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Lawsuit Filed Against Environmental Protection Agency for Failure to Combat Ocean Acidification

SEATTLE— The Center for Biological Diversity today filed a lawsuit against the U.S. Environmental Protection Agency over the agency's failure to recognize the impacts of ocean acidification on waters off the state of Washington. The suit, brought under the Clean Water Act, is the first to address ocean acidification, sometimes called – along with global warming – "the other carbon dioxide problem."

The oceans readily absorb CO_2 emissions from power plants and other human activities. In turn, the CO_2 causes seawater to become more acidic, lowering its pH. This process, known as ocean acidification, impairs the ability of marine animals to build the protective shells and skeletons they need to survive. Studies have found that ocean acidification hurts nearly every marine animal with a shell, including oysters, urchins, sea stars, and crabs. Notably, it also weakens and dissolves the thin shells of certain plankton that form the base of the marine food web.

"Ocean acidification is global warming's evil twin," said Miyoko Sakashita, an attorney with the Center for Biological Diversity's oceans program. "The EPA has a duty under the Clean Water Act to protect our nation's waters from pollution, and today, CO_2 is one of the biggest threats to our ocean waters."

The federal Clean Water Act requires states to identify impaired waters, those water bodies failing to meet water-quality standards. The Act also requires the EPA to oversee the state's impaired waters list, approve or disapprove state-submitted lists, and add any waters failing to attain water-quality standards to the impaired list when those waters are omitted by a state.

Scientists monitoring waters off the coast of Washington reported that ocean acidification is already affecting seawater quality and marine ecosystems. According to the 2008 report in the *Proceedings of the National Academy of Sciences*, since 2000 the pH of Washington's coastal waters has declined by more than 0.2 units, violating the state's water-quality standard for pH.

In August 2007, the Center for Biological Diversity formally requested that Washington list its ocean waters as impaired due to the impacts of ocean acidification. In late 2008, Washington submitted a deficient list of impaired waters to EPA that failed to include ocean waters degraded by ocean acidification. The Center informed EPA of its duty to add ocean waters not attaining pH standards when reviewing Washington's impaired waters list. On January 29, 2009, EPA approved Washington's list without adding ocean waters affected by ocean acidification.

"Ocean acidification is not some distant threat that can be shunted off to future decision-makers; it has already arrived, and we have to acknowledge and deal with the problem right now," added Sakashita. "EPA has all the evidence it needs to act to begin protecting our waters from ocean acidification. Further delay is simply not justified."

