

# Soundings



American Cetacean Society- Monterey Bay Chapter

JULY 2013

PO Box H E, Pacific Grove, CA 93950

## AMERICAN CETACEAN SOCIETY

### MONTEREY BAY CHAPTER

#### ANNUAL BARBEQUE!

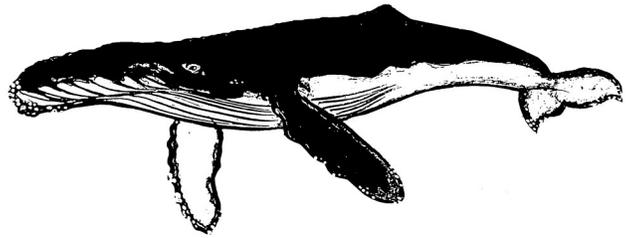
\*\*\**HONORING KATY CASTAGNA*\*\*\*

*FOR DECADES OF SERVICE AS A PREVIOUS NATIONAL CHAPTER PRESIDENT AND OUR TREASURER*

**When:** July 27, 2013 from 3 pm until dusk

**Where:** Veteran's Memorial Park, Monterey

Drive due west on Jefferson St. (up the hill) from the heart of Monterey, our area is on the left. Or take Highway 68 west from Highway 1 to Skyline Forest. Turn right there, go to Skyline Drive and turn left. Skyline Drive will lead you right into the Park. Our area is on the right if coming on Skyline.



**What:** Tri-tip, chicken, veggie burgers, salad, beans, soft drinks, water. Good friends. Fun raffle, so bring some bills.

**Cost:** \$20, under 12= ½ price.

*Please bring your own table service and byob.*

Send payment to reserve your dinners to: ACS, P.O. Box HE, Pacific Grove, CA 93950 (checks to ACS)

Questions: call Sally Eastman 372-6919 or

Jerry Loomis 419-1051

#### INSIDE THIS ISSUE

CALENDAR/BOOK RECOMMENDATION.....	2
NOAA DECIDES AGAINST LISTING GREAT WHITE SHARKS AS ENDANGERED.....	3
DNA STUDY SUGGESTS EXTREMELY RARE TYPE D KILLER WHALE MAY BE NEW SPECIES ..	4
HOW DIVING MAMMALS EVOLVED UNDERWATER ENDURANCE.....	4
HARBOR PORPOISES CAN THANK THEIR WORST ENEMY, THE KILLER WHALE, FOR THEIR SUCCESS.....	5
FIRST BC RIGHT WHALE SIGHTING IN 62 YEARS.....	6
SIGHTINGS.....	7
MEMBERSHIP.....	8

## CALENDAR

**July 20:** 12 noon-5pm: 2013 MBARI's Open House Moss Landing, CA. For a full description of the day's events and lectures go to [www.mbari.org/openhouse](http://www.mbari.org/openhouse)

### UCSC Summer Ocean Sciences Classes At Long Marine Lab

**July 29 to August 30 Summer Session 2**  
Biology of Marine Mammals; Bio 129-01  
Biology of Marine Mammals: Laboratory

**August 10:** ACS National Fundraiser: Blue Whale Watch: Behemoths of the Deep. Santa Barbara, CA 8am-4 pm Vessel-Condor Express. For inquiries contact Diane Alps at (424) 888-4346

### Moss Landing Marine Lab Fall Course Offerings

MLML Classes: Graduate and undergraduate students, as well as community members, can take classes at MLML. Most MLML classes are day-long, usually have a lecture component in the morning and lab in the afternoon, and meet once per week at the main MLML facility in Moss Landing, CA. Most classes are offered for 4 units, so visiting students are encouraged to take no more than one class per semester. Go to <http://gradprog.mlml.calstate.edu/taking-courses> for more information

Monday

MS 135      Physiology of Marine Algae  
MS 285      Graduate Seminar in Marine  
                Science-Topics in Marine Conservation  
                Biology: Large Marine Ecosystems

Tuesday

MS 104      Quantitative Marine Science  
MS 202      Oceanographic Instrumentation

Wednesday

MS 141      Geological Oceanography

Thursday

MS 103      Marine Ecology

MS 142      Physical Oceanography  
MS 274      Advanced Topics in Ocean-  
                ography-Marine Sedimentation

Friday

MS 105      Marine Science Diving

## BOOK RECOMMENDATIONS

About Monterey Humpbacks: Tales of Whales  
by Esta Lee Albright.

