas genetic estimates puts that number at 19,500 and 35,500.

A more solid tale of whale populations and their distributions is of interest not just to historians but also to policy-makers seeking insights into restoring contemporary gray whale populations, which are still less than a third of what they likely once were. So scientists have been curious to get a sense of how many of these Pacific whales there really were.

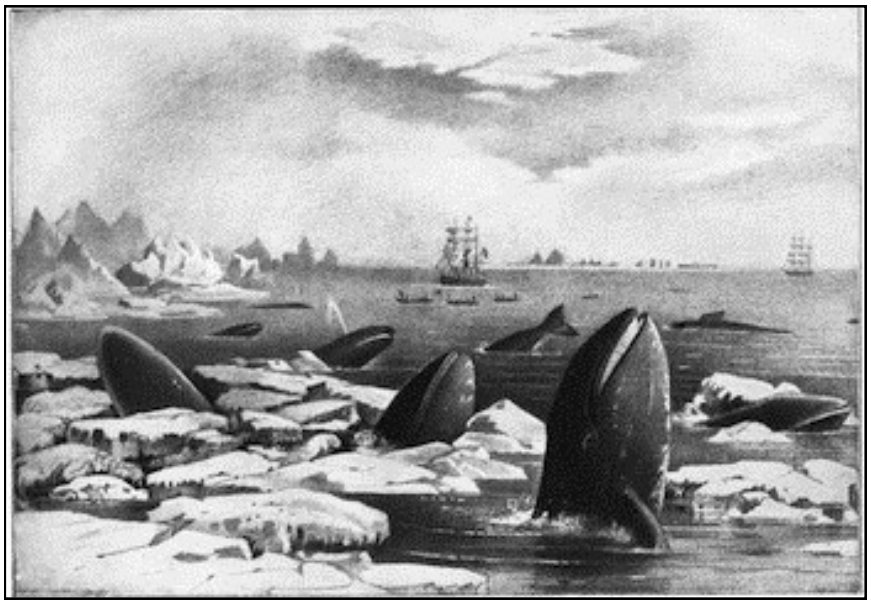
A team led by Elizabeth Alter, of Stanford University's Hopkins Marine Station, undertook an effort to set the record straight. They harvested DNA from gray whales captured or beached along the northern Pacific coasts of the U.S. and Canada both recently and historically. The researchers compared contemporary whale DNA to that sampled from whalebones uncovered at archeological digs of indigenous fishing villages that ranged from 150 to 3,500 years old.

According to the analysis, there was, indeed, a severe population bottleneck. But it didn't happen before the *Pequod*s of the world set out for their cetacean prizes. So it probably wasn't the "Little Ice Age" (cooling from 1300 to 1850), predation from killer whales (*Orcinus orca*) or increased hunting by indigenous populations that took the gray whale to the edge of evolutionary obscurity.

The new genetic data reveals that this bottleneck probably occurred about 93 years ago (or about six whale generations ago), which would have been in the final furious push of industrialized whaling. During this time, there were only about 9,070 gray whales left in the eastern Pacific. Before that population pinch, the area likely was home to more than 60,000 of these massive, 16-meter-long creatures. The work underscores the difficulties of using modern genetics alone to estimate ancient animal populations.

"Historic baselines for many marine populations [might be] much larger than previously estimated," the researchers wrote in their paper, published online May 9 in *PLoS ONE*.

So, thanks to some clever new analysis, these old whalebones proved worth their salt in helping us understand whale populations in the era before we humans started launching our harpoons. And Melville's characters—and their actual analogues–remain implicated in the crime.



Gray wale, Eschrichtius robustus (page 455). - After Scammon, "Marine Mammals of the North-West Coast of North America,"New York 1874, drawn by P. Neumann/Wikimedia Commons

SIGHTINGS Compiled by Monterey Bay Whale Watch.
For Complete listing and updates see gowhales.com/sighting

