

EXCERPT
General Comments from NCCA 2010 Peer Reviewers

From:

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**Independent External Peer Review (IEPR) Report
of the US EPA National Coastal Condition Assessment Report**

Prepared by

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For

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Independent External Peer Review Report for the U.S. EPA National Coastal Condition Assessment Report Summary Report

EXECUTIVE SUMMARY

This National Coastal Condition Assessment 2010 (NCCA 2010) is the fifth in a series of reports assessing the condition of the coastal waters of the United States. Previous reports, published between 2001 and 2012, were prepared as part of the U.S. Environmental Protection Agency's (EPA) research program; this report is now a part of National Aquatic Resource Surveys (NARS). The NCCA 2010 addresses questions such as: What is the condition of the nation's coastal waters, and is that condition getting better or worse? What is the extent of the stressors affecting them?

This report is based on an analysis of indicators of ecological condition and key stressors in the coastal waters of the Northeast Coast, Southeast Coast, Gulf Coast, Great Lakes, and West Coast regions of the conterminous United States. These waters are enormously varied and valuable, including remarkable resources as diverse as Cape Cod; the Chesapeake Bay; the subtropical waters of Biscayne Bay and Tampa Bay; San Francisco Bay and Puget Sound; and the nearshore waters of the Great Lakes.

In the summer of 2010, EPA and state, tribal, and Federal partners monitored 1,104 sites in these waters using the same methods at all sites to ensure that results were nationally comparable. This report examines four indices as indicators of U.S. coastal condition: benthic macroinvertebrates, water quality, sediment quality, and fish tissue contaminants.

The U.S. Environmental Protection Agency (EPA) is conducting an Independent External Peer Review (IEPR) of the NCCA Report. Under Contract No. EP-G14C-00494, EPA engaged Redhorse Corporation (Redhorse) to coordinate the peer review of the technical basis of the hypotheses, design, methods, models, data and analyses, and assumptions supporting the NCCA Report.

Based on the technical content of the NCCA Report and the overall scope of the project, Redhorse identified candidates for the peer review who were experienced in the following key areas: water resource monitoring and reporting at a national scale, coastal condition assessments using biological, water chemistry or sediment toxicity indicators, and ecosystem assessments. Three reviewers were selected from a candidate pool of six peer reviewers. EPA was given the list of candidate reviewers, but Redhorse made the final selection of the peer review panel.

Redhorse provided the reviewers with an electronic version of the NCCA Report, totaling approximately 100 pages, along with supporting documentation and a charge that solicited

comments specifically on the technical content, completeness and clarity, and scientific integrity of the Summary Report. EPA and Redhorse worked together to prepare the charge according to guidance provided in EPA (2012), EPA (2006) and OMB (2004).

The peer review panel reviewed the NCCA documents individually in response to the thirteen charge questions. The reviewers provided extensive comments for all questions and substantial additional comments and references. The reviewers met via teleconference twice with Redhorse to review key technical comments, discuss charge questions for which there were conflicting responses, and reach agreement on final comments to be provided to EPA.

1. SUMMARY OF PEER REVIEW COMMENTS

Peer reviewers agreed with each other on their assessment of the technical basis of the hypotheses, design, methods, models, data and analyses, and assumptions supporting the NCCA Report. The peer review panel agreed on the following:

Peer reviewers agreed among one another on many issues and made the following key comments:

- The organization, goals, purpose and design are clearly described. Reference is consistently made to the specific sites across the nation and their representation of regional coastal condition.
- The new characterization methods for sediment quality are adequate and it uses standard screening level criteria.
- The benthic indices are the most complex. The benthic methodology is explained adequately, making the information clear to the reader.
- The approach used for analyzing mercury in fish tissue in the Great Lakes is acceptable and uses current common practices.
- The approaches used in the NCCA to assess coastal condition over time are informative but not always clear.

