

### Coming events:

**May 7 and 15** – Cruise ships in Port Angeles; OCDC open noon to 8:00 p.m.

**May 18** – Brown bag lunch with guest speaker from Puget Sound Pilots Association

**May 20** – Field trip to Cape Flattery and Makah Cultural Center. Contact the office if you are interested in carpooling.

**May 27** – Tidepool exploration at Tongue Point and BBQ at Salt Creek for all new and returning volunteers. Please call or email if you plan to attend.

**May 28** – OCDC open 10:00 to 5:00 daily through Labor Day

**June 2** – Brown bag lunch with showing of “Canoe Way: the sacred journey” in preparation for tribal journeys to Neah Bay in July



Jim acts as an ambassador for the National Marine Sanctuary System in many venues. Whether he is working with students or talking to adults he is developing ocean awareness and promoting ocean literacy principles. Jim and his wife Trish have offered their home to volunteers visiting from Thunder Bay National Marine Sanctuary in July, helping to strengthen ties between our sites.

While many interested people complete volunteer training, only about 50% follow through and work as volunteer docents for more than a few weeks. In contrast, Jim not only completed training, but signed up for one or two volunteer shifts every week that he was in town and not wilderness hiking or kayaking. He would often leave after a shift with a comment such as, “If you need help in the meantime, just give me a call.” And whenever I called in an emergency, he was always there to help in just a few minutes.

All –in–all, Jim is the perfect volunteer – a lifelong learner with avid curiosity about the marine environment, combined with a great “can do” attitude, and outstanding skills in relating to people of all ages. He is a great asset to OCNMS!

### Jim Fedderly – 2010 Volunteer of the Year

Congratulations to Jim Fedderly, OCNMS nominee for the national Volunteer of the Year award. Since Jim completed training in 2009 he has worked over 80 hours in the Olympic Coast Discovery Center and at community outreach events, and also 40 hours with school groups visiting the Port Angeles waterfront for marine science education.

Jim has been tremendously helpful, going far beyond the minimum hours expected of volunteers. He shares his love for and knowledge of the outdoors with visitors of all ages, and is especially good at working with elementary school students.



air or pull an ostrich under the weight of climate change’s evil twin, know that there is help on the way. Researchers the world over are scrambling to better understand the fast emerging phenomenon,...

*You can read the rest of the story by searching online for “Big Seas, Big Trouble” and we also have copies of the full story available in the office, as well as Liam’s PowerPoint presentation.*

**Big Seas, Big Trouble?**  
**Scientists Rush to Understand  
the Perils of Ocean Acidification**

*(Liam Antrim discussed ocean acidification at volunteer training on May 22. Carol asked me to distribute this article to all volunteers as a follow-up to his excellent presentation.)*

There is a new boogeyman haunting our future and the Mother Earth our children will inherit. Odorless and undetectable to the naked eye, this potential scourge has the oceans — and the various critters that live there — in its sights, with tidal waves of possible side-effects threatening to crash into ecosystems and disrupt the economy of coastal communities around the world. The beast is called ocean acidification, and it is as serious as a heart attack.

Feeling the fallout from our nearly three-century-long carbon-crazed energy binge, the oceans — which are the unsung heroes of the carbon-exchange dance that help make life possible on this planet — are having to absorb CO2 emissions raining down from the atmosphere far beyond the scope of what nature can handle. As UCSB professor and renowned ocean-acidification researcher Dr. Gretchen Hofmann said recently, “It is an interesting time to be a scientist. Basically, we are studying a developing disaster.” But before you hopelessly throw your hands in the

**“Two Weeks on Midway Atoll”**  
*reported by Becky and Jim Jewell*

On Saturday, April 10th, Karen Matsumoto gave a presentation on her experiences at Midway Atoll on the northwest end of the Papahānaumokuākea Marine National Monument. She was part of a leadership program that enabled her to live on the island, see and document what was happening to the Albatross and other marine animals due to discarded plastics.



Midway Atoll is a 2 X 2 mile area that consists of Eastern, Sand and Spit Islands. It is a wildlife refuge and home to monk seals, sea turtles, white

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terns, frigate birds, red-footed boobies, red-tailed tropicbirds, and three kinds of albatross: Laysan Albatross, Black-footed albatross, and Short-tailed albatross.