A wonderful introduction to the California/Mexico population of Humpbacks that spend their feeding season foraging in the prolific waters of Monterey Bay. This book is written by Esta Lee Albright who spent 20 years as a naturalist with Monterey Bay Whale Watch. She observed and studied Monterey Humpbacks while a naturalist in Monterey Bay. This book offers some of her astute observations about a population of whales that is often overlooked when compared with other populations of humpback whales found around the world. This book will be available at Monterey Bay Whale at the beginning of August.

A Field Guide to the Wildlife of South  
Georgia

(Wild Guides) by Robert Burton and John Croxall. Princeton University Press

Reptiles and Amphibians of the Pacific  
Islands: A Comprehensive Guide.

Written by George R. Zug. 2013 UC Press

Pterosaurs: Natural History, Evolution,

Anatomy

Mark P. Witton. 2013 Princeton University Press

## NOAA DECIDES AGAINST LISTING GREAT WHITE SHARKS AS ENDANGERED



Great white sharks in the northeastern Pacific, including California, are not in danger of becoming extinct, according to NOAA Fisheries, and will not be listed under the Endangered Species Act.

NOAA had consented to consider listing white sharks as endangered in response to two petitions submitted last year. In a news release issued Friday, the federal agency explained that a team of eight scientists determined, based on review of the best available science, that white sharks in the northeast Pacific--from the Bering Sea to Mexico, and westward to Hawaii--have "a low to very low risk of extinction now and in the foreseeable future."

NOAA had consented to consider listing white sharks as endangered in response to two petitions submitted last year. In a news release issued Friday, the federal agency explained that a team of eight scientists determined, based on review of the best available science, that white sharks in the northeast Pacific--from the Bering Sea to Mexico, and westward to Hawaii--have "a low to very low risk of extinction now and in the foreseeable future."

While conservation groups and some in research circles will argue that white shark numbers are low enough to warrant listing--one recent study placed the California population at only 219 adult sharks--others believe that long-standing conservation efforts are working and that the population might actually be increasing.

"I keep saying that the recovery of the white shark population is probably one of California's greatest success stories," said Christopher Lowe, director of the Shark Lab at Cal State Long Beach. "And it's based on the fact that it takes more than just protection of white sharks from fishing mortality back in the mid 1990s to accomplish this."

"It has required improving water quality, restoring prey for juveniles and adults through better fisheries management and protection. Just look at the amazing recovery seal and sea lions have made off California alone!"

The Monterey Bay Aquarium, which has temporarily displayed live white sharks in the past and has participated in research projects with Stanford University and other institutions, issued a statement in which Margaret Spring, vice president of conservation of science, stated:

"The aquarium appreciates NOAA's thorough

review and synthesis of the best available information on great white shark status and threats. We are fully committed to supporting rigorous science, public education efforts and ocean policy reform to ensure that great white sharks do not become more vulnerable in the future.

"For more than a decade, the Monterey Bay Aquarium and our research colleagues from Stanford, UC Davis, CSU Long Beach and other institutions have generated most of the data about adult and juvenile great white sharks in the northeastern Pacific. We will continue this work so we can gain a better understanding of population trends and the overall health of sharks that play a vital role in ocean health."

In California, the Farallon Islands and other Bay Area waters are primary seasonal aggregation spots for adult white sharks. They arrive each late-summer and fall to feed at elephant seal rookeries.

In Mexico, Guadalupe Island west of Baja California is the primary gathering place for white sharks during the same feeding season.

