

reduction act (PRA). The current Information Collection Request (ICR) required under the PRA and approved by OMB is available at [www.regulations.gov](http://www.regulations.gov), EPA docket number, EPA-HQ-OAR-2003-0052.

Dated: March 30, 2009.

**Deborah Y. Dietrich,**

*Director, Office of Emergency Management.*

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## ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OW-2009-0224; FRL-8892-5]

### Ocean Acidification and Marine pH Water Quality Criteria

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of data availability (NODA).

**SUMMARY:** This NODA provides interested parties with information submitted to EPA on ocean acidification and solicits additional pertinent data or information that may be useful in addressing this issue. In addition, EPA is notifying the public of its intent to review the current aquatic life criterion for marine pH to determine if a revision is warranted to protect the marine designated uses of States and Territories pursuant to Section 304(a)(1) of the Clean Water Act. The NODA also solicits additional scientific information and data, as well as ideas for effective strategies for Federal, State, and local officials to address the impacts of ocean acidification. This information can then be used as the basis for a broader discussion of ocean acidification and marine impacts. EPA also requests information pertaining to monitoring marine pH and implementation of pH water quality standards.

**DATES:** Comments must be received on or before June 15, 2009.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OW-2009-0224, by one of the following methods:

- <http://www.regulations.gov>: Follow the on-line instructions for submitting comments.

- *E-mail:* [OW-Docket@epa.gov](mailto:OW-Docket@epa.gov).

- *Mail:* U.S. Environmental Protection Agency; EPA Docket Center (EPA/DC) Water Docket, MC 2822T; 1200 Pennsylvania Avenue, NW., Washington, DC 20460.

- *Hand Delivery:* EPA Docket Center, 1301 Constitution Ave, NW., EPA West, Room 3334, Washington DC. Such deliveries are only accepted during the

Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

**Instructions:** Direct your comments to Docket ID No. EPA-HQ-OW-2009-0224. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov> your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

**Docket:** All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in <http://www.regulations.gov> or in hard copy at the Water Docket/EPA/DC, 1301 Constitution Ave, NW., EPA West, Room 3334, Washington DC. This Docket Facility is open from 8:30 a.m. until 4:30 p.m., EST, Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the Water Docket is (202) 566-2426.

**FOR FURTHER INFORMATION CONTACT:** Lisa Huff, Health and Ecological Criteria Division (4304T), U.S. EPA, 1200 Pennsylvania Ave., NW., Washington, DC 20460; (202) 566-0787; [huff.lisa@epa.gov](mailto:huff.lisa@epa.gov).

## SUPPLEMENTARY INFORMATION:

### I. General Information

#### A. Does This Action Apply to Me?

1. This information may be useful to scientists involved in studying mechanisms of carbon dioxide absorption, conversion, and retention in marine waters as well as those studying the effects of the formation of carbonic acids and lowered pH on altered carbon cycles and carbonate structures necessary to aquatic life.

2. This information may be useful to Federal, State, Tribal, and Territorial managers of water quality programs.

3. This information may be useful to ocean and coastal managers.

#### B. What Should I Consider as I Prepare My Comments for EPA?

Information submitted in response to this NODA should address the nature and characteristics of altered carbon chemistry in marine waters, including changes in pH and biological calcification processes. It should also address the significance of potential modification to the national marine pH criterion for State and Federal Water Programs authorized by the Clean Water Act. EPA is soliciting additional scientific information, data and ideas for effective strategies for Federal, State, and local officials to use to address the potential impacts of ocean acidification. Specifically:

1. EPA is soliciting technical information on measurement of ocean acidification in marine coastal waters, including:

- a. Technological advances in rapid, continuous, or remote measurement of pH;

- b. Long-term empirical pH data and carbon chemistry measurements, especially those that may demonstrate ocean acidification;

- c. Empirical data to demonstrate spatial and temporal variability of pH in near-coastal waters;

- d. Methods to statistically evaluate variability of pH in near-coastal waters;

- e. Other approaches (e.g., carbon chemistry), methods and indicators that could reflect ocean acidification.