Date	#	Type of Animal(s)
6/7 a.m.	15	Humpback Whales
	2	Blue Whales
6/6 a.m.	32	Humpback Whales
	15	Risso's Dolphins
	2	Harbor Porpoise
6/5 a.m.	6	Humpback Whales (with calf)
6/4 p.m.	28	Humpback Whales
	3	Harbor Porpoise
6/4 a.m.	22	Humpback Whales
	2	Minke Whales
	3	Harbor Porpoise
6/3 a.m.	27	Humpback Whales (50+ in the Bay)
	1	Minke Whale
	800	Pacific White-sided Dolphins
	10	Northern Right-whale Dolphins
6/2 a.m.	9	Humpback Whales
	1	Blue Whale
	1	Minke Whale
	200	Risso's Dolphins
	3	Harbor Porpoise
6/1 a.m.	14	Humpback Whales
	1	Blue Whale
	5	Harbor Porpoise
5/31 a.m.	56	Humpback Whales
	1800	Pacific White-sided Dolphins
	300	Risso's Dolphins
	15	Harbor Porpoise
5/30 p.m.	3	Humpback Whales
	20	Pacific White-sided Dolphins
	50	Risso's Dolphins
	5	Harbor Porpoise
5/30 a.m.	20	Humpback Whales
	2	Blue Whales
	5	Killer Whales
	150	Risso's Dolphins
	5	Harbor Porpoise
5/29 a.m.	32	Humpback Whales
	7	Killer Whales (predation on Harbor Seal)
	7	Risso's Dolphins
5/28 a.m.	27	Humpback Whales
	1	Fin Whale
	220	Pacific White-sided Dolphins
	150	Risso's Dolphins
	5	Dall's Porpoise
	6	Harbor Porpoise
5/27 p.m.	25	Humpback Whales
	1	Fin Whale
	20	Risso's Dolphins
5/27 a.m.	35	Humpback Whales
	1	Fin Whale
	80	Risso's Dolphins
5/26 p.m.	22	Humpback Whales
5/26 p.m.	35	Humpback Whales
5/22 a.m.	40	Humpback Whales
	30+	Pacific White-sided Dolphins
	75	Risso's Dolphins
	150	Northern Right-whale Dolphins
	3	Harbor Porpoise
5/21 a.m.	25	Humpback Whales
	600	Pacific White-sided Dolphins
	75	Northern Right-whale Dolphins
5/20 a.m.	5	Humpback Whales
	300	Pacific White-sided Dolphins
	1200	Risso's Dolphins
5/19 a.m.	3	Humpback Whales
	50	Pacific White-sided Dolphins
	50	Risso's Dolphins
5/18 a.m.	2	Humpback Whales
	25	Risso's Dolphins
5/17 a.m.	1	Humpback Whale
	130	Pacific White-sided Dolphins
	5	Risso's Dolphins
5/16 a.m.	2	Humpback Whales
	40	Pacific White-sided Dolphins
	40	Risso's Dolphins
5/15 a.m.	4	Humpback Whales (breaching, tail-slapping)
	6	Killer Whales (including a calf)
5/14 p.m.	22	Humpback Whales
	2	Killer Whales
	20	Risso's Dolphins
5/14 a.m.	26	Humpback Whales
	2	Killer Whales (hunting sea lion)
	3	Risso's Dolphins
5/13 a.m.	48	Humpback Whales (75+ in the area)
	2	"Friendly" Humpback Whales
	30	Pacific White-sided Dolphins
	20	Risso's Dolphins
5/12 p.m.	27	Humpback Whales
	20	Risso's Dolphins
5/12 a.m.	27	Humpback Whales
	75	Pacific White-sided Dolphins
	100	Risso's Dolphins
5/11 p.m.	4	Humpback Whales
5/11 a.m.	25	Humpback Whales
	2	Gray Whales
	1	Northern Fur Seal
5/10 p.m.	20	Humpback Whales
	9	Risso's Dolphins
	1	Harbor Porpoise
5/10 a.m.	35	Humpback Whales
	15	Risso's Dolphins
5/9 a.m.	5	Humpback Whales
	20	Pacific White-sided Dolphins
5/8 p.m.	2	Humpback Whales
	75	Pacific White-sided Dolphins
	20	Risso's Dolphins
5/8 a.m.	8	Humpback Whales
5/7 a.m.	25	Humpback Whales
	50	Pacific White-sided Dolphins
	600	Risso's Dolphins
5/6 p.m.	25	Humpback Whales
	60	Risso's Dolphins
5/6 a.m.	65	Humpback Whales (120+ in the Bay)
	1500	Pacific White-sided Dolphins
	2	Harbor Porpoise
5/5 a.m.	45	Humpback Whales (100+ in the Bay)
	1500	Pacific White-sided Dolphins
	200	Risso's Dolphins

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Monterey Bay Chapter
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