

Soundings



American Cetacean Society- Monterey Bay Chapter

JANUARY 2013

PO Box H E, Pacific Grove, CA 93950

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, January 31, 2013 Time: 7:30 PM.

PLEASE JOIN US AT 7:00 FOR REFRESHMENTS

Speaker: Casey T. Clark

Subject: Do all humpback whales migrate?

INSIDE THIS ISSUE

CALENDAR.....	2
GREAT WHITE SHARK ANCESTRY SWIMS INTO FOCUS.....	2
ACROBATIC BLUE WHALES CAN SNEAK UP ON KRILL.....	4
FEDS SCRAP 'DUMB IDEA' OF RELOCAT- ING OTTERS.....	4
IN MEMORY OF RICH STALLCUP & JUDSON VANDEVERE.....	5
FOUND: WHALE THOUGHT EXTINCT FOR 2 MILLION YEARS.....	6
SIGHTINGS.....	7
MEMBERSHIP.....	8

Each year, humpback whales undertake the longest migration of any marine mammal, moving between productive high-latitude feeding areas and low-latitude breeding areas where they undergo lengthy fasts. It has long been assumed that all humpback whales within a population migrate annually. There is, however, a growing body of evidence that this may not be true. Many researchers have reported seeing humpbacks in feeding areas during the breeding season, when they are expected to be elsewhere. Additionally, there is a consistent overabundance of males in the breeding areas, despite a 50:50 overall sex ratio in the feeding areas. This has led researchers to suggest that some females might not undertake the yearly migration, and might instead choose to stay in the feeding area through the winter. My research looks at seasonal use of Monterey Bay by humpback whales, in an effort to understand how and when these whales use this habitat.

CALENDAR

Jan 17-18: ACS National Board meeting, San Pedro

Jan 20, 1– 2pm: Seymour Center at Long Marine Lab Lecture. “Seeing Below the Surface: Using new technology to study the underwater lives of hump-back whales.” Ari Freeland, Marine Ecologist



Jan 26 & 27:
Whalefest 2013.
Celebrate the gray whale migration at Fisherman’s Wharf and Custom House Plaza in Monterey,

9am– 5pm. Volunteers needed! 214-1016

Jan 27, 8-10am: Annual ACS/MB Gray Whale Fundraising Trip with Monterey Whale Watching at #1 Fisherman's Wharf. Meet at 7:30am on the dock to accompany American Cetacean Society experts to view gray whales during the height of their migration. \$25 adults/\$15 under 12. All proceeds benefit chapter research, education and conservation efforts. 419-1051

Jan 29, 12pm-1pm: Hopkins Marine Station Seminars. “The biomechanics and physiological ecology of ram-feeding marine vertebrates.” Jeremy Goldbogen, Cascadia Research Collective

Feb 14-18: American Association for the Advancement of Science 2013 Annual Meeting in Boston

March 8, 12pm-1pm: Hopkins Marine Station Seminars. “Animal phylogenies and what they can tell us about evolution.” Max Telford, University College London

BOOK RECOMMENDATIONS

Planet Without Apes

Craig B. Stafford
2013 Harvard University Press

Great White Shark: Myth and Reality

Photography by Patrice Heraud
Text by Alexandrine Civard Racinais

Mediterranean Great White Sharks: A Comprehensive Study Including All Recorded Sightings

Alessandro De Maddalena

Deep Things out of Darkness: A History of Natural History

John G. T. Anderson
2012 UC Press

The Environmental Legacy of the UC Natural Reserve System

Peggy Fielder, Kathleen Wong, Susan Gee Ramsey
2013 UC Press

GREAT WHITE SHARK ANCESTRY SWIMS INTO FOCUS

By Brian Switek (Published: 11/15/12)

Few predators terrorize our imaginations as fiercely as the great white shark. The immense fish is sublimely attuned to an environment that is alien to us, and, despite the rarity of accidents, the nightmare of slipping down the shark’s throat has obscured the fact that we have done far worse things to these apex predators. And, in a culture where bigger is frequently confused with better, the great white’s prehistoric cousin *Carcharocles megalodon* has gained almost as much fame. A 15-foot-long white shark is imposing enough, but the 50-foot-long version has inspired even more awful novels and blood-soaked B-movies than its living relative.