2. EPA is soliciting technical information on effects of ocean acidification on marine biota, including:

- a. Survival, growth, reproduction, and recruitment of reef-building corals and crustose coralline algae;

b. Anticipated persistence of coral reef communities under future pH scenarios;

c. Survival, growth, reproduction, and recruitment of other (non-coral) marine calcifying organisms;

d. Potential changes in community structure and marine trophic links;

e. Variability of effects in tropical, temperate and polar regions;

f. Estimates of response rates (*e.g.*, rapid, gradual, non-linear) of populations and communities to ocean acidification;

g. Adaptability to ocean acidification and broad implications for ecosystem resilience;

h. Methods or estimates of the combined and relative importance of ocean acidification in concert with other natural and anthropogenic stressors (*e.g.*, storm damage, pollution, overfishing).

3. EPA is soliciting scientific views on the information presented in the bibliography of this notice.

4. EPA is soliciting information related to EPA's current CWA 304(a) recommended pH criterion for marine waters, including how the criterion could be best expressed, particularly with respect to natural variability.

5. EPA is soliciting information regarding State and Territorial implementation of the pH criterion related to new information on ocean acidification.

6. EPA is soliciting potential strategies for State and Federal water programs to coordinate and enhance Federal data collection efforts, including:

a. Approaches to designated uses for water quality standards that account for different pH regimes (*e.g.*, specific designated uses for areas with organisms that may be more sensitive to significant pH fluctuations such as coral, shellfish, other calcifying organisms) (CFR 131.10, for additional information on designated uses <http://www.epa.gov/waterscience/standards/about/uses.htm>);

b. Scientifically defensible approaches to set and monitor pH criteria.

7. EPA is soliciting information that may be used to develop guidance and information on ocean acidification pursuant to Clean Water Act Section 304(a)(2) for States and the public. This information may include information on the mechanisms of ocean acidification, methodology development for analysis, and statistical analysis.

## II. Background on Ocean Acidification

Ocean acidification refers to the decrease in the pH of the Earth's oceans caused by the uptake of carbon dioxide

(CO<sub>2</sub>) from the atmosphere. Oceans have been absorbing about one-third of the anthropogenic CO<sub>2</sub> emitted into the atmosphere since pre-industrial times. As more CO<sub>2</sub> dissolves in the ocean, it reduces ocean pH, which changes the chemistry of the water. These changes present potential risks across a broad spectrum of marine ecosystems.

Biological effects are projected based on models that predict lower pH regimes in marine waters over the next 50–100 years. Using these predictions, reduced pH conditions and/or increased CO<sub>2</sub> saturation have been simulated in the lab and have shown the potential to impact marine life. The majority of the effects observed in lab studies have occurred at pH levels beyond the allowed variability of 0.2 units in the CWA 304(a) recommended criteria for marine pH. For instance, ocean acidification related reductions in pH is forecast to reduce calcification rates in corals and may affect economically important shellfish species including oysters, scallops, mussels, clams, sea urchins, crabs, and lobsters. A recent field study on marine plankton described reduced shell weight over time “consistent with reduced calcification today induced by ocean acidification” (Moy et al. 2009). One study demonstrated effects at pH changes of less than 0.2, describing effects on squid metabolism (0.2 is the allowed pH variation from normal conditions under current EPA criteria recommendation) (Portner 2008). Impacts to shellfish and other calcifying organisms that represent the base of the food web may have implications for larger organisms that depend on shellfish and other calcifying organisms for prey.

Current research indicates the impact of ocean acidification on marine organisms will largely be negative, and the impacts may differ from one life stage to another. There may be interactions between CO<sub>2</sub> saturation, temperature, and other stressors which are not fully understood. Preliminary projections indicate that oceans will become more acidic over time and overall, the net effect is likely to disrupt the normal functioning of many marine and coastal ecosystems.

The first comprehensive national study of how CO<sub>2</sub> emissions are absorbed into the oceans has been commissioned by the National Oceanic and Atmospheric Administration (NOAA). The National Academies' Committee on the Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment is charged with recommending priorities for a national

research, monitoring, and assessment plan to advance understanding of the biogeochemistry of carbon dioxide uptake in the ocean and the relationship to atmospheric levels of carbon dioxide, and to reduce uncertainties in projections of increasing ocean acidification and the potential effects on living marine resources and ocean ecosystems. The 18-month project started on September 16, 2008 (<http://dels.nas.edu/osb/acidification.shtml>).