Sea birds only come to land to breed. Birds born on the island go to sea after the first year and do not return for 3-4 years. They come back as singles and spend time trying to find a lifetime mate. Albatross pairs come together each October on the island, mate and the female lays a single egg because it takes both parents to care for and feed just one chick. If one parent is lost, the other will continue to try to raise the chick, but that chick will probably not get enough food and won't survive. If the egg is lost, the parents return to the sea until next year. Mature birds without mates may spend a good part of the year on the island trying to establish a pair bond. Once they have a mate, the two select a nest site before returning to the sea for the rest of the year. They live an average of 50 years.

These birds eat squid, fish, flying fish eggs. They ingest all but the squid beaks and the fish eye lenses. These they regurgitate in the form of a bolus. A bolus is a collection of indigestible materials that is

coughed up by some birds. An albatross bolus may be 2 inches or more in diameter and 5 or 6 inches long. They are made up of squid beaks and other natural materials that cannot be digested and for some reason lots of plastic bits. Most of them the size of a quarter or smaller but they also include things like disposable lighters and toothbrush handles. Unfortunately our oceans are full of this kind of trash and the albatross pick up large amounts of these plastics and some are fed to their chicks. By picking through a bolus scientists can see very clearly what albatross are eating.

It is humans who have added plastics to the albatrosses' menu. When foraging over the open ocean, adult albatrosses unknowingly consume floating plastic (some of which is hidden in algae) and return to feed it to their young. It is possible that albatrosses ingest so much plastic because of their habit of preying on the eggs of flying fish. Flying fish lay long strings of garnet-colored eggs and attach them to objects floating at sea. Up until the invention of plastic, the fish used floating bits of wood and pumice, but now these natural items are outnumbered by floating plastic pieces. As a result, adult albatrosses often take in plastic while gathering fish eggs. Laysan Albatrosses eat greater volumes and more varieties of plastics than any other seabirds. Plastics can comprise up to 50% of the indigestible material in an albatross' intestinal tract, leading to problems such as:

- Satiation, or appetite suppression. Food is displaced by large volumes of plastics, causing dehydration and malnutrition that can eventually lead to death.
- Complication or inhibition of the process of bolus formation and regurgitation.

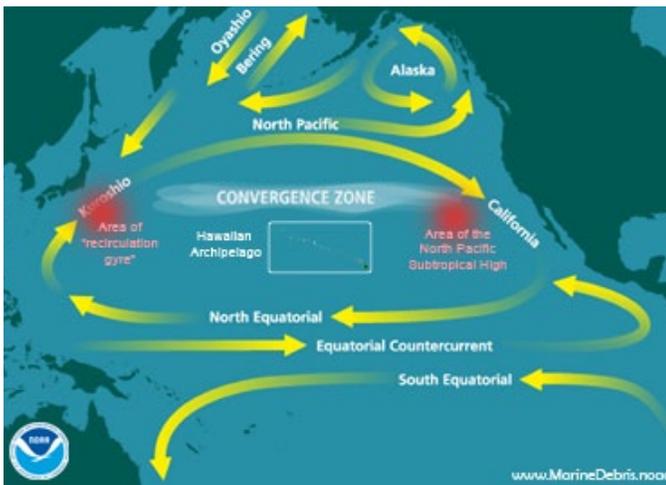
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- Mechanical blockage of the esophagus, stomach or gizzard by large pieces of plastics. Sharp fragments may tear or puncture internal organs, and cause Infections.
- PCB's accumulating on the surface of ocean-borne plastics, partially burned plastics, and synthetic additives may serve as sources of harmful contaminants and toxins.



Karen also discussed plastic sources and their interaction with currents and gyres. Approximately 49% of plastics come from land based sources and 18% from ocean based sources. 33% is from unknown sources. Currents carry them to gyres where they tend to accumulate. The Pacific Gyre that brings plastics to Midway is considered very large and size estimates range from the size of Texas to as large as Africa. Bottle caps make up 50% of the debris that lands or is brought in by birds to Midway.