Today’s *Carcharodon carcharias* and the extinct *Carcharocles megalodon* have often been linked together on account of their teeth. With the exception of

rare vertebrae, that's really all we know of the "megashark." The rest of the shark's cartilaginous frame has never been found, and may forever remain that way. Still, since the triangular, finely serrated teeth of *Carcharocles megalodon* thoroughly resembled the more coarsely serrated teeth of today's great white sharks, some ichthyologists and paleontologists connected the two together as close relatives – if not actually ancestor and descendant. The great white shark could be a dwarfed version of its massive, whale-crunching forerunner, or a very close cousin.

Not everyone has agreed that the two sharks were close kin, though. In fact, recent analyses have underscored a different scenario that drives a wider gap between the two sharks.

The teeth of modern great white sharks are broadly similar to those of *Carcharocles megalodon*, but they differ in the specifics. In detail, great white teeth more closely resemble those of broad-toothed mako sharks, of the sort seen in the fossil species *Carcharodon* (formerly "*Cosmopolitodus*") *hastalis*. Today's great white sharks are more likely modified broad-tooth makos, with *Carcharocles megalodon* falling within a separate subgroup in the same shark family (called Lamniformes) that branched from the great white lineage sometime during the Cretaceous.

A paper just published by Monmouth University paleontologist Dana Ehret and colleagues in *Palaeontology* supports the growing consensus behind the broad-tooth mako link, and does so through the description of a new shark species. Discovered in 1988 within southwestern Peru's Pisco Formation, the previously unrecognized shark species is represented by an absolutely gorgeous specimen – a beautifully preserved set of fossilized jaws, with teeth still in their original positions, and a short string of articulated vertebrae. Following a previous 2009 study of the fossil, Ehret and colleagues have now named the shark *Carcharodon hubbelli* in honor of fossil shark expert Gordon Hubbell. The species appears to be an intermediate form between today's great white sharks and their broad-tooth mako ancestors.

Teeth are the key to the connection. The triangular teeth in *Carcharodon hubbelli* are not quite as serrated as those of the great white shark, for example, but more so than *Carcharodon hastalis*. The newly-named species may

have also been intermediate between the two in its natural history. Based on aspects of the shark's teeth and vertebrae, Ehret and coauthors estimate that the shark was about 16 feet long, and annual growth rings on the vertebrae indicate that the animal was about 20 years old when it perished. In comparison with details of modern white sharks, these details indicate that *Carcharodon hubbelli* grew at a relatively slower pace than its living relative.

While identifying direct ancestors and descendants is extremely difficult, and often impossible, in paleontology, Ehret and collaborators make the case that the three sharks represent a chronospecies – or a single lineage – evolving over time. In this scenario, the smooth-toothed *Carcharodon hastalis* was the ancestor of *Carcharodon hubbelli*, which was the progenitor of the great white shark.

The age of *Carcharodon hubbelli* plays a critical role in this hypothesis. In addition to a detailed review of fossil *Carcharodon* identifications and relationships, the researchers behind the new study also reexamined the geological age of the marine sediments the newly-named species was found in. Previous studies hypothesized that the jaws were those of a modern great white shark that swam Peru's prehistoric coast around four million years ago, but the new analysis suggests an older age – about six to eight million years old.