### A. Examples of EPA Activities and Publications Related to Ocean Acidification

EPA is currently involved in a number of initiatives both solely and in partnership with other Federal agencies. Below is a list of current and future projects related to the issue of ocean acidification, the development of biocriteria to help classify and protect marine resources, and tools for the assessment of potential impacts to marine resources that comprise marine designated uses.

- EPA released the “Stony Coral Rapid Bioassessment Protocol” (RBP); EPA/600/R-06/167, July 2007, which provides a methodology for assessing the health and condition of stony corals, calcifying organisms that are sensitive to ocean acidification. Use of the RBP by interested States and Territories provides the ability to establish a baseline for coral reef structural health, provides the capacity to derive biocriteria for corals and reef structures, and provides a scientifically defensible method for assessing use attainment in marine waters, as well as evaluating the impact of stressors, such as ocean acidification on corals and coral reef structures. [http://www.epa.gov/bioiweb1/coral/coral\\_biocriteria.html](http://www.epa.gov/bioiweb1/coral/coral_biocriteria.html).

- EPA is also developing a technical guidance framework to aid States and Territories in their development, adoption, and implementation of coral reef biocriteria in their respective water quality standards. EPA plans to publish this coral biocriteria framework document by December 2009 to assist in this effort. This document will complement the “Stony Coral Rapid Bioassessment Protocol” (RBP) described above.

- EPA has supported the development of the Coral Mortality and Bleaching Output (COMBO) model to project the effects of climate change on coral reefs by calculating impacts from changing sea surface temperature and CO<sub>2</sub> concentration, and from episodic high temperature bleaching events. Having been applied to Hawaii and the Eastern Caribbean, the model is intended to serve as a tool for climate

change policy analysis, and for use by resource managers and biologists in projecting coral reef impacts at local-to-regional scales.

- The Coastal Research and Monitoring Strategy presents a basic assessment of the Nation's coastal research and monitoring needs, and recommends an integrated framework to address the needs of the Nation and the coastal States and Tribes in order to protect vital coastal resources. <http://www.epa.gov/owow/oceans/nccr/H2Ofin.pdf>.

- The National Coastal Condition Report III (NCCR III), December 2008, is the third in a series of reports describing the ecological health of U.S. coastal waters at a regional and national scale. First issued in 2001 and updated periodically thereafter, the NCCR is one of only a few statistically-significant measures of U.S. water quality on a nationwide basis. NCCR III assesses the condition of the Nation's coastal waters, including Alaska and Hawaii, based primarily on coastal monitoring data collected in 2001 and 2002. It presents an analysis of temporal changes in estuarine condition from 1990 to 2002 for the Nation's coastal waters and by region. <http://www.epa.gov/owow/oceans/nccr3/downloads.html>.

- EPA, working with other Federal agencies, as well as State, regional, and local partners, undertakes site-specific monitoring of coastal and ocean waters. For example, EPA and the State of Florida, in consultation with NOAA, implement the Water Quality Protection Program (WQPP) for the Florida Keys National Marine Sanctuary. The WQPP includes a water quality monitoring program which has funded three long-term monitoring projects: overall water quality; coral reef and hardbottom community health; and seagrass community health. <http://www.epa.gov/region4/water/coastal/index.html>.

### III. What Are Water Quality Criteria?

Water quality criteria are scientifically derived values that protect aquatic life or human health from the deleterious effects of pollutants in ambient water.

Section 304(a)(1) of the Clean Water Act requires EPA to develop and publish and, from time to time, revise, criteria for water quality accurately reflecting the latest scientific knowledge. Water quality criteria developed under section 304(a) are based solely on data and scientific judgments on the relationship between pollutant concentrations and environmental and human health effects. Section 304(a) criteria do not reflect consideration of economic impacts or the technological feasibility

of meeting the chemical concentrations in ambient water. Section 304(a)(2) requires EPA to develop and publish and, from time to time, revise, information, including information on factors necessary to restore and maintain the integrity of navigable waters, ground waters, waters of the contiguous zone, and the oceans; protection and propagation of shellfish, fish, and wildlife; and measurement and classification of water quality.

Section 304(a) recommended criteria provide guidance to States and authorized Tribes in adopting water quality standards that ultimately provide a basis for controlling discharges or releases of pollutants. The criteria also provide guidance to EPA when promulgating Federal regulations under section 303(c) when such action is necessary.

