

Study outlines acidification threat to coast communities

CORVALLIS — Coastal communities in 15 states that depend on the \$1 billion shelled mollusk industry (primarily oysters and clams) are at long-term economic risk from the increasing threat of ocean acidification, a new report concludes.

This first nationwide vulnerability analysis, which was funded through the National Science Foundation's National Socio-Environmental Synthesis Center, was published today in the journal *Nature Climate Change*.

The Pacific Northwest has been the most frequently cited region with vulnerable shellfish populations, the authors say, but the report notes that newly identified areas of risk from

acidification range from Maine to the Chesapeake Bay, to the bayous of Louisiana.

"Ocean acidification has already cost the oyster industry in the Pacific Northwest nearly \$110 million and jeopardized about 3,200 jobs," said Julie Ekstrom, who was lead author on the study while with the Natural Resources Defense Council.

She is now at the University of California at Davis.

George Waldbusser, an Oregon State University marine ecologist and biogeochemist, said the spreading impact of ocean acidification is due primarily to increases in greenhouse gases.

"This clearly illustrates the vulnerability of communities

dependent on shellfish to ocean acidification," Waldbusser said. "We are still finding ways to increase the adaptive capacity of these communities and industries to cope, and refining our understanding of various species' specific responses to acidification."

"Ultimately, however, without curbing carbon emissions, we will eventually run out of tools to address the short-term and we will be stuck with a much larger long-term problem," Waldbusser added.

The analysis identified several "hot zones" facing a number of risk factors. These include:

- The Pacific Northwest: Oregon and Washington coasts and estuaries have a "potent

combination" of risk factors, including cold waters, upwelling currents that bring corrosive waters closer to the surface, corrosive rivers, and nutrient pollution from land runoff;

- New England: The product ports of Maine and southern New Hampshire feature poorly buffered rivers running into cold New England waters, which are especially enriched with acidifying carbon dioxide;

- Mid-Atlantic: East coast estuaries including Narragansett Bay, Chesapeake Bay, and Long Island Sound have an abundance of nitrogen pollution, which exacerbates ocean acidification in waters that are shellfish-rich;

- Gulf of Mexico:

Terrebonne and Plaquemines Parishes of Louisiana, and other communities in the region, have shellfish economies based almost solely on oysters, giving this region fewer options for alternative — and possibly more resilient — mollusk fisheries.

The project team has also developed an interactive map to explore the vulnerability factors regionally.

One concern, the authors say, is that many of the most economically dependent regions — including Massachusetts, New Jersey, Virginia and Louisiana — are least prepared to respond, with minimal research and monitoring assets for ocean acidification.

The Pacific Northwest, on

the other hand, has a robust research effort led by Oregon State University researchers, who already have helped oyster hatcheries rebound from near-disastrous larval die-offs over the past decade. The university recently announced plans to launch a Marine Studies Initiative that would help address complex, multidisciplinary problems such as ocean acidification.

"The power of this project is the collaboration of natural and social scientists focused on a problem that has and will continue to impact industries dependent on the sea," Waldbusser said.

Melcher named by agency as new Oregon Fish, Wildlife director

SALEM — The Oregon Fish and Wildlife Commission has chosen Curt Melcher as its choice to be the next director for the Oregon Department of Fish and Wildlife.

The Commission's decision was announced during the

Commission's regular meeting in Salem. Melcher has served as ODFW Interim Director since September 2014.

Commission chairman Mike Finley and Melcher will meet to discuss the terms of his employment later this month.

Melcher was among three finalists being considered for the position following a national search for candidates. The other finalists were Edward Bowles, Fish Division Administrator, ODFW; and Krystyna Wolniakowski, former director, Western Partnership Office, National Fish & Wildlife Foundation.

"We are very pleased at the prospect of having Curt as the new director and are confident he is the right person to lead this premiere fish and wildlife agency," said Finley.

On Thursday, the public was invited to attend a question and answer session with the finalists. A representative sampling of the questions were selected by the Department of Administrative Services, and the same questions were then asked of each of the candidates.