While these are primary aggregation sites, some scientists believe that because of the burgeoning sea lion population off the West Coast, particularly off Southern California, not all adult white sharks need to visit elephant seal rookeries each fall. Thus, it's impossible to formulate an accurate population estimate.

Lowe, who has worked extensively with juvenile sharks off Southern California, cites as contributing factors for what he believes is a growing population: The Marine Mammal Protection Act of 1972; the removal of coastal gill-nets under Prop. 132 in 1990, and a long-standing California ban on fishing for white sharks.

"It's always a good sign when the big predators start to return to coastal ecosystems," Lowe said. "It means we're doing some right to correct for our past abuses of the ocean. Of course, we're not out of the woods yet, as there will always be new emerging problems as a result of an ever-growing human population. But this shows we have the ability to fix things when we put money and political will toward it."

Some of those problems exist in Mexico, and particularly off Baja California, where there is no ban on near-shore netting, and where juvenile white sharks are often caught and killed by fishermen.

--Pete Thomas

<http://www.petethomasoutdoors.com/2013/06/noaa-decides-against-listing-great-white-sharks-as-endangered.html>

## DNA STUDY SUGGESTS EXTREMELY RARE TYPE D KILLER WHALE MAY BE NEW SPECIES

Jun 24, 2013 by Natali Anderson

Scientists led by Dr Thomas Gilbert from the University of Copenhagen have used DNA from a museum specimen collected in 1955 to study what may be a distinct subspecies or species of killer whale (*Orcinus orca*).

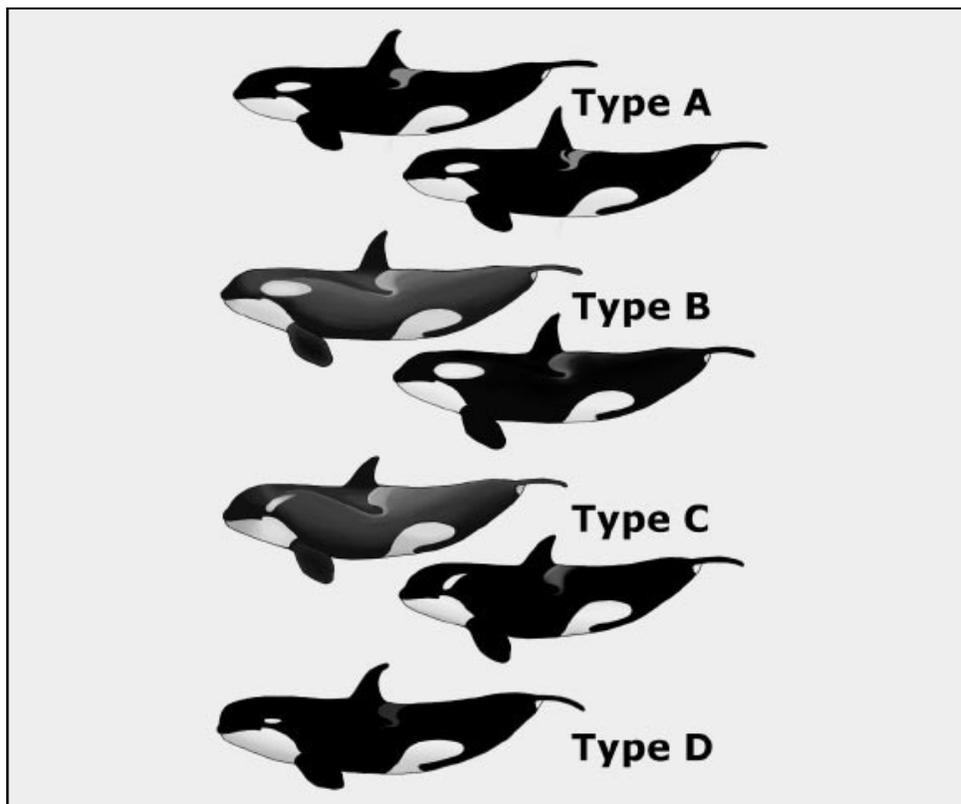
In 1955, a pod of unusual-looking killer whales stranded on a New Zealand beach and a skeleton was saved in a museum in Wellington. Photographs were also taken but it was almost 50 years before this unique form of killer whale, characterized by a very small white eye-patch and bulbous forehead, was documented alive in the wild.

