



# NCSR NEWS

Winter 2008 Vol.5 No.2

NORTHWEST CENTER FOR  
SUSTAINABLE RESOURCES



## Increasing Ocean Science Education Opportunities

By Jan Hodder, Ph.D.

Our need to understand the ocean is daily becoming more apparent. Recent news and events such as the Oregon “dead zone”, declines in fish populations, the acidification of the ocean as a result of increased carbon dioxide in the atmosphere, the development of wave energy facilities, and increased coral bleaching events imply that it is imperative that all people have opportunities to learn about and understand how the ocean functions. Several national reports have called for an increase in educational activities related to our understanding of the ocean. The West Coast Governor’s agreement on ocean health calls for increased ocean awareness and literacy among the region’s citizens and for expanded ocean and coastal scientific information, research and monitoring. One effort to address ocean literacy for a variety of groups is the National Science Foundation (NSF) funded Centers for Ocean Science Education Excellence (COSEE). The eleven COSEE centers, scattered throughout the country, promote partnerships between research scientists and educators, disseminate best practices and products in ocean sciences education, and promote ocean education as a charismatic, interdisciplinary vehicle for creating a more scientifically literate workforce and citizenry.

NSF has recently funded a new COSEE program located at the University of Oregon’s Institute of Marine Biology and involving scientists from Oregon State University’s Hatfield Marine Science Center, Western Washington University’s Shannon Point Marine Center, Humboldt State University



Photo courtesy of University of Oregon

and the University of Hawaii’s Kewalo Marine Laboratory. One of the major goals of COSEE Pacific Partnerships is to provide opportunities for community college faculty and students, an audience traditionally underserved by the ocean community, to increase their understanding of the oceans and learn about opportunities for ocean related careers. Planning is underway to determine how best to accomplish this goal. Initial efforts in early 2008 will involve conducting a needs assessment with Oregon community college staff. Possible outcomes will be faculty professional development opportunities to increase knowledge of current marine research, the development

Continued on Page 4, “Education”

## The Polar Bear on Thin Ice

By Lester W. Reed, Jr., Ph.D.



Photo by Lester Reed July 2007

The polar bear has become the poster child for the impact of global climate change. News stories, photos and even a movie have focused on the plight of this magnificent creature. And rightly so, as it is the first large land predator to face possible extinction as its habitat on the Arctic sea ice disappears. Although an accurate census of the polar bear is not available due to their circumpolar range, it is estimated that 20,000 to 25,000 exist in the wild. Current estimates are the population could diminish by 75% in the next 30 to 50 years and be extinct by the end of the century. Basically, the issue is thinning and availability of sea ice essential to the bear's ability to hunt and develop fat reserves. If the current rate of ice shrinkage and related weight loss continues, bears may become so thin by 2012 that they may no longer be able to reproduce.

"Once the population stops reproducing, that's pretty much the end of it," according to Dr. Lara Hansen, chief scientist, World Wildlife Fund.

In December 2007, responding to the threat and a petition by environmental groups, Interior

Secretary Dirk Kempthorne proposed listing polar bears as threatened. According to the U.S. Fish and Wildlife Service, a decision due in January 2008 has been delayed to "gather further scientific evidence". In its January 7, 2008 announcement the Service said, "The U.S. Fish and Wildlife Service is working diligently to reach a final decision on the proposal to list the polar bear as a threatened species under the Endangered Species Act. We expect to provide a final recommendation to the Secretary of the Interior and finalize the decision within the next month." As of February 19 no decision has been rendered in spite of Congressional pressure for action.

Additionally, the governor of Alaska has challenged the need to list the bear. "The listing of a currently healthy species based entirely on highly speculative and uncertain climate and ice modeling and equally uncertain and speculative modeling of possible impacts on a species would be unprecedented," Governor Palin stated in a letter to Kempthorne. Although scientists and conservation groups have pressed for a positive response to listing the bear as endangered, the most likely result is to list it as threatened, delaying any action to curb causes of global climate change such as reducing U.S. greenhouse gas emissions. A delay also will allow implementation of plans to extend offshore drilling for oil and gas reserves, increased ship transits in the Arctic Northwest and other economic ventures that might be constrained by a listing of the bear as endangered. For the polar bear, the debate about its listing status may be academic. Most scientists who have studied the issue doubt any action taken now will prevent the loss of this species.

The issues surrounding the polar bear's future provide excellent points for exploring significant environmental questions. These include the tension between science and economic considerations in developing policy as well as the ins and outs of the Endangered Species Act.