Based on the age and relationships of *Carcharodon hubbelli*, Ehret and collaborators propose that modern great white sharks evolved in the Pacific Basin. Exactly where the sharks first originated, however, is unclear. The researchers point out that teeth similar to those of *Carcharodon hubbelli* – and, in fact, now assigned to that species by the authors of the new study – have been found in Asia, Australia, and North and South America in deposits of similar age. Now that the species has a name, paleontologists can examine these fossil clues for greater resolution on great white origins. The study is absolutely clear about one thing, though. The great white shark is not simply a pygmy megatooth, and this makes the appearance and biology of our favorite prehistoric leviathan more enigmatic than ever.

References:

- Ehret, D., Hubbell, G., Macfadden, B. 2009. Exceptional preservation of the white shark *Carcharodon* (Lamniformes, Lamnidae) from the early Pliocene of Peru. *Journal of Vertebrate Paleontology*. 29, 1: 1-13
Ehret, D., Macfadden, B., Jones, D., Devries, T., Foster, D., Salas-

Gismondi, R. 2012. Origin of the white shark *Carcharodon* (Lamniformes: Lamnidae) based on recalibration of the Upper Neogene Pisco Formation of Peru. *Palaeontology* 55, 6: 1139-1153

Acrobatic Blue Whales Can Sneak Up on Krill

By Sindy N. Bhanoo

To capture enough food for their enormous bodies, blue whales use an extreme technique called lunge feeding: they take enormous gulps of water, then let it pass through comb-like mouth filters called baleen, keeping krill behind for consumption.

And sometimes, a new study reports, they also do an acrobatic roll to help them capture krill more effectively. Writing in *Biology Letters*, researchers explain that the whales sometimes roll 180 degrees, so their backs face the seafloor as they accelerate and move forward to open their mouths for a lunge.

"They engulf from right beneath the krill patch so they are less likely to be seen," said the study's first author, Jeremy Goldbogen, a comparative physiologist at the Cascadia Research Collective in Olympia, Wash. "This minimizes the escape of the krill."

The whales complete their roll, flipping over another 180 degrees, while filtering water through their mouths.

"The whole process can be finished in about 20 to 30 seconds," Dr. Goldbogen said. That is pretty fast, considering that blue whales are the world's largest animals.

Dr. Goldbogen and his colleagues studied 22 whales living off the coast of Southern California. Only about half used the technique while they were being monitored, and those whales did it only about 10 percent of the time.

"They may be using it in very small krill patches as a way to minimize the krill escape response," Dr. Goldbogen said; when there are dense patches of krill, the acrobatic maneuver may not be necessary.

Dr. Goldbogen believes that other lunge feeders may use the technique as well.

"We haven't observed it yet," he said, "but with more research and more tags we're likely to find it in other closely related whales, like fin whales."

FEDS SCRAP 'DUMB IDEA' OF RELOCATING OTTERS

By Peter Fimrite (Published: 12/18/12)

A federal program that attempted to restrict sea otters to a remote island off Santa Barbara while banning them from most of the rest of Southern California was officially scrapped Tuesday after a 25-year run of failure.

The U.S. Fish and Wildlife Service published its final ruling to end the so-called southern sea otter translocation program and the accompanying "no-otter zone."

Federal officials admitted as far back as 2005 that their efforts to restore California's ravaged sea otter population by relocating the furry creatures to San Nicolas Island had not worked.

"Trying to tell a marine mammal to stay on one side of an imaginary line across the water was a dumb idea," said Steve Shimek, executive director of the Otter Project, which has been fighting against the program for years. "This rule will not only protect sea otters from harm, but because of the otters' critical role in the environment, it will also help restore our local ocean ecosystem."

Between 1987 and 1991, 140 otters were captured and placed on San Nicolas, the southernmost of the Channel Islands, but most of them immediately left the island and returned to their original homes along the central coast. Around 40 otters remain there today.

The southern sea otter, or *Enhydra lutris nereis*, is the smallest marine mammal in U.S. waters. The otters have voracious appetites and love to gobble sea urchins.