The peer reviewers also identified many of the same issues. The following statements provide a summary of the recurring themes or issues from the peer reviewers:

- In many cases it may be too early in this process to make definitive temporal conclusions regarding changes in coastal condition until the inherent variability in the data becomes clearer with additional data sets in the future
- The data presentation could be improved in several ways including re-representation of key data results. There are substantial sets information on many parameters on each graph. The graphics are too complicated or are packed with too much information. Scientifically, the graphics are fine but the authors may want to consider adding additional summary graphs that tell a portion of the story simply and with a quick glance.
- The method or procedure to extrapolate from a single sample to areas is not clearly explained including the bias and uncertainty in the method.
- The procedures and methods used for sampling are not clearly described. For instance, what type of sampling gear is used for benthic sampling? Are there depth restrictions? Are urbanized areas or channels excluded? For water quality, are there tide restrictions (sampling on low tides? not sampling on low tides?) or restrictions as to the time of day sampled (especially important for dissolved oxygen).
- The presentation of the data would be enhanced by use of a geospatial data presentation. Maps could be produced with shaded colors or data bars that are geographically displayed

that correspond to the data's magnitude. These types of graphical representations may be easier and more intuitive for the reader to interpret.

- The new fish tissue characterization methods and assessment cutpoints need to be reviewed and revised. Important technical information may not have been included that could lead to misinterpretation. The fish tissue contamination index needs to be aligned with other indicators, and the use of dissolved inorganic nitrogen results in the "Nitrogen" indicator is not aligned with other water quality indicators.
 - There were areas for clarification and revision suggested for the water quality indices including: a relatively low spatial and temporal sampling density, and the inconsistency of the use of inorganic nutrient levels as an indicator of trophic status compared to other organizations or agencies.
 - The shortcomings of available data and assessment approaches are clearly articulated but the impact of those shortcomings is not addressed in any detail.
 - The current Draft Report can be most improved by: 1) addressing misleading interpretation of condition change, 2) addressing the discrepancy among the multiple ways to the fish tissue index and benthic community health, water quality and sediment toxicity overcoming occasional data limitations with special-case data imports from the literature, 3) overcoming occasional data limitations with special-case data imports from the literature or using much more extensive data sets and 4) expanding the text to include recommendations.
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Charge to the Peer Reviewers

Charge Questions and Guidance to the Peer Reviewers for the National Coastal Condition Assessment (NCCA) Report

CHARGE TO PEER REVIEWERS

Prior to its release expected in early 2015, the NCCA report is being reviewed in three stages. The first is a review by EPA's state partners. The second stage of the process, in which Peer Reviewers are being invited to participate, is the peer review. This peer review is important to ensure that the information contained in the reports is scientifically credible. The peer review is important in evaluating whether the Summary Report will be easily understood by people who may have a vested interest in water resources nationally or on a local scale. The third stage is the release of the draft Summary Report to the general public for final comment via the web.

The draft NCCA report is the fifth report on coastal conditions and is a culmination of effort from EPA, States and Tribes, and input from coastal conditions experts from various academic and/or scientific institutions. While the subject matter is somewhat technical in nature, the Summary Report itself is intended for the "environmental policy or educated layperson" – the type of person who may work at the policy level in environmental issues, or alternately has a dedicated interest in water resource quality concerns. EPA is also including a Technical Report intended for those people who would like a more in-depth explanation into the analytical underpinnings of how the assessment was derived. EPA is asking that Peer Reviewers review comments focus specifically on: technical content, completeness and clarity, plus scientific soundness of the Summary Report. EPA is asking that Peer Reviewers limit their review to an assessment of whether the:

- Methodology is acceptable, even if it may not be the "best" of all possible choices;
- Findings are scientifically reasonable and logical outgrowths of the data and methodology; and
- Presentation is consistent with the scientific underpinnings.

EPA is not requesting comments on:

- Formatting unless it is misleading or apt to be confusing to the reader;
 - Indicator selection because it resulted from extensive collaboration with many parties;
 - Data selection, other than in the context of the particular analysis (i.e., the focus is on the data that has been collected, not alternatives for collecting additional data); and
 - The Technical Report unless it is inconsistent with the Summary Report or presents inappropriate methodologies.
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Specific questions for the Peer Reviewers are included in the general charge guidance, which is provided below.

General Charge Guidance

Please answer the scientific and technical questions listed below and conduct a broad overview of the NCCA Summary Report. Please focus your review on the review materials assigned to your discipline/area of expertise and technical knowledge. Even though there are some sections with no questions associated with them, that does not mean that you should not comment on them. Please feel free to make any relevant and appropriate comment on any of the sections and appendices you were asked to review. In addition, please note the following guidance.