As director, Melcher would report to the Commission and manage a department with more than 1,100 employees,

and a biennial operating budget of \$345 million.

Melcher is a native Oregonian who graduated from the University of Oregon with a B.S. degree in Biology. He has devoted 28 years of his career to the protection and management of Oregon's fish and wildlife.

Melcher has served as the Deputy Director for ODFW, accountable for all Fish and Wildlife programs leading over 1,200 employees. He was appointed the Interim Director in September 2014.

"I'm excited and humbled at the thought of this opportunity," Melcher said. "It would be a great honor to lead the dedicated, professional staff at an agency that has so much to offer the State of Oregon."

Additional background on Melcher can be found on the ODFW website at www.dfw.state.or.us/agency/docs/ODFW_Director_Candidates.pdf.

Melcher would replace Roy Elicker, who retired in September 2014 after serving seven years on the job.

In other business, the Commission amended rules for ODFW's annual art contests for habitat conservation, waterfowl and upland game bird stamps

so that there is consistency between the three contests in regards to submission guidelines, due dates, prize award amounts.

With the Commission's action, the rules are now all within the same administrative rule division.

Commissioners were also briefed on the Mule Deer Initiative; an effort to address Oregon's declining mule deer populations through habitat improvement, predator and travel management and other strategies.



ATHLETE OF THE WEEK

Dylan Jennings

Siuslaw H.S. Wrestling

The junior heavyweight drew the opening match of the OSAA 4A state finals last week against the number one seed at 285 pounds where he lost to the eventual state champion. Jennings bounced back and won his second match in 54-seconds, pinning his opponent; before being eliminated in his third match.

Honorable Mention Kainan Lane

The sophomore 220-pounder opened with a loss against the number two seed in his weight class, then won his second match with a pin in 38-seconds before being eventually eliminated from competition.

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Warming from 1B

College of Science at Oregon State University, and co-author of the report.

"Ordinarily, you would expect that an increase in upwelling would mean an increase in marine coastal productivity, and that might happen," Menge said.

"However, a thicker and warmer top layer, and more stratified ocean waters may put the cold, nutrient-rich waters

too deep for upwelling to bring them up, and reduce the ability of upwelling to energize the coastal ocean food web," he said. "This could have a very negative impact on marine production and fisheries."

The findings were made by researchers from OSU and Northeastern University, in work supported by that university and the National Science Foundation.

Another possibility, the study concluded, are changes in the frequency or severity of

low-oxygen, or hypoxic events such as those that have plagued the Pacific Northwest in the past decade.

Depending on where the layers of warm and cold water end up, as well as local subsea terrain and currents, the hypoxic events could become either less common or more severe. In a hypoxic event, microbial decay of phytoplankton blooms uses up the available oxygen, causes hypoxia, and often leads to a die-off of fish and other marine organisms.

The findings are consistent with different research which shows that coastal upwelling has intensified over the past 60 years.

Impacts on the California Current System are expected to be less pronounced because of other climatic forces at work, such as the Pacific Decadal Oscillation, the El Niño-Southern Oscillation, and the North Pacific Gyre Oscillation

Researchers said that by understanding these climate-mediated "hotspots" in upwelling, and how they will change in the future, it may be possible to better manage productive fisheries and coastal ecosystems around the world.

— Contributed by David Stauch

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STEP from 1B

The evening begins at 7 p.m. with a short business meeting, followed by the presentation.

Paul Burns, a U.S. Forest Service biologist who manages the trap, will give an overview of the trap and a look back at the 2014 season.

The monitoring of the smolt coming through Knowles Creek gives a historical perspective of the status of the various fish species in the Siuslaw watershed.

The primary species that come through are Coho and Chinook salmon, but other species include Rainbow and Cutthroat trout, Lamprey, Dace, Shiners and Northern Pike Minnows.

The trap will be installed this week at the Knowles Creek site and daily monitoring of the smolt that pass through the trap will begin.