Ocean Conservancy®

DONATE TODAY

THE NEXUS: OCEAN ACIDIFICATION NEWS, POLICY AND SCIENCE

January 2018

The end of 2017 found many governments and leaders are resolving to take action on ocean acidification (OA). Some joined the OA Alliance, some were thinking about how OA fits into the broader context of marine issues and some were redoubling efforts to research the issue. 2018 promises to be just as filled with action!

Happy New Year,

Sarah Cooley, Ph.D., Ocean Acidification Program Director

Salmon fishermen growing concerned over OA

In early November, Pacific Northwest fishermen at the Seattle Pacific Marine Expo turned their attention to the impact of ocean acidification on salmon -- specifically on salmons' sense of smell. Salmon rely on their sense of smell to avoid predators, find prey and return to their native headwaters for spawning. But a recent laboratory study has found that increased levels of CO2 in the water can impair olfaction. Pacific Northwest fishermen in the audience and on the expert panel discussed the evidence for ocean acidification around Alaska, as well as the research on salmon. Overall, both scientists and fishermen are concerned that OA could lead to lower salmon stock levels, but more research is needed to understand exactly how this could work. Encouragingly, fishermen are becoming more active partners in field science research to determine this possibility and to decrease their carbon footprints. The full panel discussion can be viewed here.

Maine tries to stay ahead of a changing ocean

Although Maine's lobster harvests have been mostly **booming** over the past seven years **in part due to the fast-warming Gulf of Maine**, fishermen and managers are concerned conditions might be **fluctuating too quickly for stock levels to be predicted** and effectively managed. Coupled with ocean acidification, warming waters could take away the historically high lobster landings. Last year, this single-species fishery hit about $533 million in landings alone. Any decline is difficult to mitigate with other fishing revenues, making fishing communities particularly at risk from environmental changes. Recently, industry, scientists, and policy-makers from the state are acting to address acidification and changing ocean conditions in various policy fora, including the UN Climate Change **Conference** in Bonn, the US Congress, and in Maine itself. And now, **Sen. Collins** and **Reps. Pingree and Poliquin** have all cosponsored legislation on acidification.

A lobster boat heads out of Wells Harbor, near Kennebunkport, Maine to set traps
© Rick Friedman

Ocean becoming an international priority

The ocean received more attention at this year's UN Climate Change Conference (COP 23) in Bonn, Germany, as the Republic of Fiji was the first Small Island Developing State to preside over the meeting. At an event hosted by the International Alliance to Combat Ocean Acidification (OA Alliance), key members from The Republic of Fiji, The Republic of Chile, The State of Washington and The State of Oregon led a panel discussion on the ecological, economic, and community-based impacts of ocean acidification. The OA Alliance welcomed 5 new members at the event, strengthening their coalition to 25 governments and 30 research, industry, and NGO members. Each government member is committed to creating regional strategies for addressing changing ocean conditions through the development of Ocean Acidification Action Plans. Collaboration like this, with all levels of government standing shoulder-to-shoulder, will be essential to tackling the challenges coastal communities face from ocean acidification.

OA Alliance member representatives gather with UN representatives in Bonn
© OA Alliance

Bipartisan U.S. Congressional concern about OA

Although partisan differences are on display daily in Congress, members of coastal states from both parties agree: ocean acidification is a clear threat to U.S. coastal communities. Senator Lisa Murkowski (R-AK) and bipartisan members of the Oceans Caucus just introduced S.2229, the Senate version of the Coastal Communities Ocean Acidification Act (H.R. 2719), originally introduced in the House by Rep. Chellie Pingree (D-ME). These bills direct NOAA to conduct research on the vulnerability of coastal communities to ocean acidification. Increasing our knowledge about what resources and people could be affected is the first step toward safeguarding them from ocean changes. This bipartisan, bicoastal attention to coastal communities is an encouraging way to ring in the New Year!

Bering Sea crabs' adaptability is the multimillion-dollar question

The first long-term experiments on Bering Sea red king crabs' responses to OA published almost 10 years ago showed that most young crabs couldn't handle the high-CO2 conditions. In this new research, ocean acidification proved fatal for the crabs. Scientists have since predicted depressing outcomes for the fishery, with declining revenues. But recent research by NOAA's Bob Foy offers a ray of hope. Crabs that survived OA conditions grew up just fine. And if they can pass their tolerance or adaptability to CO2 to their offspring, there's hope for the species. But it's a race. Can the survivors have enough offspring to sustain the species and lucrative fishery before ocean acidification impairs the fishery? Scientists are working on it.

"Ocean Time Machine" helps forecast Dungeness crab OA responses

NOAA researchers based in Washington State are also looking at another crustacean: Dungeness crab. The crabs may provide a glimpse into the ocean change driven by carbon dioxide as the researchers conduct not only lab experiments on the impact of OA on the crab life cycle from egg to adult in their Ocean Time Machine, but also starting to examine the multi-generational effects on the crab families. Right now the researchers are developing the latter experiment which will inform population and greater ecosystem **modeling efforts**. Here too, a vibrant regional fishery depends on Dungeness crab, so fishermen are eagerly awaiting **more information**.

U.S. Atlantic Coast fishermen talking about OA

Even though the East Coast hasn't seen irrefutable harm from OA the way the West Coast has, Atlantic fishermen and resource managers are talking about OA. **Virginia oyster growers** and **hatcheries** are partnering with researchers to install OA monitoring equipment, out of an abundance of caution and a deep interest in the health and well-being of their waters. **North Carolina** resource managers and growers recently participated in a **workshop** to learn about OA and build partnerships like those springing up in Virginia. And during a recent OA workshop in the Northeast, resource managers and industry redoubled their commitment to share knowledge on OA, coordinate efforts, and close gaps in our understanding. As these areas increase their shellfish aquaculture, they're in a great position to plan for the long term against OA.

Coming up:

Federal budgeting season

2018 Ocean Sciences Meeting & US OA Principal Investigators' meeting