## Sea Lions face Death Row

The Oregonian, Portland, Oregon

Jan 18, 2008

By Lester W. Reed, Jr., Ph.D

This front page headline announced the National Marine Fisheries Service's proposal to shoot or trap and then kill as many as 85 sea lions a year, or as many as necessary so they eat no more than 1 percent of salmon passing through Bonneville Dam. Biologists estimate the actual number of sea lions that would actually be killed annually is 30 or less. The proposal is in response to a request from Oregon and Washington for permission to control the marine mammals below the Columbia River Bonneville Dam.



Photo courtesy of Oregon Department of Fish and Wildlife

During the last several years the number of sea lions feeding on spring migrating salmon has increased. State fishery officials have concluded that the only way to reduce the sea lions impact on endangered migrating salmon is to use "lethal removal". Although sea lions are protected under the Marine Mammal Protection Act, they are not considered threatened under the Endangered Species Act.

Their numbers have increased dramatically from about 1,000 animals in the 1930's, to about 238,000 along the West Coast today. Biologists think the animals have fully occupied their available breeding sites and habitat. Having fully occupied existing

habitat, the sea lions are moving to the dam to feed.

State officials must first try to scare sea lions off and, if that doesn't work, make sure they target only offending sea lions. Since harassing efforts have failed in the past, they have little potential to be effective in the future.

The saga of the salmon versus the sea lion is well documented on the Internet. It provides faculty with an excellent opportunity to create a case study for students that illustrates the conflict of competing interests. It also shows how media coverage is used to shape public opinion by using emotionally charged words such as "death row" in their reporting.

## Antarctic Shrinking Sea Ice

By Lester W. Reed, Jr., Ph.D

The impact of shrinking sea ice in the Arctic and it's impact on polar bears is now well known by the general public. Less familiar is the impact of sea ice decline on the Antarctic ecosystem. Recent studies indicate that krill, the keystone food supply for species such as baleen whales and penguins, may have dropped by as much as 80% since the 1970's. The loss of sea ice, which krill use as a breeding site, appears to be responsible for the decline. The krill decline may be having a direct impact



Adelle Penguin Photo by Lester Reed

on some penguin species. Based on 14 years of data from the Antarctic Site Inventory project continued on page 4, "Sea Ice"



continued from page 3, "Sea Ice"

conducted by Oceanites (a nonprofit, science and educational foundation) the number of exclusive krill feeder Adelie's is declining. At the same time the numbers of Gentoos, which are opportune feeders eating krill, fish and squid are increasing. As in most climate change scenarios there are winners and losers – in this case the Adelie may be the loser while the Gentoo may be the winner. Faculty can find more information on the Oceanites' project and changes in penguin populations at [www.oceanites.org](http://www.oceanites.org).

2008 Summer Institute:

## LAND USE IMPACTS on ENVIRONMENTAL QUALITY

Applications are now being accepted for NCSR's Summer Institute: Land Use Impacts on Environmental Quality planned for July 13 to 18, 2008. The institute will be held at Chemeketa Community College in Salem, Oregon and will feature laboratory and field activities designed for adaptation to natural resource programs and ecosystem-based support courses. Topics will include the use of digital imagery to evaluate land use impacts, non-point source pollution in watersheds, impacts of land use change over time and the ecological role of fire. Attendance will be limited to 16 participants, so early application is advised. NCSR will provide all materials, lodging, most meals and a \$600 stipend. Participants must provide their own travel to and from the institute. For more information and to apply, go to our website at: [www.ncsr.org](http://www.ncsr.org) or e-mail us at: [ncsradm@chemeketa.edu](mailto:ncsradm@chemeketa.edu) and request an application package. Applications must be received by May 14, 2008.

continued from page 1, "Education"

of curricular materials, summer research opportunities for community college faculty and students with marine lab scientists and educators, and the infusion of knowledge about marine career opportunities to appropriate college professionals. Further information about the COSEE Pacific Project can be found at: <http://cosee.net/pacificpartnerships> or by contacting Jan Hodder at: [jhodder@uoregon.edu](mailto:jhodder@uoregon.edu).

### About The Author

Jan Hodder, Ph.D. is an Associate Professor of Marine Biology at the Oregon Institute of Marine Biology, University of Oregon and the director of COSEE Pacific Partnerships.



This project was supported, in part, by the **National Science Foundation**

Opinions expressed are those of the authors and not necessarily those of the Foundation

### STAFF

**Lester Reed, PhD**  
Program Director

**Wynn Cudmore, PhD**  
Principal Investigator

**Jon Yoder**  
Secondary Education Coordinator

**Liz Traver**  
Administrative Assistant

### CONTACT INFO

Chemeketa Community College  
NCSR - 5/256A  
PO Box 14007  
Salem, Oregon 97309-7070

Phone: (503) 399-5270  
Fax: (503) 589-7622

[www.ncsr.org](http://www.ncsr.org)  
[ncsradm@chemeketa.edu](mailto:ncsradm@chemeketa.edu)