Under the CWA and its implementing regulations, States and authorized Tribes are to adopt water quality criteria to protect designated uses (e.g., public water supply, recreational use, industrial use). EPA's section 304(a) recommended water quality criteria do not substitute for the CWA or regulations, nor are they regulations themselves. Thus, EPA's recommended criteria do not impose legally binding requirements. States and authorized Tribes have the discretion to adopt, where appropriate, other scientifically defensible water quality standards that differ from these recommendations.

#### A. Why Is EPA Reviewing the Aquatic Life Criteria for pH for Marine Waters?

EPA's current CWA 304(a) recommended criterion for marine pH states: "pH range of 6.5 to 8.5 for marine aquatic life (but not varying more than 0.2 units outside of the normally occurring range)". This criterion applies to open-ocean waters within 3 miles of a State or Territory's shoreline where the depth is substantially greater than the euphotic zone.

On December 17, 2007, EPA received a petition from the Center for Biological Diversity asking EPA to revise its recommended national marine pH water quality criterion for the protection of aquatic life and also asked EPA to publish information and provide guidance on ocean acidification.

Following careful consideration of the petitioner's request and supporting information, EPA is issuing this notice to solicit additional scientific information and data to fill data gaps to inform EPA's next steps and determine whether changes in existing criteria are warranted.

In this NODA, EPA is only requesting information and data relevant to

addressing ocean acidification under the CWA. After the comment period closes on this NODA, EPA plans to evaluate the information received in considering whether the revision of the recommended marine pH criterion is warranted at this time. EPA intends to make final its decision regarding the evaluation of the information received within one year. If necessary, additional public review and comment will be requested during revision of the pH criterion.

### IV. References Related to Ocean Acidification

- America's Living Oceans* ("Living Oceans"), Final Report of the Pew Oceans Commission, pg. 90 (2003).
- Andersson, A.J., *et al.*, Coastal Ocean CO<sub>2</sub>—Carbonic Acid—Carbonate Sediment System of the Anthropocene. *Global Biogeochemical Cycles*, 20:GB1S92 (2006).
- Andersson, A.J.; Mackenzie, F.T.; Bates, N.R. *Life on the Margin: Implications of Ocean Acidification on Mg-calcite, High Latitude and Cold-Water Marine Calcifiers*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 265-273; 2008.
- Atkinson, M.J.; Cuet, P. *Possible Effects of Ocean Acidification on Coral Reef Biogeochemistry: Topics for Research*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 249-256; 2008.
- Balch, W.M.; Fabry, V.J. *Ocean Acidification: Documenting its Impact on Calcifying Phytoplankton at Basin Scales*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 239-247; 2008.
- Bindoff, N.L., *et al.*, Chapter 5: Observations: Oceanic Climate Change and Sea Level, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC* (2007).
- Bradley, P., W. Davis, W. Fisher, H. Bell, V. Chan, C. LoBue, W. Wiltse. *Biological criteria for protection of U.S. coral reefs*. *Proceedings of the 11th International Coral Reef Symposium*, July 7-11, 2008.
- Buddemeier, R.W., P.L. Jokiel, K.M. Zimmerman, D.R. Lane, J. M. Carey, G.C. Bohling, J.A. Martinich. (2008) A modeling tool to evaluate regional coral reef responses to changes in climate and ocean chemistry. *Limnology and Oceanography Methods* 6:395-411.
- Caldeira, K. & Wickett M.E., *Anthropogenic Carbon and Ocean pH*. *Nature* 425:365 (2003).
- Caldeira, K. and 25 others, Comment on "Modern-age Buildup of CO<sub>2</sub> and Its Effects on Seawater Acidity and Salinity" by Hugo A. Loaiciga. *Geophysical Research Letters* 34:L18608 (2007).
- Chavez, F.P., *et al.*, Chapter 15: Coastal Oceans, *North American Carbon Budget and Implications for the Global Carbon Cycle*, U.S. Climate Change Science Program (2007).
- Dore, J., *et al.*, Climate-driven changes to the atmospheric CO<sub>2</sub> sink in the subtropical North Pacific Ocean. *Nature* 424:754-757 (2003).

