

Clean Water Act 303(d) Program: Ocean Acidification Update

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2012 Integrated Reporting Guidance/ Ocean Acidification Memorandum: On November 15, 2010, EPA issued a Memorandum to assist the States and Regions in preparing and reviewing IRs related to ocean acidification (OA) impacts. The Memo recognizes the seriousness of aquatic life impacts associated with OA and describes how States can move forward, **where OA information exists**, to address OA during the 2012 reporting cycle. The Memo reaffirms that States should list waters not meeting water quality standards, including marine pH water quality criteria, and should also solicit existing and readily available information on OA using the current Section 303(d) listing program framework. **The Memo does not elevate in priority the assessment and listing of waters for OA, but simply recognizes that waters should be listed for OA when data are available.** EPA recognizes that information is largely absent or limited for OA parameters and impacts at this point in time, and therefore, listings for OA may be absent or limited in many States.

EPA will provide additional guidance to the States when future OA research efforts provide the basis for improved monitoring and assessment methods, including approaches being developed under other Federal efforts. This future guidance may be in the form of stand-alone IR guidance, or as part of future EPA biennial IR updates. EPA encourages States to focus their efforts on OA vulnerable waters (e.g., waters with coral reefs, marine fisheries, and shellfish resources) that are already listed for other pollutants (e.g., nutrients) in order to promote ecological restoration.

The full text of the OA Memo and additional related information (see below) are available at http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/oa_memo_nov2010.cfm.

- Memorandum on "Integrated Reporting and Listing Decisions Related to Ocean Acidification"
- Questions and Answers on Ocean Acidification and the Clean Water Act 303(d) Program
- Summary of Coastal State and Territory Information Related to Ocean Acidification and the Clean Water Act 303(d) Program
- National Research Council 2010 Report: "Ocean Acidification: A National Strategy to Meet the Challenges of a Changing Ocean"
- March 22, 2010 Federal Register Notice
- Questions and Answers Regarding EPA's March 22, 2010 Federal Register Notice on the Clean Water Act Section 303(d) Program and Ocean Acidification
- EPA Decision on Whether to Re-evaluate and Revise its Recommended Marine pH Water Quality Criterion

Other EPA OA efforts:

- ORD, National Health and Environmental Effects Research Laboratory (contact: Jason Grear, grear.jason@epa.gov): Conducting ecological experiments on the effects of OA on marine organisms, populations, food webs, and ecological services; developing techniques and pursuing collaborations with other Federal agencies and researchers to monitor/model pH in estuarine waters.

Current and planned OA efforts from other Federal agencies:

- Interagency Working Group on OA (IWG-OA) strategic plan for OA available April 2011.
- National Oceanic and Atmospheric Administration (NOAA):
 - *NOAA Ocean and Great Lakes Acidification Research Plan Highlights*: Synopsis of the NOAA Ocean and Great Lakes Acidification Research Plan. It outlines the regional monitoring approach and implementation timeline. Both documents are available at <http://www.oar.noaa.gov/oceans/ocean-acidification/index.html>
 - Global Carbon Cycle West Coast Cruise 2011: Characterizing the chemical relationship between hypoxia and OA. Sampling will include measurements of pCO₂ (air and water), dissolved inorganic carbon (DIC), total alkalinity, pH, oxygen, salinity, and temperature. More information available at <http://www.pmel.noaa.gov/co2/story/West+Coast+cruise+2011>
 - Pacific Marine Environmental Laboratory Data Portal: Includes data and information from research cruises and coastal, coral reef, and open ocean moorings. Available at <http://www.pmel.noaa.gov/co2/map/index> (Google Earth plug-in required)
- United States Geological Survey (USGS):
 - St. Petersburg Science Center: Collecting and examining baseline carbon and carbonate chemistry data in nearshore waters of the Florida Shelf and Keys. Also analyzing historical pH, salinity, and temperature data to identify local and regional trends associated with OA. More information available at <http://coastal.er.usgs.gov/flash/> and <http://coastal.er.usgs.gov/flash/data-integration/waterquality.html>
 - CO₂CALC: Free user-friendly, stand-alone application for calculating carbonate system parameters for PC, Mac OSX, and iPhone/iPad. Download at <http://pubs.usgs.gov/of/2010/1280/>



This figure demonstrates NOAA's regional OA monitoring approach and planned coastal sampling locations (from *NOAA Ocean and Great Lakes Acidification Research Plan Highlights*).