As many as 16,000 otters once roamed California



Two sea otters float near Moss Landing (Monterey County) - far away from the relocation area off the coast of Santa Barbara. Photo: Nicole Laroche, UC Santa Cruz / SF

waters, but they were killed by the thousands for their soft, thick fur, which was considered a luxury starting in the late 1700s. They were believed extinct until the 1930s, when about 50 were discovered near Big Sur. The animals, which now number about 2,800, have been listed since 1977 as threatened under the Endangered Species Act.

The San Nicolas plan was proposed in a 1982 Fish and Wildlife Service report called the Southern Sea Otter Recovery Plan. It said a large oil spill could kill all the remaining sea otters and proposed creating a reserve population that could ensure survival of the species in the event of a catastrophe.

Lobbying by sea urchin harvesters and offshore oil interests, however, resulted in a compromise requiring relocation of any otters found between Point Conception, 40 miles north of Santa Barbara, and the Mexican border, including all of the Channel Islands except San Nicolas. The otters ignored the edict, and only a small portion of them were ever captured.

**IN LOVING MEMORY OF
JUDSON EELLS VANDEVERE**

September 15, 1924 ~ December 25, 2012

Naturalist and teacher, Jud Vandevere, died Christmas morning, surrounded by his family, in the home where he had resided since 1956. During those years he taught at Washington Union School, worked as a summer Naturalist at Pt. Lobos, and studied sea otters as a researcher in residence at Hopkins Marine Station.



Throughout his life he remained an avid student of the natural sciences. Always eager to share his passion for the natural world, he mentored dozens of students, many of whom went on to distinguished careers in the sciences; introduced generations of local children and their parents to botany and biology through his popular Lyceum classes; and taught courses on everything from whales, birds and otters to the history of biological exploration in North America for numerous institutions and organizations.

While he will be best remembered for his love of the natural world, he was also a dedicated pacifist and a member of the American Cetacean Society—Monterey Bay Chapter

strong supporter of civil liberties and human rights. A staunch supporter of labor, he was proud to have never crossed a picket line or purchased a boycotted product in his life. As a member of numerous conservation organizations, he worked hard for many decades to convince his environmental allies that the preservation of the planet would ultimately depend on social justice and the end of militarism.

Organizations in which he was actively involved, often as a board member or chair, included the Ventana Chapter of the Sierra Club, the Pt. Lobos League, the United Nations Association, Monterey Pine Forest Watch, the American Cetacean Society, the Audubon Society, the Friends of the Sea Otter, and the California Native Plant Society. He also served as a trustee for the Northern California Nature Conservancy and was a member of the Monterey County Fish & Game Fines Commission for more than 35 years.

He is survived by his wife, Joyce Ryder Vandevere of Monterey; his son, Keith Vandevere of Carmel; his daughter, Gwyn Vandevere of Starnberg, Germany; his sister, Marion Norberg of Seattle; along with grandchildren, great-grandchildren, nieces and nephews.

Donations in memory of Jud Vandevere may be made to Monterey Pine Forest Watch, P.O. Box 505, Carmel, CA 93921 or Friends of the Sea Otter, seaotters.org.

A memorial will be held in July.

**IN MEMORY OF RICH STALLCUP
LEGENDARY BIRD LOVER**

December 17, 2012

Earlier today, Audubon California, Bay Nature, Point Reyes Bird Observatory (PRBO) and other organizations/publications reported the recent passing of PRBO Conservation ornithologist and renowned California birder Rich Stallcup. International Bird Rescue director Jay Holcomb has this remembrance:

In order to protect wildlife and nature, you have to love them. Then, through enthusiastic sharing and teaching about what you love, you can't help but inspire change, both in people's lives and in the policies that protect what you are devoted to.

That is exactly what Rich Stallcup did in his life. His absolute devotion and love for nature, and birds in particular, evoked many changes and taught us about the im-

portant things in life: being in harmony with nature, protecting it and seeing its value and beauty.