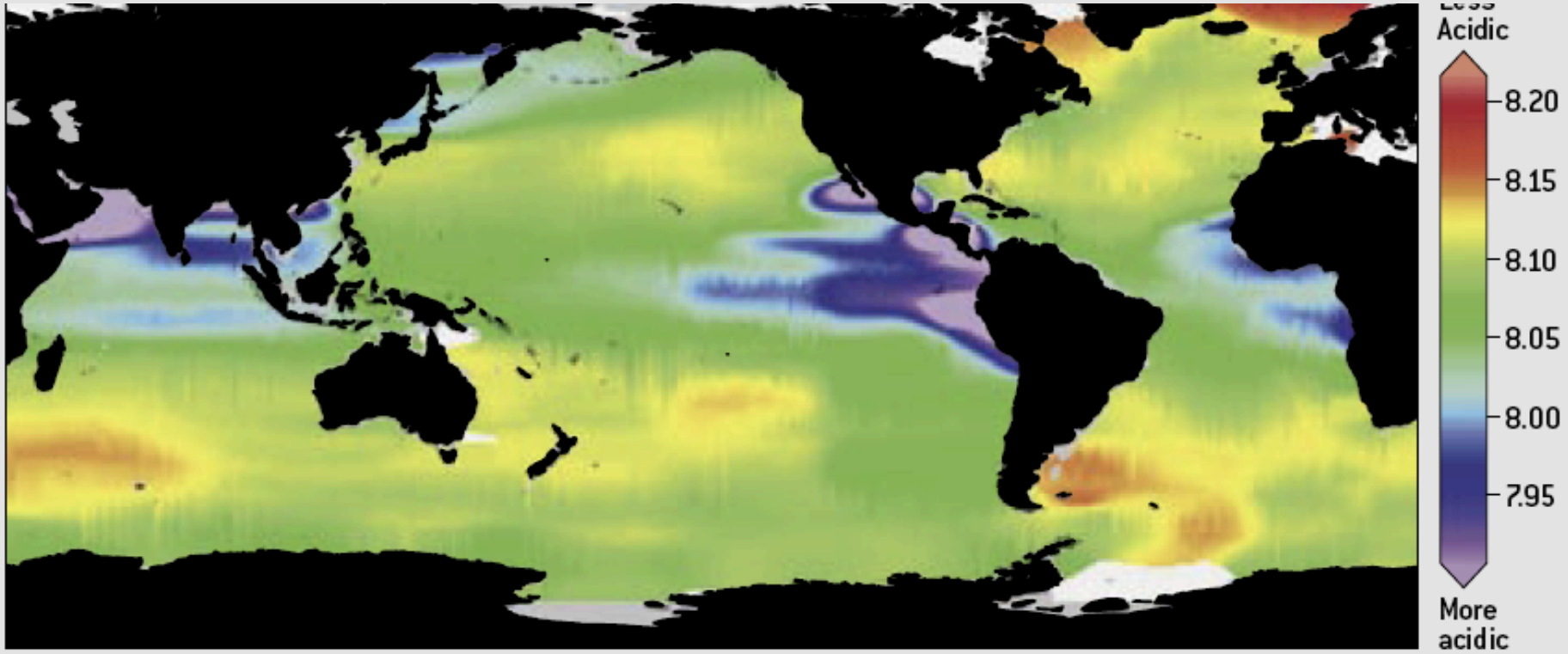
Once a water body is listed as impaired, the EPA or state must set limits on the input of pollutants into these bodies of water to prevent further degradation. In this case, the Clean Water Act would require limits on CO_2 emissions that contribute to ocean acidification.

"We already have the legal tools we need to limit ocean acidification," said Sakashita. "The Clean Water Act is the nation's strongest law protecting water quality, and it is very good at its job, which is to stop water pollution."

The lawsuit, filed in U.S. District Court in Seattle, seeks to compel EPA to amend Washington's impaired waters list to include any ocean waters that are failing to attain water-quality standards as a result of ocean acidification. The Center is represented in the suit by Crag Law Center.

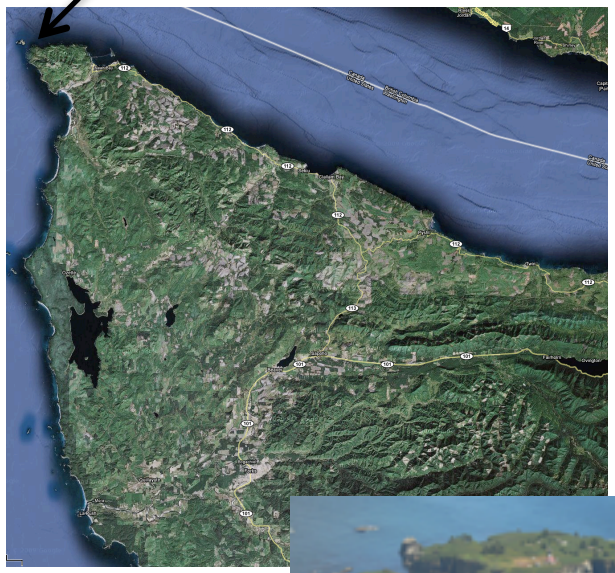
Last month, in response to a Center petition, EPA began a public process as to whether its water-quality criteria should be updated to reflect the impacts of ocean acidification. Current EPA criteria, adopted by most states, require a finding of impairment if waters deviate more than 0.2 pH units from natural variation. This standard, adopted in 1976 before ocean acidification was recognized as a threat, is likely inadequate. Nevertheless, ocean acidification is occurring so rapidly on the U.S. West Coast that Washington's waters already exceed this standard.