Marine scientists have suspected for some time that there might be more than one type of killer whale, a theory supported by recent genetic studies. The so-called 'type D' killer whale from New Zealand, however, was not included in previous genetic studies because no tissue samples were available.

For the current study reported in the journal *Polar Biology*, the scientists extracted DNA from dried tissue and tooth fragments from the New Zealand skeleton, the only known specimen of type D killer whale.

A complete mitochondrial DNA sequence of the type D specimen was compared to samples of 139 killer whales from around the world. From that, the researchers estimated that type D separated from other killer whales approximately 390,000 years ago, making it the second oldest branch in the killer whale family tree and possibly a separate subspecies or species. "Dramatic changes in global sea level and ice sheet coverage during the Pleistocene may have contributed to the diversification of killer whales."

Bibliographic information: Andrew D. Foote et al. Mitogenomic insights into a recently described and rarely observed killer whale morphotype. *Polar Biology*, published online June, 2013; doi: 10.1007/s00300-013-1354-0



*Types of killer whale. The type D killer whale is immediately recognizable by its extremely small white eye patch, shorter than usual dorsal fin, and bulbous head (Albino Orca / CC BY-SA 3.0)*

## HOW DIVING MAMMALS EVOLVED UNDERWATER ENDURANCE

June 13, 2013 — Scientists at the University of Liverpool have shed new light on how diving mammals, such as the sperm whale, have evolved to survive for long periods underwater without breathing.

The team identified a distinctive molecular signature of the oxygen-binding protein myoglobin in the sperm whale and other diving mammals, which allowed them to trace the evolution of the muscle oxygen stores in more than 100 mammalian species, including their fossil ancestors.

Myoglobin, which gives meat its red colour, is present in high concentrations in elite mammalian divers, so high that the muscle is almost black in colour. Until now, however, very little was known about how this molecule is adapted in champion divers.

Proteins tend to stick together at high concentrations, impairing their function, so it was unclear how myoglobin was able to help the body store enough oxygen to allow mammals, such as whales and seals, to endure underwater for long periods of time

without breathing. Elite mammalian divers can hold their breath for over an hour while they hunt in the depths of the oceans, while land mammals, such as humans, can hold their breath for only a few minutes. Dr Michael Berenbrink, from the University's Institute of Integrative Biology, who led the international team, explains: "We studied the electrical charge on the surface of myoglobin and found that it increased in mammals that can dive underwater for long periods of time. We were surprised when we saw the same molecular signature in whales and seals, but also in semi-aquatic beavers, muskrats and even water shrews.

"By mapping this molecular signature onto the family tree of mammals, we were able to reconstruct the muscle oxygen stores in extinct ancestors of today's diving mammals. We were even able to report the first evidence of a common amphibious ancestor of modern sea cows, hyraxes and elephants that lived in shallow African waters some 65 million years ago."

Dr. Scott Mirceta, PhD student on the project, added: "Our study suggests that the increased electrical charge of myoglobin in mammals that have high concentrations of this protein causes electro-repulsion, like similar poles of two magnets. This should prevent the proteins from sticking together and allow much higher concentrations of the oxygen-storing myoglobin in the muscles of these divers."

"We are really excited by this new find, because it allows us to align the anatomical changes that occurred during the land-to-water transitions of mammals with their actual physiological diving capacity. This is important for understanding the prey items that were available to these extinct animals and their overall importance for past aquatic ecosystems."

The research, funded by the Biotechnology and Biological Sciences Research Council (BBSRC), could also help improve understanding of a number of human diseases where protein aggregation is a problem, such as Alzheimer's and diabetes, and could inform the development of artificial blood substitutes. Dr Berenbrink added: "This finding illustrates the strength of combining molecular, physiological and evolutionary approaches to biological problems and, for the first time, allows us to put 'flesh' onto the bones of these long extinct divers."

