

May 21, 2010

Clean Water Act Section 303(d):

Notice of Call for Public Comment on 303(d) Program and Ocean Acidification

Environmental Protection Agency

1200 Constitution Ave., NW

Washington, DC 20460.

### **Protecting our oceans from the threat of ocean acidification**

The world's oceans are becoming more acidic from absorbing carbon dioxide emissions from the atmosphere to the tune of 22 million tons each day. Surface waters have become 30% more acidic since the industrial age, and scientists predict that if carbon dioxide emissions continue unabated seawater acidity will increase 100-150% by the end of the century (*Nature* 437:681-686). Thus, ocean acidification is becoming one of the greatest threats to seawater quality.

Ocean acidification impairs the ability of marine animals — including corals, plankton, and shellfish — to build the protective shells they need to survive. Scientific evidence shows that ocean acidification may harm many marine organisms, and some of these impacts are already underway.

Studies of certain corals, shellfish, and plankton show that they will have difficulty building and maintaining their structures under future conditions of acidification (*Limnol. Oceanogr.* 54(6):2072–2080, *J. of Marine Sci.* 65: 414–432, *Geochem. Geophys. Geosyst.* 10:Q07005).

Slower growth rates have already been observed in some corals, and many corals could be lost within a few decades due to global warming and acidification (*Science* 323:116-119, *Marine Pollution Bull.* 58:1428-1436).

Pacific Coast oyster hatcheries are experiencing difficulties that may be related to acidification, and two of the largest hatcheries report production rates down by as much as 80% (*PLoS ONE* 4(5):e5661).

Some plankton are growing thinner and weaker shells in polar regions, which are more vulnerable to ocean acidification (*Nature Geosci.* 2:276-280).

Studies show that exposure of fish, squid, and other animals to future levels of ocean acidification may disrupt metabolism and other biological functions (*J. of Oceanogr.* 60:705-718; *PNAS* 105:20776-20780; *J. of Oceanogr.* 60:731-741).

Ocean acidification could have serious impacts on marine biodiversity, as well as the coastal communities and economies that depend on our oceans. The marine ecosystems threatened by ocean acidification provide valuable services ranging from fishing and shellfish harvesting to coastal tourism and protection. To prevent some of its worst consequences it is imperative that EPA take swift action to address ocean acidification.

### **EPA leadership and guidance on ocean acidification is needed**

We support EPA implementing the Clean Water Act to address ocean acidification. The Clean Water Act's objective is to restore and maintain the chemical, physical and biological integrity of the nation's waters. It has successfully reduced water pollution and must be fully employed to address ocean acidification. Section 303(d) of the Clean Water Act is well suited to address ocean acidification because it was designed for water pollution problems originating from various sources, including the

atmosphere.

EPA should direct prompt action while such efforts can still avert the worst impacts of ocean acidification. Under the Clean Water Act, EPA can and should develop a framework coordinating state and federal action to prevent ocean acidification. Specifically, we urge EPA to:

1. Issue guidance on how to address ocean acidification under the Clean Water Act, including precautionary strategies for addressing this water quality problem.
2. Work with states to ensure the use of the best available science on ocean acidification when establishing water quality standards, identifying threatened and impaired waters, and calculating and implementing total maximum daily loads.
3. Provide guidance for state, tribal, and territorial governments on how to monitor ocean acidification and its ecological consequences; as well as promote management and adaptation planning for coastal and marine areas.

EPA guidance would fulfill a critical need because as ocean acidification becomes more severe, all coastal regions will have to confront its impacts. Ocean acidification is already becoming apparent in vulnerable regions, including the entire West Coast, Alaska's productive waters, and the Caribbean, which could soon threaten Florida's coral reefs (*Science* 320:1490-92, *Oceanogr.* 22: 160-171, *J. of Geophys. Res.* 113:C10031). EPA guidance should inform strategic responses to ocean acidification.

EPA action is needed to protect our coasts and oceans from the alarming impacts of ocean acidification. Moreover, approaches to ocean acidification under the Clean Water Act can and will complement local, state, and federal efforts to reduce carbon dioxide emissions. We thank you again for your leadership on environmental issues, and support EPA's efforts to protect America's oceans and coasts from ocean acidification.

Most sincerely,

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