THE OCEAN'S CHANGING ACIDITY



Measurements taken in the top 50 meters of the ocean reveal that pH varies considerably from place to place. Scientists expect oceanic pH to decrease in the years ahead.

Tatoosh Island



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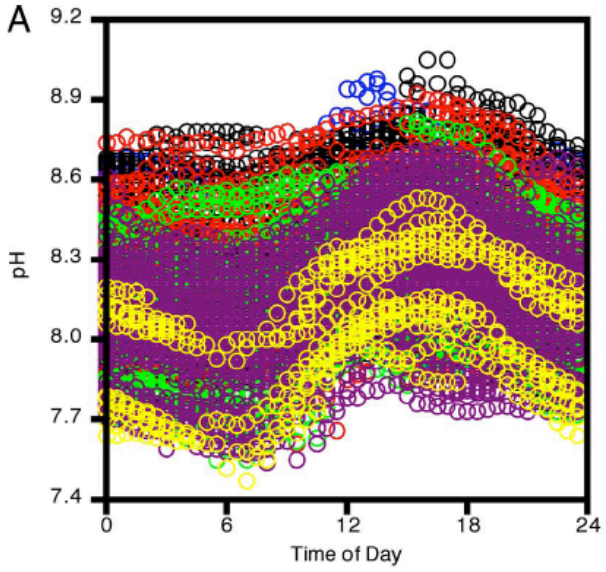
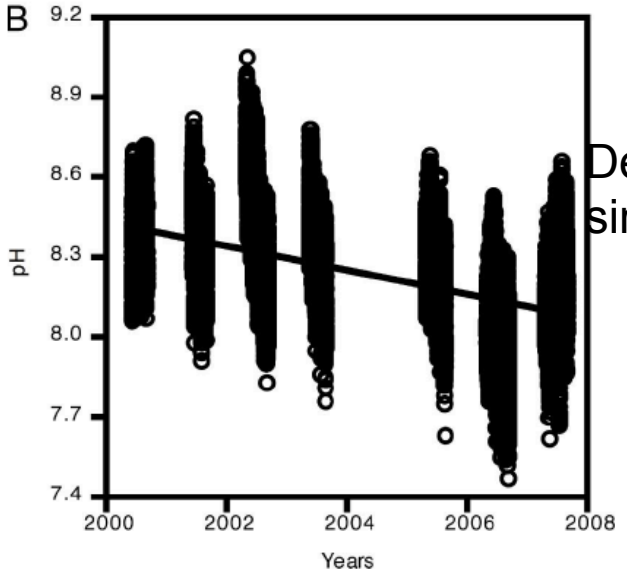


pH varies over a da



Decline in average p
since 2000

Fig. 1. Patterns of ocean pH through time at Tatoosh Island ($N = 24{,}519$). (*A*) Daily cycle of pH arising from photosynthetic uptake of CO_2 by algal primary producers. Colors indicate month that the data were collected (blue, April; black, May; red, June; green, July; purple, August; yellow, September). (*B*) pH readings as a function of date and time taken between 2000 and 2007. The decline is significant ($P < 0.05$).