*University of Liverpool (2013, June 13). How diving mammals evolved underwater endurance. ScienceDaily. Retrieved July 6, 2013, from <http://www.sciencedaily.com/releases/2013/06/130613142812.htm#>*

## HARBOR PORPOISES CAN THANK THEIR WORST ENEMY, THE KILLER WHALE, FOR THEIR SUCCESS

June 12, 2013 — The harbor porpoise (*Phocoena phocoena*) is a whale species that is doing quite well in coastal and busy waters. They are found in large numbers throughout the Northern Hemisphere from Mauritania to Alaska, and now researchers from the University of Southern Denmark explain why these small toothed whales are doing so well: The harbor porpoise can thank their worst enemy, the killer whale, for their success. Coastal areas are more challenging and potentially dangerous for a small whale. There is a risk of beaching and being caught in a fisherman's net, but there are also benefits. Fish are plentiful and easier to find in coastal waters than in the open sea.

Therefore, coastal waters are attractive for porpoises, and they are extremely skilled at navigating, locating prey and avoiding hazards near the coast. Like other toothed whales porpoises use echolocation for orientation and to detect prey. They emit a constant stream of sonar clicks, which, when these hit a rock, a fish or a ship nearby an echo is sent back to the porpoise. From the echo, the porpoise can distinguish the location of the object and often also can identify the object.

Porpoises can locate even small fish and small objects such as net floats and fine fishing nets. This ability sets them apart from many other toothed whales, which do not have such sophisticated echolocation abilities. The secret of this ability is that the porpoise uses very short clicks and these are higher in frequency than those of many other toothed whales, explains Lee Miller from the Institute of Biology, University of Southern Denmark (SDU).

Porpoise clicks last just a hundred-millionth of a second, and are about 130 kHz. For comparison, a human can hear up to 20 kHz and a dog up to about 60 kHz.

Lee Miller and his colleague Magnus Wahlberg, also from the Institute of Biology, SDU, now believe that they have found an explanation why porpoise clicks are so high in frequency. They point at the porpoise's greatest enemy: the killer whale. This is one of their conclusions in a research article in the journal *Frontiers in Physiology*.

"Over millions of years the porpoise has

evolved its ability to emit very high frequency click sounds that killer whales have difficulty hearing since they cannot hear sounds that are much higher than about 100 kHz. Killer whale hearing is best at around 20 kHz, so it is hard for them to detect a porpoise," explains Lee Miller.

The ancestor of whales emerged about 50 million years ago, and the first toothed whales began to use echolocation about 30 million years ago.

"5-10 million years ago the killer whale emerged and then evolution began to favor the toothed whales that could avoid being captured by killer whales. One way to avoid being eaten was to emit echolocation sounds that were difficult for killer whales to detect -- thus an ability favored by evolution," concludes Lee Miller and Magnus Wahlberg in their research article.

Strange as it may sound, porpoises can thank their worst enemy, the killer whale, that they are doing so well in coastal and busy waters.

But why do many species of porpoises and other small toothed whales emit echolocation sounds at about 130 kHz? Why not click at even higher frequencies?

"These frequencies are the most effective for porpoises. Besides avoiding killer whales, there is another advantage: It is also at these frequencies that natural noise in the ocean is the lowest. Thus porpoises can better hear the echoes from objects and prey when using these clicking sounds," explains Lee Miller.

*University of Southern Denmark (2013, June 12). Harbor porpoises can thank their worst enemy, the killer whale, for their success. ScienceDaily. Retrieved July 6, 2013, from <http://www.sciencedaily.com/releases/2013/06/130612101901.htm#>*

## RIGHT ON! FIRST BC RIGHT WHALE SIGHTING IN 62 YEARS

JUNE 20, 2013 By Scott Wallace, Senior Research Scientist

After 62 years, there's new hope for one of the rarest animals on earth. A lone Pacific right whale has been sighted off the BC coast near Haida Gwaii. This news is about as exciting as it gets for this once abundant giant whale and for all those who care deeply about the survival of critically endangered species.

