

**EXCERPT**  
**General Comments from NWCA 2011 Peer Reviewers**

**From:**

**July 17, 2015**

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

## EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) designed National Aquatic Resource Surveys to assess the condition of the nation's waterbodies using a probability-based approach on a five- year rotating basis, with one waterbody type under assessment in each year. Under the National Aquatic Resource Survey (NARS) program, studies have been completed for wadeable streams (2004), lakes (2007), rivers and streams (2008-2009), and coastal waters (2010). The National Wetland Condition Assessment (NWCA) is the first national survey on the ecological condition of the Nation's wetlands and is a culmination of effort from EPA, States and Tribes. With the completion of the 2011 NWCA, all of the nation's aquatic resources in the conterminous U.S. have been assessed under the NARS program.

The NWCA builds not only upon the groundbreaking work of its sister NARS studies, but also that of the U.S. Fish and Wildlife Service's (FWS) Wetland Status and Trends program, which has been documenting changes to the extent of wetland area in the United States for over 50 years. Together, these studies help us to better understand the overall condition and health of all of our nation's waters and provide information to more effectively manage and protect this invaluable resource.

The key goals of the NWCA are to:

- Produce a national report describing the ecologic condition of the nation's wetlands and stressors most commonly associated with poor condition;
- Collaborate with states and tribes in developing complementary monitoring tools, analytical approaches, and data management technology to aid wetland protection and restoration programs;
- Investigate ways to quantify ecosystem services derived from wetlands; and
- Advance the science of wetland monitoring and assessment to support wetland management needs.

During the 2011 field season, field crews sampled 1,179 sites from Florida to Alaska, collecting ~20,000 samples and biological, physical, and chemical data to characterize ecological condition and stressors.

EPA is conducting an Independent External Peer Review (IEPR) of the NWCA 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 NWCA Report.

Based on the technical content of the NWCA 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, wetland condition assessments using biological, and ecosystem assessments. Three reviewers were selected from a candidate pool of 15 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 NWCA Report, totaling approximately 115 pages, along with supporting documentation and a charge that solicited comments specifically on the technical content, completeness and clarity, and scientific integrity of the NWCA 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 NWCA documents individually in response to the seven charge questions. The reviewers provided extensive comments for all questions. Redhorse met with the peer reviewers via teleconference and email to discuss charge questions, any clarifications provided from EPA and their conclusions on the report.

# 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 NWCA 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 NWCA is placed in proper context of the overall NARS and the USFWS Status and Trends reports
- The Summary Report accomplished the goal of describing the ecological condition of the nation's wetlands (on national and regional scales) and stressors most commonly associated with poor condition.
- The Summary Report adequately explains that the physical, chemical, and biological indicators of stress do not necessarily cause ecological decline, but are associated with changes in wetland condition.

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:

- The 2011 NWCA does not clearly identify that the NWCA is not comprehensive. Many wetland types were either not sampled at all or inadequately due to an incomplete sample frame, thus ecoregions such as the West were grossly under sampled compared to the other ecoregions.
- Discussions of ecosystems services is inconsistent. Examples include:
  - One of the four “key goals” of the NWCA on page 1 is to “[i]nvestigate ways to quantify ecosystem services derived from wetlands,” but on page 60 it states that “the NWCA was not specifically designed to answer questions about the provision of ecosystem services by wetlands.
  - On page 5, it states that wetlands are “well-studied ecosystems,” but on page 6, it states that “we know little about their actual ecological health” and “wetlands have not been commonly assessed to determine their ecological condition or ability to meet water quality goals.”
- It might be more inclusive to include preliminary results from the chemical data with the other biological and physical data with explicit caveats about uncertainties and preliminary interpretations around the “need to further evaluate how to use this information or to improve data collection protocols”?

## Charge to the Peer Reviewers

# Charge Questions and Guidance to the Peer Reviewers for the 2011 National Wetland Condition Assessment (NWCA) Report

### CHARGE TO PEER REVIEWERS

Prior to its final release, expected in the fall of 2015, the NWCA report is being reviewed in three stages. The first is a review by EPA's state partners, conducted simultaneously with the second stage. 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 comment via the Federal Register.

The draft NWCA report is the first report on wetland ecological condition at a national scale and is a culmination of effort from EPA, States and Tribes, and input from wetland 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 focused specifically on: technical content, completeness and clarity, and 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

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 NWCA 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 partner 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](mailto:barbara.tooleoneil@redhorsecorp.com)) requests or additional information.
  3. In case of media contact, notify the Redhorse Peer Review Manager (Barbara Toole O’Neil, [barbara.tooleoneil@redhorsecorp.com](mailto:barbara.tooleoneil@redhorsecorp.com)) or Adrienne Barnes ([adrienne.barnes@redhorsecorp.com](mailto: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.
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## **Please submit your comments in electronic form to:**

Barbara Toole O'Neil, [barbara.tooleoneil@redhorsecorp.com](mailto:barbara.tooleoneil@redhorsecorp.com)

**No later than June 26, 2015, 8 pm Eastern (5 pm Pacific). [note: the review was completed June 20]**

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 NWCA 2011 Peer Review Charge Questions**

1. Does the organization and content of the Summary 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 NWCA is not assessing individual sites for those wetlands attributes, but rather the population of wetlands at several geographic scales. Does this point come across clearly?
    - c. Is the data presentation sufficiently clear and intuitive? Are there other approaches to presenting the data that you believe would be more intuitive?
  2. Are the thresholds and screening approaches used to quantify disturbance gradients and reference condition scientifically valid for all groups (national and regional) used to report NWCA results? Are the concepts of reference condition and threshold development explained and clear to the reader (i.e., general public) in the Summary Report?
  3. Is the underlying approach for the analysis of the biological indicator of condition based on the Vegetation Multimetric Index (MMI) scientifically sound? Is the information on the Vegetation MMI presented in a clear and understandable manner in the report?
  4. Are the indicators of stress described in the report explained and clear to the reader? Are there concerns with the analysis used to develop the final results?
  5. Is the relationship between the indicators of stress and biological condition adequately explained? Are the underlying approaches used to assess this relationship based on sound scientific principles?
  6. Does the Summary Report meet the stated goals and objectives of reporting on indicators that reflect the condition of the nation’s wetlands resource and associated stressors?
  7. What is the most important concern you have with the report documentation that was not
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covered in your answers to the questions above?