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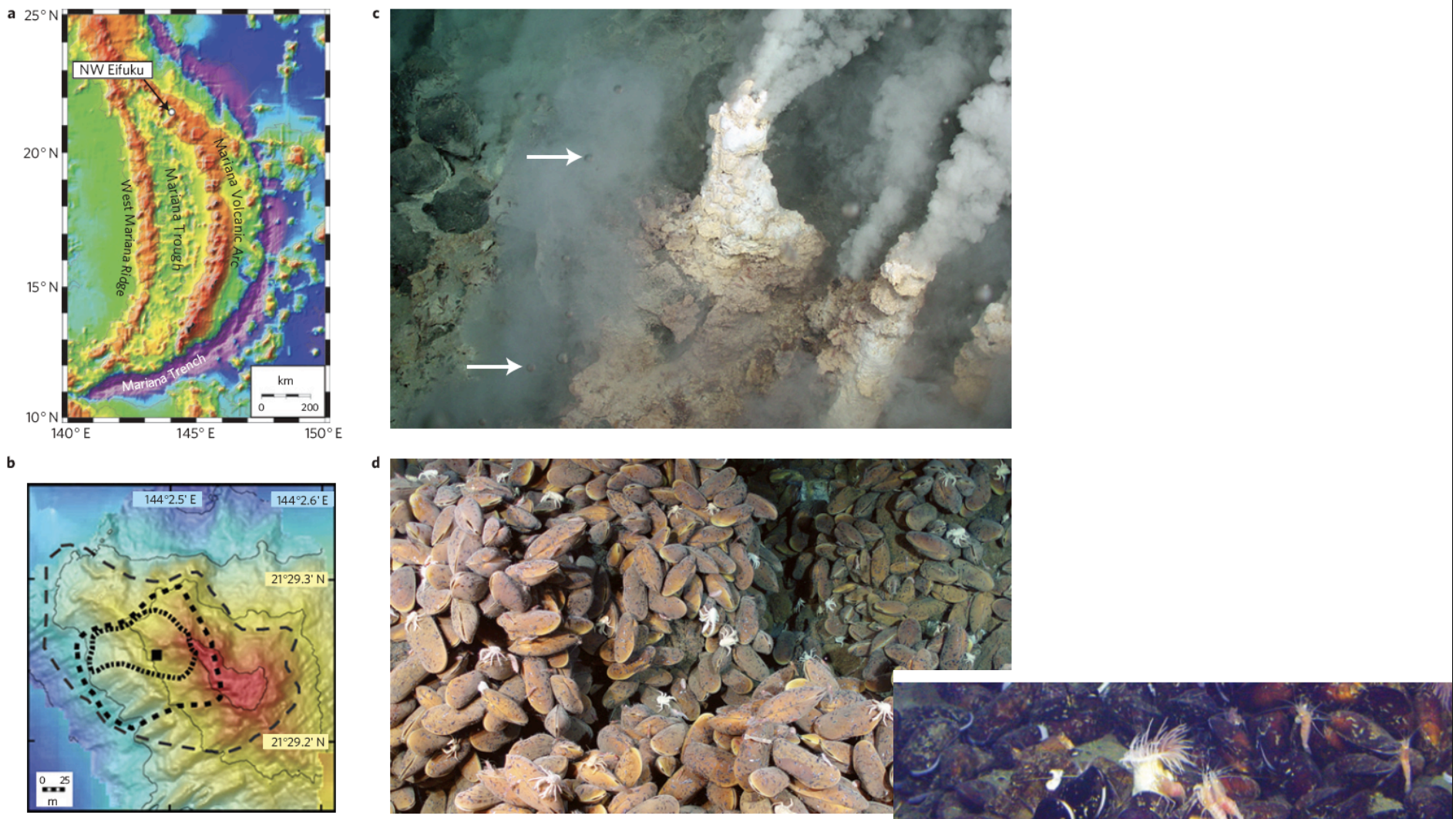

Figure 1 | The habitat setting for the mussel *Bathymodiolus brevior* on NW Eifuku volcano in the Mariana Volcanic Arc. a, NW Eifuku
Mariana arc (arrow). **b**, NW Eifuku summit (in light red) is at 1,540 m depth. Contours are at 50 m intervals. The Champagne vent lies a
(black square). The dotted boundary delineates the extent of mussels; the inner black boundary is the densest populations. The outer d
encompasses the extent of the hydrothermal indicators. **c**, The Champagne vent has built small chimneys of sulphur. Droplets of liquid
from the ground around the chimneys (arrows). Image about 2 m across. **d**, Mussels (*Bathymodiolus brevior)* and non-predatory anomur
Champagne vent on rock promontories. Image 1.2 m across.

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