Op-ed: How we can fight ocean acidification, protect marine life

We must embrace ocean conservation and management strategies to fight ocean acidification.

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THOSE of us who care about the health of our coastal and marine resources recently received yet another wake-up call. A longtime oyster grower in Willapa Bay has moved a portion of its operation to Hawaii because of concerns over ocean acidification impacts on hatchery production.

Is the failure of tiny oyster larvae in Northwest coastal waters akin to the death of canaries in coal mines, warning us of imminent threats to our health and livelihoods? Perhaps. As a scientist, I look for the best evidence to support a statement of impending risk.

The scientific problem of ocean acidification is daunting but well-defined: Ocean acidification is emerging as a major threat to ocean ecosystems and the economies dependent upon them. The oceans perform an enormous service for the planet, absorbing about one quarter of all the carbon dioxide humans emit into the atmosphere each year. Until recently, we believed this had little consequence -- in fact, we were thinking of how to increase the ocean's capacity to sequester carbon.

We now know there are consequences. As the oceans take up carbon dioxide, chemical reactions take place that form carbonic acid. Since the Industrial Revolution, the uptake of extra carbon dioxide due to human activities has acidified ocean waters across the globe, shifting the delicate pH balance from 8.2 to 8.1. That may not sound like much, but because pH is measured on a logarithmic scale -- like the earthquake-measuring Richter scale -- this represents approximately a 30 percent increase in acidity worldwide.

Why does this matter? Ocean acidification compromises the ability of shell-bearing animals to build and maintain shells. It compromises the ability of corals to build the fantastic shapes and colors we love about reefs. It may even compromise the ability of the ocean's food chain to sustain higher-level predators that supply us with abundant and delectable seafood. Think salmon.

The effects of ocean acidification are particularly acute here in the Pacific Northwest. The waters of Puget Sound already have a lower pH than many areas of the ocean, and summer upwelling on the coast drives corrosive seawater from the deep ocean into our bays and estuaries. This hinders our shellfish industry from providing jobs and pumping hundreds of millions of dollars into the economy.

The Northwest community is mobilizing. The University of Washington, NOAA's Pacific Marine Environmental Lab and Fisheries Science Center, and numerous other local, national and global partners are working together to strengthen our research capacity and understand the effects of this problem both close to home and across our oceans. Our state's scientists, tribes, policymakers, businesses and community members have banded together -- in numerous ways and venues -- to offer meaningful research recommendations and actions to mitigate and adapt to ocean acidification's impact.

We must redouble our commitments to curtailing carbon emissions, implementing clean-energy technologies, and limiting nutrient runoff into the sound and ocean. The steps will help alleviate the pressures of ocean acidification.

Furthermore, we must embrace ocean conservation and management strategies that address multiple other pressures -- such as invasive species, pollution, overfishing and habitat loss. Doing so will allow ecosystems to remain healthy, robust and resilient, giving them a leg up to fight the fight against ocean acidification so they will continue providing the goods and services we all want and need.

The choice is ours, and I commend our state for stepping up and being a leader on this issue. Yet to solve it, everyone's help is needed to confront this insidious threat that is ramping up worldwide.
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