Rich passed away last week, and International Bird Rescue would like to recognize his vision, leadership and contribution to nature conservation. Rich was a founder of Point Reyes Bird Observatory (PRBO) and served on its board of directors. He was also president of Western Field Ornithologists, regional editor for *American Birds* and a member of the California Bird Records Committee. Rich published many scientific papers, four books about birds and 60 "Focus" articles in PRBO's newsletter, the *Observer*. From 1976 to 1988, Rich was an owner and tour leader for WINGS birding tours and led many PRBO tours prior to that. In 2002, the American Birding Association presented Rich with the Ludlow Griscom Award for outstanding contributions to American ornithology. In his later years, he served as PRBO's naturalist and worked with the Gulf of the Farallones National Marine Sanctuary Beach Watch Program (in 1998 he was even designated "Star of the Sanctuary" for Cordell Bank).

What a legacy — for the birds in our world and the people who love them. We'll miss you, Rich.

FOUND: WHALE THOUGHT EXTINCT FOR 2 MILLION YEARS

By Tia Ghose

The pygmy right whale, a mysterious and elusive creature that rarely comes to shore, is the last living relative of an ancient group of whales long believed to be extinct, a new study suggests.

The findings, published Dec. 18 in the *Proceedings of the Royal Society B*, may help to explain why the enigmatic marine mammals look so different from any other living whale.

"The living pygmy right whale is, if you like, a remnant, almost like a living fossil," said Felix Marx, a paleontologist at the University of Otago in New Zealand. "It's the last survivor of quite an ancient lineage that until now no one thought was around."

Living Fossil

The relatively diminutive pygmy right whale, which grows to just 21 feet (6.5 meters) long, lives out in the open ocean. The elusive marine mammals inhabit the Southern Hemisphere and have only been spotted at sea a few dozen times. As a result, scientists know almost nothing about the species' habits or social structure.

The strange creature's arched, frownlike snout makes it look oddly different from other living whales. DNA analysis suggested pygmy right whales diverged from modern baleen whales such as the blue whale and the humpback whale between 17 million and 25 million years ago. However, the pygmy whales' snouts suggested they were more closely related to the family of whales that includes the bowhead whale. Yet there were no studies of fossils showing how the pygmy whale had evolved, Marx said.

To understand how the pygmy whale fit into the lineage of whales, Marx and his colleagues carefully analyzed the skull bones and other fossil fragments from pygmy right whales and several other ancient cetaceans.

The pygmy whale's skull most closely resembled that of an ancient family of whales called cetotheres that were thought to have gone extinct around 2 million years ago, the researchers found. Cetotheres emerged about 15 million years ago and once occupied oceans across the globe.

The findings help explain how pygmy whales evolved and may also help shed light on how these ancient "lost" whales lived. The new information is also a first step in reconstructing the ancient lineage all the way back to the point when all members of this group first diverged, he said.



The pygmy whale, a mysterious cetacean that looks radically different from all living whales, is actually the last living member of a group thought to have gone extinct 2 million years ago. Credit: Darryl Wilson, University of Otago