I studied right whales on the Atlantic side of Canada during my graduate studies at Dalhousie Uni-

versity so I've always been keenly interested in right whale stories. But they were stories, not sightings. I never imagined that a right whale would be seen again in this area of the Pacific.

The entire population of North Pacific right whales was reduced dramatically by hunting, with only a few tens of animals thought to be alive in the eastern North Pacific, and possibly a few hundred in the entire North Pacific. At one time, right whales were abundant throughout the North Pacific, including British Columbia. It is estimated that 26,500-37,000 animals were killed during intensive whaling in the 1800s, mostly by American whalers but also those in British Columbia. Hunting has been banned since 1935.

The fact that this lone whale was observed during one of the Department of Fisheries and Oceans research surveys highlights the importance of continued scientific monitoring of our marine ecosystems. And it speaks to the short sightedness of recent cuts to research programs. Over the last few years several marine research initiatives — from contaminant monitoring to commercial fisheries — have received deep budget cuts or have been abolished altogether.

While it's hard to say why the right whale has come back to our coast now, one thing is certain: our actions are key to the survival of endangered species. And this rare sighting brings us hope that with care-



PHOTO CREDIT: JOHN K. FORD / DFO

ful conservation measures, resilient ecosystems can, indeed rebound.

<http://www.davidsuzuki.org/blogs/healthy-oceans-blog/2013/06/right-on-first-bc-right-whale-sighting-in-62-years/#>

**SIGHTINGS** Compiled by Monterey Bay Whale Watch.

For Complete listing and updates see

<http://gowhales.com/sighting.htm>

Date	#	Type of Animal(s)			
6/23 a.m.	2	Killer Whales			
	50	Risso's Dolphins			
6/22 a.m.	4	Humpback Whales			
7/5 a.m.	1	Blue Whale			
	9	Humpback Whale			
	1	Blue Whales			
	1	Killer Whale (Fat Fin)		120	
7/4 late p.m.	1	Humpback Whale		1	
	1	Blue Whale			
7/4 p.m.	15	Humpback Whales	6/21 p.m.	8	Humpback Whales
	8	Blue Whales		50	Risso's Dolphins
	1	Killer Whale (Fat Fin)	6/21 a.m.	13	Humpback Whales
	35	Risso's Dolphins		200	Pacific White-sided Dolphins
7/4 a.m.	6	Humpback Whales		50	Risso's Dolphins
	32	Blue Whales	6/20 a.m.	7	Humpback Whales
	1	Killer Whale (Fat Fin)		150	Pacific White-sided Dolphins
	10	Risso's Dolphins		20	Risso's Dolphins
7/3 late p.m.	7	Dall's Porpoise	6/19 a.m.	2	Humpback Whales
	1	Humpback Whale	6/18 a.m.	1	Humpback Whale
	1	Blue Whale		2	Blue Whales
7/3 p.m.	10	Dall's Porpoise		10	Pacific White-sided Dolphins
	9	Humpback Whales		20	Risso's Dolphins
	14	Blue Whales		10	Bottlenose Dolphins
	3	Risso's Dolphins	6/17 a.m.	1	Humpback Whale
7/3 a.m.	1	Humpback Whale		1	Blue Whale
	20	Blue Whales		20	Risso's Dolphins
7/2 late p.m.	15	Risso's Dolphins		10	Dall's Porpoise
7/2 p.m.	2	Humpback Whales	6/16 p.m.	2	Blue Whales
7/2 a.m.	3	Humpback Whales		3	Bottlenose Dolphins
	4	Blue Whales		4	Humpback Whales
	40	Risso's Dolphins	6/16 a.m.	3	Blue Whales
	3	Dall's Porpoise		2	Killer Whales (Fat Fin & Stubby)
7/1 late p.m.	1	Humpback Whale		50	Pacific White-sided Dolphins
	20	Risso's Dolphins		260	Risso's Dolphins
7/1 p.m.	10	Harbor Porpoise	6/15 p.m.	10	Humpback Whales
7/1 a.m.	1	Humpback Whale		4	Blue Whales
	10	Risso's Dolphins		200	Pacific White-sided Dolphins
	5	Dall's Porpoise		100	Risso's Dolphins
	5	Harbor Porpoise	6/15 a.m.	15	Humpback Whales
6/30 a.m.	3	Humpback Whales		4	Blue Whales
6/29 a.m.	6+	Humpback Whales		200	Pacific White-sided Dolphins
	18+	Blue Whales		100	Risso's Dolphins
	2	Fin Whales	6/15 a.m.	15	Humpback Whales
	40	Risso's Dolphins		4	Blue Whales
6/27 a.m.	1	Humpback Whale		2	Killer Whales (Fat Fin & Stubby)
	30	Pacific White-sided Dolphins		300	Pacific White-sided Dolphins
6/26 p.m.	1	Humpback Whale		500	Risso's Dolphins
	2	Blue Whales	6/14 a.m.	5	Humpback Whales
	5	Risso's Dolphins		1	Blue Whale
6/26 a.m.	2	Blue Whales		30	Risso's Dolphins
	200	Risso's Dolphins		6	Dall's Porpoise
	10	Northern Right-whale Dolphins	6/13 a.m.	2	Humpback Whales
6/25 p.m.	1	Humpback Whale		1	Blue Whale
	15	Risso's Dolphins		20	Pacific White-sided Dolphins
6/25 a.m.	2	Humpback Whales	6/13 a.m.	2	Humpback Whales
	7	Killer Whales		1	Blue Whale
6/24 p.m.	300	Risso's Dolphins		20	Pacific White-sided Dolphins
6/24 a.m.	2	Killer Whales	6/12 a.m.	6	Humpback Whales
6/23 p.m.	2	Killer Whales	6/11 p.m.	2	Humpback Whales
	25	Harbor Porpoise		50	Risso's Dolphins