1. Your response to the charge questions should not be limited to a “Yes” or “No.” Please provide complete answers to fully explain your response.
2. If appropriate, offer opinions as to whether there are sufficient analyses upon which to base a recommendation.
3. Identify, explain, and comment upon assumptions that underlie all the analyses, as well as evaluate the soundness of models, surveys, investigations, and methods.
4. Evaluate whether the interpretations of analysis and the conclusions based on analysis are reasonable
5. Please focus the review on assumptions, data, methods, and models.
6. This document should be considered confidential and should not be shared with other individuals or groups, as it is likely to change as a result of state and peer review.

Please **do not** comment on or make recommendations on policy issues and decision making. Comments should be provided based on your professional judgment, **not** the legality of the document.

1. If desired, Peer Reviewers can contact one another. However, Peer Reviewers **should not** contact anyone who is or was involved in the project or prepared the subject documents.
2. Please contact the Redhorse Peer Review Manager (Barbara Toole O’Neil, barbara.tooleoneil@redhorsecorp.com) for requests or additional information.
3. In case of media contact, notify the Redhorse Peer Review Manager (Barbara Toole O’Neil, barbara.tooleoneil@redhorsecorp.com) or Adrienne Barnes (adrienne.barnes@redhorsecorp.com) immediately.
4. Your name will appear as one of the Peer Reviewers in the peer review report.
5. Peer reviewers shall not share findings of the draft Summary Report with any other individuals or groups.

Please submit your comments in electronic form to:

Barbara Toole O’Neil, barbara.tooleoneil@redhorsecorp.com

No later than Friday, December 5, 2014, 8 pm Eastern (5 pm Pacific).

Peer reviewers will be “charged” with responding to specific technical questions. EPA asks that Peer Reviewers address the following questions in their evaluation and critique of the draft Summary Report.

SPECIFIC CHARGE GUIDANCE

Draft NCCA 2010 Peer Review Charge Questions

1. Does the organization and content of the report seem appropriate and does it present the material in an understandable manner for its target audience (i.e. general public)? For example:
 - a. Are the goals, purpose, and design of the study clearly described for the target audience?
 - b. An important aspect is that the reader understands that the NCCA is not assessing individual sites for those coastal and Great Lakes attributes, but rather the population of coastal/Great Lakes at several geographic scales. Does this point come across clearly?
 - c. Is the data presentation sufficiently clear and intuitive? We would like your thoughts on whether these data presentations work, or if other approaches would be more intuitive.
 2. Are there alternative ways to present this data at a population level?
 3. Based on past comments and reviews, revisions were made to the sediment quality and fish tissue indices and assessment cutpoints. The changes made reflect advances in the science and the application of widely-used methods and approaches. Do the approaches appear valid? Do the revised indices make sense?
 4. Are the benthic indices described in the report explained and clear to the reader? Are there concerns with the analysis used to develop the final results?
 5. Are the water quality indices and indicators used in the report explained and clear to the reader? Are there concerns with the analysis used to develop the final results?
 6. Are the cutpoints used in the report scientifically valid for the regional scale?
 7. Is the approach used for analyzing mercury in fish tissue in the Great Lakes and assessing the population acceptable and based on sound scientific principles?
 8. Do the approaches to assess coastal condition clearly represent aspects of coastal condition that are informative and not redundant?
 9. Are the shortcomings of available data and assessment approaches clearly articulated?
 10. Does the Report meet the stated goals and objectives of reporting on indicators that reflect the condition of the nation's coastal resource and selected stressors?
 11. The NCCA presents changes in condition of coastal systems over time. Is the information on these differences/changes from the previous reports explained and clear to the reader?
 - a. Is the approach used to assess the change in coastal systems acceptable and based on sound scientific principles?
 - b. Are the conclusions regarding changes in coastal condition over time supported by the data and analyses presented?
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12. Please discuss any controversies that may be raised by the conclusions presented in this report.
13. What is the most important concern you have with the report documentation that was not covered in your answers to the questions above?