- Dupont, S.; Havenhand, J.; Thorndyke, W.; Peck, L.; Thorndyke, M. *Near-future Level of CO<sub>2</sub>-driven Ocean Acidification Radically Affects Larval Survival and Development in the Brittlestar *Ophiothrix Fragilis** Marine Ecology (ISSN: 0171-8630); Volume 373, No., pp. 285-294; 2008.
- Feely, R.A., *et al.*, Carbon Dioxide and Our Ocean Legacy (2006).
- Feely, R.A., *et al.*, Impact of Anthropogenic CO<sub>2</sub> on the CaCO<sub>3</sub> System in the Oceans. *Science* 305:362-366 (2004).
- Gattuso, J.P., *et al.* Effect of Calcium Carbonate Saturation of Seawater on Coral Calcification. *Global and Planetary Change* 18:37-46 (1998).
- Gazeau, F., *et al.*, Impact of Elevated CO<sub>2</sub> on Shellfish Calcification. *Geophysical Research Letters* 34:L07603 (2007).
- Gruber, N., Sarmiento J.L., Stocker, T.F., An Improved Method for Detecting Anthropogenic CO<sub>2</sub> in the Oceans. *Global Biogeochemical Cycles* 10: 809-837 (1996).
- Guionette, J.M., *et al.*, Will Human-induced Changes in Seawater Chemistry Alter the Distribution of Deep-Sea Scleractinian Corals? *Frontiers in Ecol. Environ.* 4:141-146 (2006).
- Gutowaska, M.A.; Portner, H.O.; Melzner, F. *Growth and Calcification in the Cephalopod *Sepia Offpicinalis* under Elevated Seawater pCO<sub>2</sub>*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 303-309; 2008.
- Haugan, P.M., Turley, C., & Poertner H-O, Effects on the Marine Environment of Ocean Acidification Resulting from Elevated Levels of CO<sub>2</sub> in the Atmosphere, OSPAR Commission Report (2006).
- Hoegh-Guldberg, *et al.*, Coral Reefs Under Rapid Climate Change and Ocean Acidification. *Science* 318:1737-1742 (2007).
- Hofmann, G.E., O'Donnell M.J. and Todgham A.E. (2008). Using functional genomics to explore the effects of ocean acidification on calcifying marine organisms. *Marine Ecology Progress Series* 373:219-225.
- Ishimatsu, Atsushi, Effects of CO<sub>2</sub> on Marine Fish: Larvae and Adults. *Journal of Oceanography* 60(4) (2004).
- Ishimatsu, A.; Hayashi, M.; Kikkawa, T. *Fishes in High-CO<sub>2</sub>, Acidified Oceans*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 295-302; 2008.
- Jokiel, Paul L., Ku'ulei S. Rodgers, Ilsa B. Kuffner, Andreas J. Andersson, Evelyn F. Cox, Fred T. Mackenzie (2008) Ocean acidification and calcifying reef organisms: a mesocosm investigation. *Coral Reefs* 27:473-483.
- Kleypas, J.A., *et al.*, Impacts of Ocean Acidification on Coral Reefs and Other Marine Calcifiers (2006).
- Kuffner, Ilsa B., Andreas J. Andersson, Paul L. Jokiel, Ku'ulei S. Rodgers, and Fred T. Mackenzie (2008) Decreased abundance of crustose coralline algae due to ocean acidification. *Nature Geoscience* 1:114-117.
- Kurihara, H. *Effects of CO<sub>2</sub>-Driven Ocean Acidification on the Early Developmental Stages of Invertebrates*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 275-284; 2008.
- Langdon, C. and others (2000) Effect of calcium carbonate saturation state on the calcification rate of an experimental coral reef. *Global Biogeochem. Cy.*, 14, 639-654.
- Langdon, C. (2003) Effect of elevated CO<sub>2</sub> on the community metabolism of an experimental coral reef. *Global Biogeochem. Cy.*, 17(1), 1011, doi: 10.1029/2002GB001941.
- Liu, X. *et al.*, Spectrophotometric Measurements of pH in-Situ: Laboratory and Field Evaluations of Instrumental Performance. *Environmental Science & Technology* 40: 5036 (2006).
- Lough, J.M. *Coral Calcification from Skeletal Records Revisited*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 257-264; 2008.
- Lumsden S.E., Hourigan T.F., Bruckner A.W., Dorr G. (eds.). *The State of Deep Coral Ecosystems of the United States*. NOAA Technical Memorandum CRCP-3. (2007).
- McNeil, B.I. & Matear, R.J., Projected Climate Change Impact on Oceanic Acidification. *Carbon Balance and Management*, 1: 2 (2006).