American Cetacean Society  
Monterey Bay Chapter  
P.O. Box H E  
Pacific Grove, CA 93950



RETURN SERVICE REQUESTED

Nonprofit  
Organization  
U.S. Postage  
PAID  
Monterey, CA  
Permit No. 338

**American Cetacean Society Membership Application Chapter#24**

New Membership/Subscription \_\_\_ Gift Membership/Subscription \_\_\_  
Renewal \_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_ Email \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Membership level \_\_\_\_\_

**Membership levels and Annual dues:**

Lifetime \$1000 Patron \$500 Contributing \$250

Supporting \$85 International \$55 Family \$55 Individual \$45

Student \$35 Teacher \$35 Senior (62 plus) \$35

Subscription only \* \$15/11 issues (\*not entitled to membership benefits)

Check \_\_\_ Mastercard \_\_\_ Visa \_\_\_ Expiration date \_\_\_\_\_

Signature \_\_\_\_\_

**Make checks payable to: ACS/Monterey Bay Chapter**

**Return to: Membership Secretary, ACS Monterey Bay Chapter**

**P.O. Box H E Pacific Grove, CA 93950**

**Monterey Bay Chapter  
Officers & Chairs, 2013**

Jerry Loomis, *President*  
Richard Ternullo, *Vice President*  
Randy Puckett, *Past Chapter President*  
Diane Glim, *Publicity*  
Katy Castagna, *Treasurer*  
Sally Eastham, *Membership*  
Jennifer Thamer, *Secretary*  
Tim Thomas, *Historian*  
Carol Maehr, *Conservation*  
OPEN, *Programs*  
Rene Rodriguez, *Education*  
David Zaches, Art Haseltine,  
Debbie Ternullo, Thom Akeman  
*Members at Large*

Evelyn Starr, *Webmaster*  
Tony Lorenz, Mary K. Paul, *Editors*  
Email: [tonylorenz@bigbluebay.com](mailto:tonylorenz@bigbluebay.com)  
[soundingsnewsletter@gmail.com](mailto:soundingsnewsletter@gmail.com)