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

Date	#	Type of Animal(s)			
1/8 a.m.	15	Gray Whales	12/16 a.m.	5	Gray Whales
	20	Risso's Dolphins	12/15 a.m.	4	Gray Whales
1/7 p.m.	16	Gray Whales	12/14 a.m.	200	Risso's Dolphins
	20	Risso's Dolphins	12/11 a.m.	1	Male Killer Whale
1/7 a.m.	20	Gray Whales	12/10 a.m.	1	Humpback Whale
	20	Risso's Dolphins	12/9 p.m.	3	Gray Whales
	300	Risso's Dolphins (including calves)		25	Risso's Dolphins
1/6 a.m.	5	Gray Whales	12/9 a.m.	3	Gray Whales
	25	Pacific White-sided Dolphins	12/8 p.m.	40	Risso's Dolphins (nursery group)
	300	Risso's Dolphins	12/8 a.m.	85	Risso's Dolphins
1/5 p.m.	20	Gray Whales (1 breaching)	12/7 a.m.	4	Gray Whales
1/5 a.m.	23	Gray Whales	12/6 a.m.	70	Risso's Dolphins
	100	Pacific White-sided Dolphins	12/5 a.m.	7	Bottlenose Dolphins
	5	Northern Right Whale Dolphins		50	Risso's Dolphins
1/4 p.m.	9	Gray Whales	12/4 a.m.	1	Humpback Whale
	50	Risso's Dolphins		10	Risso's Dolphins
1/4 a.m.	12	Gray Whales	12/3 a.m.	1	Killer Whale
1/3 p.m.	10	Gray Whales		150	Risso's Dolphins
	50	Pacific White-sided Dolphins	11/27 a.m.	30	Harbor Porpoise
	200	Risso's Dolphins		2	Humpback Whales
1/3 a.m.	22	Gray Whales	11/26 a.m.	30	Harbor Porpoise
	50	Pacific White-sided Dolphins	11/25 p.m.	2	Humpback Whales
	200	Risso's Dolphins	11/25 a.m.	2	Humpback Whales ("friendly")
1/2 p.m.	9	Gray Whales		2	Humpback Whales
	20	Risso's Dolphins	11/24 p.m.	2	Risso's Dolphins
1/1 p.m.	22	Gray Whales	11/24 a.m.	2	Humpback Whales
1/1 a.m.	13	Gray Whales		20	Risso's Dolphins
12/31 p.m.	15	Gray Whales	11/23 p.m.	1	Tufted Puffin
12/31 a.m.	15	Gray Whales	11/23 a.m.	30	Risso's Dolphins
	20	Pacific White-sided Dolphins	11/21 a.m.	5	Killer Whales
	100	Risso's Dolphins	11/20 a.m.	1	Humpback Whale
12/30 p.m.	8	Gray Whales	11/19 a.m.	4	Killer Whales (predation behavior)
	50	Risso's Dolphins	11/18 p.m.	2	Humpback Whales
12/30 a.m.	5	Gray Whales	11/18 a.m.	2	Humpback Whales
	100	Risso's Dolphins		10	Pacific White-sided Dolphins
12/29 p.m.	11	Gray Whales		1000	Risso's Dolphins
12/29 a.m.	9	Gray Whales		1000	Harbor Porpoise
	100	Risso's Dolphins	11/17 a.m.	10	Humpback Whales
12/28 p.m.	13	Gray Whales		2	Harbor Porpoise
12/28 a.m.	14	Gray Whales	11/15 a.m.	2	Humpback Whales
	200	Risso's Dolphins	11/14 a.m.	2	Humpback Whales
12/27 p.m.	6	Gray Whales		800-1000	Risso's Dolphins
12/27 a.m.	15	Gray Whales		1	Mola Mola
	20	Risso's Dolphins	11/13 a.m.	2	Humpback Whales
12/24 p.m.	5	Gray Whales	11/12 a.m.	2	Humpback Whales
	20	Pacific White-sided Dolphins		1000	Risso's Dolphins
	50	Risso's Dolphins	11/11 p.m.	1	Humpback Whale
12/24 a.m.	15	Gray Whales		500	Risso's Dolphins
	10	Pacific White-sided Dolphins	11/11 a.m.	1	Humpback Whale
12/20 a.m.	3	Gray Whales		800	Risso's Dolphins
12/19 p.m.	8	Gray Whales	11/10 p.m.	1	Humpback Whale
	70	Risso's Dolphins		500	Risso's Dolphins
12/19 a.m.	7	Gray Whales	11/10 a.m.	2	Humpback Whales
	70	Risso's Dolphins		8	Killer Whales
12/16 p.m.	2	Gray Whales		1000	Risso's Dolphins
				10	Harbor Porpoise

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