- Morgan, L.E., C.-F. Tsao, J.M. Guinotte, Status of Deep Sea Coral in U.S. Waters, with Recommendations for their Conservation and Management (2006).
- Moy *et al.* Reduced calcification in modern Southern Ocean planktonic foraminifera. *Nature Geoscience*. Published online March 8, 2009 <http://nature.com/ngel/journal/vaop/ncurrent/>.
- Murray, J.R., *et al.* Reefs of the Deep: The Biology and Geology of Cold-Water Coral Ecosystems. *Science* 312: 543-547 (2006).
- Ocean Blueprint for the 21st Century* ("Ocean Blueprint"), Final Report of the U.S. Commission on Ocean Policy (2004).
- Orr, J.C., *et al.*, Anthropogenic Ocean Acidification over the Twenty-first Century and Its Impact on Calcifying Organisms, *Nature* 437: 681-686 (2005).
- Pörtner, H.O., Langenbuch, M. & Reipschläger, A., Biological impact of elevated ocean CO<sub>2</sub> concentrations: lessons from animal physiology and earth history. *Journal of Oceanography* 60: 705-718 (2004).
- Pörtner, Hans O., Synergistic effects of temperature extremes, hypoxia, and increases in CO on marine animals: From Earth history to global change. *Journal of Geophysical Research* 110(c9) (2005).
- Pörtner, H.O. *Ecosystem Effects of Ocean Acidification in Times of Ocean Warming: A Physiologist's View*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 203-217; 2008.
- Riebesell, U., *et al.*, Reduced Calcification of Marine Plankton in Response to Increased Atmospheric CO<sub>2</sub>, *Nature* 407: 364-367 (2000).
- Rost, B.; Zondervan, I.; Wolf Gladrow, D. *Sensitivity of Phytoplankton to Future Changes in Ocean Carbonate Chemistry: Current Knowledge, Contradictions and Research Directions*. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 227-237; 2008.
- Royal Society, *Ocean Acidification Due to Increasing Atmospheric Carbon Dioxide* (2005).
- Ruttimann, J. Sick Seas. *Nature News Feature* 978-980 (2006).
- Sabine, C.L., *et al.* The Oceanic Sink for Anthropogenic CO<sub>2</sub>. *Science* 305: 367-371 (2004).
- Shirayama, Y., Effect of increased atmospheric CO on shallow water marine benthos. *Journal of Geophysical Research* 110(c9) (2005).
- Turley, C., *et al.* Chapter 8: Reviewing the Impact of Increased Atmospheric CO<sub>2</sub> on Oceanic pH and the Marine Ecosystem, Avoiding Dangerous Climate Change (2006).
- Turley, C. *et al.*, Corals in deep water: will the unseen hand of ocean acidification destroy cold-water ecosystems? *Coral Reefs* 26:445-448 (2007).
- Vezina, A.F.; Hoegh-Guldberg, O. *Marine Ecology* (ISSN: 0171-8630); Volume 373, No., pp. 199-201; 2008.

Dated: April 9, 2009.

**Michael H. Shapiro,**

*Acting Assistant Administrator for Water.*

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## ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OPP-2009-0045; FRL-8409-7]

### Notice of Receipt of Several Pesticide Petitions Filed for Residues of Pesticide Chemicals in or on Various Commodities

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice.

**SUMMARY:** This notice announces the Agency's receipt of several initial filings of pesticide petitions proposing the establishment or modification of regulations for residues of pesticide chemicals in or on various commodities.

**DATES:** Comments must be received on or before May 15, 2009.

**ADDRESSES:** Submit your comments, identified by docket identification (ID) number and the pesticide petition number (PP) of interest as shown in the body of this document, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.
- *Mail:* Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001.

- *Delivery:* OPP Regulatory Public Docket (7502P), Environmental Protection Agency, Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. Deliveries are only accepted during the Docket Facility's normal hours of operation (8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays).