

Soundings



American Cetacean Society- Monterey Bay Chapter

July 2012

PO Box H E, Pacific Grove, CA 93950

Two ACS Monterey Bay Chapter Events this Summer Not to Miss!

Annual Barbecue on July 29 &

Summer Whale Watching Trip on August 4

Get ready for the
American Cetacean Society
Monterey Bay Chapter
Annual Barbeque!

when: Sunday July 29, 2012, at 3p.m.

where: Veterans' Memorial Park, Monterey
at the west end of Skyline Drive or up Jefferson St. from downtown

Honoring Bob Mannix and David Zaches



Whale treasures Raffle
and Puckett Sculpture
Drawing

\$20 per person

send RSVP payments to: 1235 Sylvan Road Monterey, CA 93940

call Katy Castagna at 647-1836 for information

Bring your own table service

B.Y.O.B.

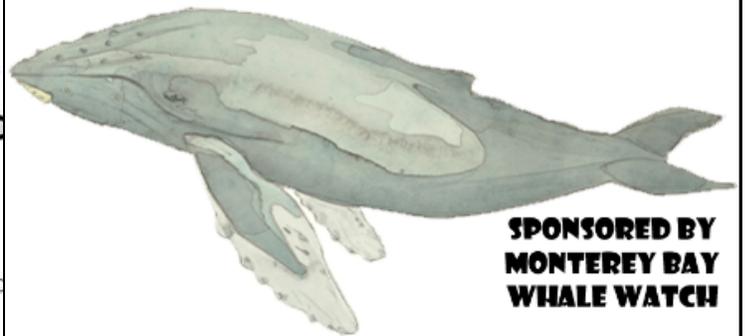
**AMERICAN CETACEAN SOCIETY,
MONTEREY BAY CHAPTER
SUMMER WHALE WATCH TO SEE
BLUE AND HUMPBACK WHALES
ABOARD THE SEA WOLF
(DEPARTS FROM FISHERMAN'S WHARF)**

SATURDAY AUGUST 4, 2012

9 A.M.-1 P.M.

\$40 PER ADULT/

\$30 PER CHILD (AGES 15 AND UNDER)



**SPONSORED BY
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WHALE WATCH**

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CALL CAROL MAEHR AT 373-3752 FOR INFORMATION**

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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 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. 8: Channel Islands Adventure: San Miguel Island. Cost is \$100. For More Info 310-548-7562

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

Nov. 9th-11th: 13th International Conference Of The American Cetacean Society. Whales and Humans: A Conflicted Relationship. San Diego, CA Hyatt Regency, Mission Bay

MEDIA RECOMMENDATIONS

Last Lost World: Ice Ages, Human Origins, and the Invention of the Pleistocene Written by Lydia V. Pyne and Stephen J. Pine. 2012 Viking Press

ZOOBIQUITY: What animals tell us about health and the science of healing. Written by Barbara Natterson-Horowitz, M.D. and Kathryn Bowers

Earth Before The Dinosaurs. Written by Sebastian Steyer. 2012 Indiana University Press

HALT DEADLY CALIFORNIA GILLNET FISHERY EXPANSION

Enough is Enough - Stop the California Drift Gillnet Expansion and End the Curtain of Death

The California drift gillnet fishery for swordfish and shark continues to capture and kill dolphins and sea lions, and to toss back, dead and damaged, 20 to 30 percent of its catch of fish. The capture and deaths of two endangered sperm whales were observed in the drift gillnet fishery in 2010, equal to an estimated total of 16 whales caught and injured or killed in the fishery.

Because the drift gillnet fishery is so deadly to marine life of all kinds, it has been severely restricted. The use of longline gear to catch swordfish along our coast has been completely banned due to bykill of sea turtles. ***Yet federal fishery officials in defiance of longstanding California state policy and conservation laws are trying to expand this unsustainable fishery again!***

Take Action! Tell National Marine Fisheries Service and the Pacific Fisheries Management Council to halt any further action to expand the California drift gillnet fishery for swordfish and shark or to introduce a pelagic longline fishery for swordfish and sharks off the U.S. West Coast.

Send your letters to:

Dan Wolford
Pacific Fishery Management Council
7700 NE Ambassador Place
Suite 101
Portland, OR 97220-1384

Rod McInnis
National Marine Fisheries Service
501 W. Ocean Blvd., Suite 4200
Long Beach, CA 90802



FIRST PATERNITY STUDY OF SOUTHERN RIGHT WHALES FINDS LOCAL FATHERS MOST SUCCESSFUL

SCIENCE DAILY (June 22, 2012) — The first paternity study of southern right whales has found a surprisingly high level of local breeding success for males, scientists say, which is good news for the overall genetic diversity of the species, but could create risk for local populations through in-breeding.

Results of the study, by researchers at the University of Auckland, Oregon State University and the New Zealand Department of Conservation, have just been published in the journal *Molecular Ecology*.

The study found that most of the right whales born near the remote sub-Antarctic islands of New Zealand were fathered by males from the same local population, according to lead author Emma Carroll, who recently completed her doctorate at the University of Auckland.

"This finding gives us information on the breeding behavior of right whales, but more importantly it shows that the New Zealand population is relatively isolated from other populations in the region, including that of neighboring Australia," Carroll said.

In other words, male southern right whales don't get around much -- and that kind of behavior is surprising.

"In other species of mammals, males usually disperse from their place of birth to seek new mating opportunities," said Scott Baker, associated director of the Marine Mammal Institute at Oregon State University, and co-author on the study. "But with right whales, it seems that local fidelity to breeding habitat is strong -- for both males and females."

Southern right whales were hunted to near-extinction by commercial whaling, but some populations around New Zealand and Australia have slowly started to recover. Baker, who works out of OSU's Hatfield Marine Science Center in Newport, Ore., initiated the genetic study of right whales in the region in 1995 in part to assess the likelihood that they could recover.

The New Zealand right whale population had plummeted to fewer than a hundred animals by 1920, from more than 30,000 before Europeans arrived in the late 18th century. The authors estimate that by 1998, the population had increased to about 1,000 individuals. Their newest study sought to determine the connectivity, or isolation, of the regional populations so as to better monitor and manage right whales,

which are listed as a "Nationally Endangered" species in New Zealand.

The paternity analysis has also helped to explain the right whale mating behavior observed in the Auckland Islands, which is also a primary habitat for calving and nursing.

"It is difficult to distinguish social interactions from actual mating in southern right whales," said Carroll, who did her Ph.D. studies under Baker.

"When and where individuals breed has been difficult to judge in this migratory species. By using DNA profiles from mothers and calves to identify likely fathers among males sampled in New Zealand, we now think mating takes place locally rather than during migration or on distant feeding grounds."

Carroll, Baker and colleagues gathered DNA from small skin samples collected during a 15-year period from 34 mother-calf pairs, and more than 300 males -- about 30 percent of the male right whales in New Zealand.

Although they didn't match all of the calves with fathers, the proportion that did match was also 30 percent, consistent with the number of males sampled from the population. The authors then showed that it was highly unlikely that this many paternities would be assigned to local males if males from outside the New Zealand population were fathering calves.

"It is possible, but unlikely, that males from the Aus-



A new study by researchers in New Zealand and at Oregon State University found that southern right whales have a high local fidelity. (Credit: photo courtesy of the Auckland Islands Team)

tralian population have fathered some of the other calves," Carroll said. "We cannot exclude the possibility of the occasional visiting suitor."

Baker, who frequently provides advice to the International Whaling Commission on cetacean conservation genetics, said that although in-breeding could be a problem at very low numbers, local fidelity also has advantages.

"Along with preserving greater overall diversity, local fidelity may allow for habitat specialization and the transmission of cultural memory," he pointed out. "It becomes easier to pass along such things as locations of breeding and feeding grounds."

Although right whales demonstrate fidelity to their own population, the researchers say, they are anything but monogamous. Males compete in "sperm competition" through multiple mating encounters with different females, rather than physical confrontations with each other, as do males in most other species of mammals. This may be why male right whales have the largest testicles in the animal kingdom, the researchers noted in their study -- up to six feet in diameter and weighing as much as a ton.

TOO FEW SALMON IS FAR WORSE THAN TOO MANY BOATS FOR KILLER WHALES

ScienceDaily (June 6, 2012) — Not having enough Chinook salmon to eat stresses out southern resident killer whales in the Pacific Northwest more than having boatloads of whale watchers nearby, according to hormone levels of whales summering in the Salish Sea.

In lean times, however, the stress level normally associated with boats becomes more pronounced, further underscoring the importance of having enough prey, according to Katherine Ayres, an environmental and pet-behavior consultant who led the research while a University of Washington doctoral student in biology. Ayres is lead author of a paper appearing online June 6, in the journal *PLoS ONE*.

In a surprise finding, hormone levels show that southern resident killer whales are best fed when they come into the Salish Sea in the late spring, Ayres said. The Salish Sea includes Puget Sound and the straits of Georgia, Haro and Juan de Fuca. Once there they get a necessary boost later in the summer while eating Chinook salmon at the height of the Fraser River run.

While Fraser River Chinook are an important food source, helping the southern resident killer whales may mean giving additional consideration to spring runs of Chinook salmon off the mouth of the

Columbia River and other salmon runs off the West Coast, if that's where the orcas are bulking up in the spring, Ayres said. "Resident" killer whales are fish-eating orcas, unlike the so-called "transient" orcas that eat marine mammals.

For the study, scientists analyzed hormonal responses to stress that were measurable in whale scat, or poop. Many samples were collected using a black Labrador named Tucker on board a small boat in the vicinity of individuals or groups of whales. Even a mile away, Tucker can pick up on the scent he's been trained to recognize as the fishy smell distinctive to southern resident killer whales, a group of orcas listed as endangered by both Canada and U.S.

"This is the first study using scat-detection dogs to locate killer whale feces," Ayres said. "The technique could be used to collect scat and study stress in other species of whales, always difficult subjects to study because the animals spend 90 percent of their time underwater."

Since the population of southern resident killer whales declined nearly 20 percent between 1995 and 2001, scientists and managers have wondered if the animals weren't thriving because of lack of food, the closeness of boats, toxins built up in their bodies or a combination of all three.

"Behavior is hard to interpret, physiology is easier," said co-author Samuel Wasser, UW professor of biology and developer of the program using dogs like Tucker to detect scat for biological research. "Fish matter most to the southern resident killer whales.

Even if boats are important to consider, the way you minimize that impact is to keep the fish levels high."

It's the same with toxins, Wasser said. The study being published in *PLoS ONE* specifically considered stress caused by inadequate prey and boats. But Wasser said that toxins accumulating in body fat will likely affect killer whales most when food is scarce and they start to use that stored fat, releasing toxins into their bodies when their physical condition already is in decline. When whales are well-fed, toxins should be less of a factor, he said.

In the study researchers examined the level of two hormones to study physiological responses to boat and food stresses.

One type of hormone, glucocorticoids, are released in increasing amounts when animals face immediate challenges, whether it's a shortage of food or the fight-or-flight response when threatened, Ayres said. When whale watching boats and other vessels

were most numerous in the summer, glucocorticoids should have spiked if the whales were bothered. Instead glucocorticoids went down, driven by an increase in the number of Fraser River Chinook.

The other hormone, thyroid hormone, tunes metabolism depending on how much food is available, for example ramping down metabolism to lower the energy an organism expends when food is scarce, Ayres said. Unlike glucocorticoids, thyroid hormone levels do not respond directly to stresses such as boats being nearby. During summers, thyroid levels of Salish Sea whales dipped while they awaited the arrival of Fraser River Chinook, increased again when food became plentiful and declined once again as the Chinook run petered out.

Unexpectedly, the thyroid hormone measures showed the whales were best fed when they first arrive in the Salish Sea, better than at any time in the five months they spent there, Wasser said.

"We assume winter is a lean time, so to come into the Salish Sea at their nutritional high for the year, then clearly they have been eating something -- a very rich food source -- before they arrive," Wasser said. "It appears another fish run is critical to them before they get here."

Some evidence points to the Chinook returning to the Columbia River, although Wasser said that more spring data are needed.

The *PLoS ONE* paper follows a draft report issued May 3 by U.S. and Canadian fisheries experts considering to what extent salmon fishing is affecting the recovery of the southern resident killer whales. Wasser said the report pays too little attention to year-to-year salmon variability, but got it right when it said more needs to be known about what's happening to the whales in the winter and, particularly, in early spring.

Among other things, the report said Chinook stocks are currently harvested at a rate of about 20 percent "so there is limited potential for increasing Chinook abundance by reducing fishing pressure," according to the executive summary. More extreme measures may be required that increase overall Chinook salmon stocks, Wasser said.

"To support a healthy population of southern residents we may need more salmon than simply the number of fish being caught by commercial and sport fishers," Ayres said. "We may need to open up historical habitats to boost wild salmon, such as what is being done with the Elwha River and what is proposed for the Klamath River. That may be the only way to

support the historic population size of southern residents, which is ultimately the goal of recovery." Other co-authors are Rebecca Booth of the UW; Jennifer Hempelmann, Candice Emmons, M. Bradley Hanson and Michael Ford of the National Oceanic and Atmospheric Administration's Northwest Fisheries Science Center; Kari Koski of Soundwatch Boater Education Program and the Whale Museum, Friday Harbor; Robin Baird of Cascadia Research Collective, Olympia; and Kelley Balcomb-Bartok, who helped get the study off the ground through collaboration with the Center for Whale Research.

Draft report: "Effects of Salmon Fisheries on Southern Resident Killer Whales" <http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/KW-Chnk.cfm>



Katherine Ayres handles Tucker as he zeros in on the scent of whale poop. Tucker never goes into the water, he just leans over the bow in the direction the boat should travel. (Credit: Jeanne Hyde)

BLUEFIN TUNA RECORD FUKUSHIMA RADIOACTIVITY

By Jonathan Amos, Science correspondent, *BBC News 28 May 2012* — Pacific Bluefin tuna caught off the coast of California have been found to have radioactive contamination from last year's Fukushima nuclear accident.

The fish would have picked up the pollution while swimming in Japanese waters, before then moving to the far side of the ocean.

Scientists stress that the fish are still perfectly safe to eat.

However, the case does illustrate how migratory species can carry pollution over vast distances, they say.

"It's a lesson to us in how interconnected eco-regions can be, even when they may be separated by thousands of miles," Nicholas Fisher, a professor of marine sciences at Stony Brook University, New York, told BBC News.

Fisher and colleagues report their study in the journal *Proceedings of the National Academy of Sciences*.

They examined the muscle tissues of 15 Bluefin tuna (*Thunnus orientalis*) taken from waters off San Diego in August 2011, just a few months after the accident at the Fukushima Daiichi nuclear plant.

These were animals whose parents would have spawned in Japanese waters and spent one to two years locally before heading to feeding grounds in the eastern Pacific.

All the fish examined in the study showed elevated levels of radioactive caesium - the isotopes 134 and 137.

Caesium-137 is present in seawater anyway as a result of the fall-out from atomic weapons testing, but the short, two-year half-life of caesium-134 means the contamination can be tied directly to Fukushima. There is no other explanation for the isotope's presence.

The measured concentrations were about 10 times the total caesium radioactivity seen in tuna specimens taken from before the accident.

As a control, the team also examined Yellowfin tuna, which are largely residential in the eastern Pacific.

These animals showed no difference in their pre- or post-Fukushima concentrations.

The research is likely to get attention because Bluefin tuna is an iconic species and a highly valuable fishery - thousands of tonnes are landed annually. But consumers should have no health concerns about eating California-caught tuna from last year, the team says.

The levels of radioactivity are well within permitted limits, and below those from other radioisotopes

that occur naturally in the environment, such as potassium-40.

"The potassium was about 30 times higher than the combined radio-caesium levels. If you calculate how much additional radioactivity there is in the Pacific Bluefin tuna caught in California relative to the natural background - it's about 3%," said Prof Fisher.

The scientists even calculated how much radioactivity might have been present in the fish before they swam across the Pacific (it would have fallen over time) and figured it could have been 50% above background levels; but, again, this would still have met the legal requirements for safe consumption.

Tuna caught in the coming months will be subjected to new tests. These animals would have spent much longer in Japanese

waters and so conceivably could have a very different pollution load.

The team also believes the investigation should be extended to other migratory species that frequent Japanese waters.

Fukushima pollution is potentially a very useful tool to trace the origin and timing of animal movements.

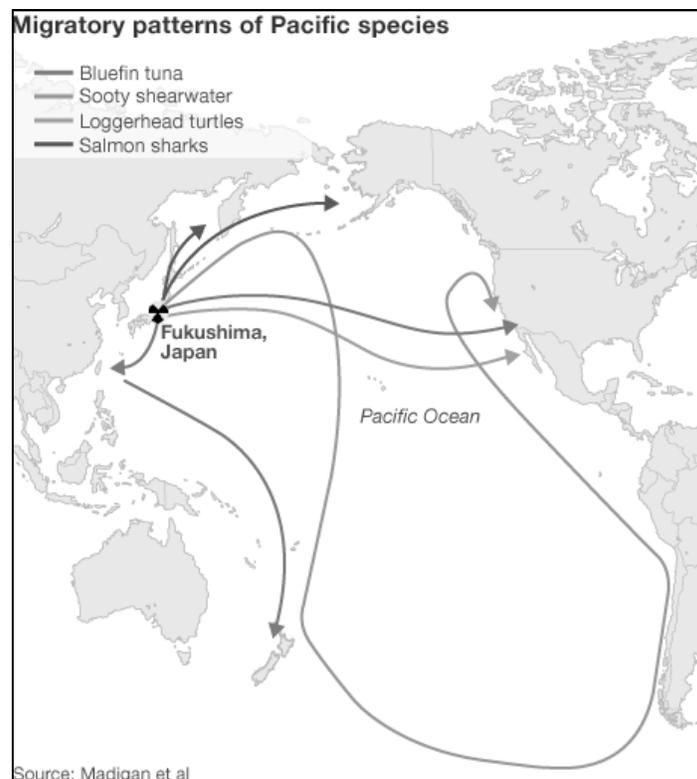
Because of their very predictable decay rates, the caesium isotopes and their ratio to each other can be used like a clock to work out when a particular migration took place.

"There's been a lot of really nice electronic tag-

ging work, but any tag you put on a fish shows you what that animal will do from this point forward. What it can't tell you is about the past, and that's what these tracers can do," explained the study's lead author Dan Madigan from Stanford University.

"The logical next step is to look at other species that do what the Bluefin do... migrate from Japan.

"Right now, we have the sampling in place to look at sea turtles, sharks, other fish, potentially whales, and some seabird species as well. This will give us information about the transport [of the contamination] by the animals and it will tell us about the migratory patterns of the animals," he told BBC News.



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

Date	#	Type of Animal(s)				
7/6 late p.m.	25	Humpback Whales	6/28 p.m.	3	500+	Risso's Dolphins
	3	Blue Whales	6/28 a.m.	3	3	Harbor Porpoise
7/6 p.m.	30	Humpback Whales		14	50+	Blue Whales
	4	Blue Whales		1		Humpback Whales
7/6 a.m.	40	Humpback Whales		20		Blue Whales
	6	Blue Whales	6/27 p.m.	6		Fin Whale
	8	Bottlenose Dolphins		2		Risso's Dolphins
7/5 p.m.	8	Blue Whales	6/27 a.m.	5		Humpback Whales
	150	Risso's Dolphins		15		Blue Whales (50+ in the bay)
7/5 a.m.	40	Humpback Whales		150		Pacific White-sided Dolphins
	12	Blue Whales		200		Risso's Dolphins
	250	Pacific White-sided Dolphins	6/26 a.m.	4		Humpback Whales
	400	Risso's Dolphins		2		Blue Whales
	300	Northern Right-whale Dolphins		1		Blackfooted Albatross
7/4 p.m.	30	Humpback Whales	6/25 p.m.	8		Humpback Whales
	12	Blue Whales		75		Pacific White-sided Dolphins
	2	Minke Whales	6/25 a.m.	10		Humpback Whales
	6	Dall's Porpoise		2		Blue Whales
7/4 a.m.	35	Humpback Whales	6/24 p.m.	10		Humpback Whales
	15	Blue Whales		1		Blue Whale
	1	Minke Whale	6/24 a.m.	20		Humpback Whales ("friendly", breaching)
7/3 p.m.	16	Humpback Whales		300		Pacific White-sided Dolphins
	5	Blue Whales	6/23 p.m.	15		Humpback Whales (very active)
	7	Pacific White-sided Dolphins	6/23 a.m.	45		Humpback Whales (100+ in the Bay)
	10	Risso's Dolphins		2000		Pacific White-sided Dolphins
7/3 a.m.	50	Humpback Whales		75		Risso's Dolphins
	20	Blue Whales (lunge feeding)		400		Northern Right-whale Dolphins
	20	Pacific White-sided Dolphins	6/22 p.m.	15		Humpback Whales
	100	Risso's Dolphins		2		Blue Whales
7/2 a.m.	15	Humpback Whales		115		Risso's Dolphins
	3	Blue Whales	6/22 a.m.	25		Humpback Whales
	30	Risso's Dolphins (with 5 calves)		1		Blue Whale
7/1 p.m.	40	Humpback Whales	6/21 p.m.	8		Humpback Whales
	15	Blue Whales		2		Blue Whales
	30	Risso's Dolphins		1		Fin Whale
7/1 a.m.	60+	Humpback Whales		5		Risso's Dolphins
	40+	Blue Whales	6/21 a.m.	11		Humpback Whales
	75	Risso's Dolphins		400		Pacific White-sided Dolphins
6/30 late p.m.	3	Humpback Whales		150		Northern Right-whale Dolphins
	2	Blue Whales	6/20 p.m.	4		Humpback Whales (2 cows with 2 calves)
6/30 p.m.	35	Humpback Whales		1		Blue Whale
	8	Blue Whales	6/20 a.m.	5		Humpback Whales
	50	Risso's Dolphins		7-8		Killer Whales
6/30 a.m.	65	Humpback Whales		500		Pacific White-sided Dolphins
	20	Blue Whales		100		Northern Right-whale Dolphins
	4	Minke Whales	6/19 a.m.	2		Humpback Whales
	50	Risso's Dolphins		50		Pacific White-sided Dolphins
	12	Harbor Porpoise	6/19 a.m.	3		Humpback Whales
	1	Basking Shark		2		Killer Whales
6/29 late p.m.	4	Humpback Whales		120		Risso's Dolphins
	6	Blue Whales (lunge feeding)		50		Northern Right-whale Dolphins
6/29 p.m.	30+	Humpback Whales		5		Dall's Porpoise
	6	Blue Whales	6/18 p.m.	3		Humpback Whales
	30	Risso's Dolphins		1		Blue Whale
6/29 a.m.	42	Humpback Whales		25		Pacific White-sided Dolphins
	6	Blue Whales		5		Risso's Dolphins
	3	Minke Whales		10		Northern Right-whale Dolphins
	120	Pacific White-sided Dolphins	6/18 a.m.	7		Humpback Whales

American Cetacean Society
Monterey Bay Chapter
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Membership levels and Annual dues:

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

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Officers & Chairs, 2012**

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Evelyn Starr, *Webmaster*
Tony Lorenz, Mary K. Paul, *Editors*
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kmarypaul@gmail.com