

Understanding the Key Findings of the National Wetland Condition Assessment: A Summary for Non-scientists

Compiled by the Association of State Wetland Managers (Last revised 2-16-16)

The National Wetland Condition Assessment (NWCA) is an evaluation of the environmental health of the nation's wetland resources that has been carried out by the U.S. Environmental Protection Agency along with state and tribal partners. The NWCA is one of four National Aquatic Resource Surveys initiated in 2006. These studies provide nationally-consistent and scientifically-defensible assessments of our lakes, rivers, wadeable streams, coastal waters, and wetlands, and can be used to track changes over time. The first NWCA survey was completed in the summer of 2011; the survey will be repeated in 2016.

EPA National Aquatic Resource Surveys (NARS) are conducted every year with each resource type sampled on five year cycles. This will allow us to evaluate changes in aquatic resource conditions over time

2007	2008-2009	2010	2011
Lakes	Rivers and Streams	Coastal Waters	Wetlands
2012	2013-2014	2015	2016
Lakes	Rivers and Streams	Coastal Waters	Wetlands

NWCA provides an overview of the condition (quality) of wetlands that remain in existence, and does not address wetland loss due to drainage or filling. It is intended to compliment national wetland status and trends studies by the U.S. Fish and Wildlife Service that measure wetland gains and losses, and estimate the area (quantity) of the nation's remaining wetlands. It is assumed that an ecologically healthy wetland will not only provide superior fish and wildlife habitat, but will be better able to provide other ecological services that benefit the public, such as reducing pollutants from stormwater runoff, buffering storm surges, and storing/releasing water supplies. Therefore, identifying factors associated with poor or degraded condition was also an important component of the study.

What was actually measured during the NWCA and why?

During planning for the NWCA, federal and state wetland scientists discussed numerous potential factors (indicators) that might measure wetland condition or health, including biological measurements (e.g. of fish or bird populations) and physical/chemical factors (water chemistry, water depth, soil saturation and chemistry, etc.). Many of these potential factors were eliminated from consideration because they would not be relevant to all types of wetlands across the entire country or because it would not be practical to collect the needed data. Ultimately, measurements of plant communities (including certain types of algae), soil physical and chemical properties, water chemistry (where standing water was present), hydrologic information (water sources and evidence of alterations that could affect water flow and retention), and natural cover and disturbance in a buffer area immediately surrounding the sampling site were collected during the survey.

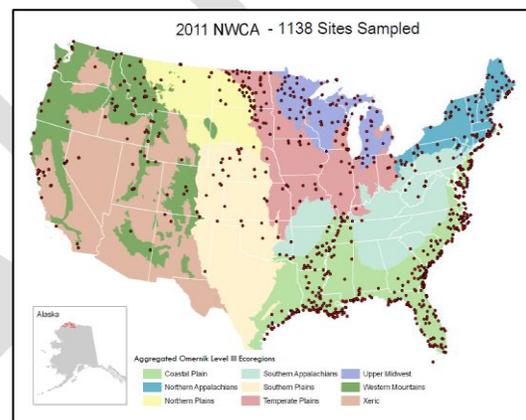
The data were then analyzed to determine which measurements (or "metrics") would best demonstrate the difference between ecologically healthy, undisturbed or minimally disturbed wetlands (known as reference condition wetlands), and systems that had been stressed by human disturbance and were in poor condition. The best indicator of biological condition proved to be a combination of plant measurements.

In addition, information was collected at each sampling location about factors that might tend to degrade wetland condition – such as adjacent drainage ditches, the presence of stormwater discharge pipes, physical removal of plants, presence of invasive plants, or the existence of roads or other structures in part of the wetland or immediately surrounding area. These factors can change the “condition” of the wetland, leading to poor ecological health and are referred to as “stressors.”

All measurements were taken in a statistically random sample of wetlands nationwide – at a total of 1,179 locations. A higher number of sample points were selected where wetlands are more plentiful, but even drier areas of the country such as the Arid Southwest were included. This sample represents the condition of wetlands on a national, and regional basis. However, too few wetlands were sampled in each state to draw any meaningful conclusions on a state or local level, except where partnering states collected data from additional wetland locations. The NWCA report highlights a number of these state-level studies.

What were the overall results?

The biological condition, or “health” of each wetland was defined as good, fair, or poor based primarily on the combined plant measurements (metrics) as compared to undisturbed or minimally disturbed wetlands (i.e. reference wetlands) having a sound plant community. Using these measures, the NWCA found that only 48% of the nation’s wetlands are in “good” biological condition. Another 20% are in fair condition, and 32% are in poor condition.



The NWCA data were also evaluated within four large geographic areas: (1) Coastal plains, (2) Eastern mountains and upper Midwest, (3) Interior plains, and (4) the West. Of these, the West had the smallest proportion of wetland area in good condition – 21%. By contrast, good condition was observed in 44-52% of wetlands area in the other three regions.

What “stressors” were associated with lower condition?

Much of the data that was collected during the NWCA was used to evaluate indicators of stress in wetlands and their relationship to lowered biological condition. This data can be used to help inform wetland management and protection priorities to avoid or mitigate degradation of wetlands that provide important human benefits.

- **Physical stressors.** At the national level, removal of plants, soil compaction (“hardening”), ditching, damming, filling/erosion, and vegetation replacement (e.g. with a crop or a lawn) were all associated with poor biological condition. Wetlands with high levels of wetland plant removal and hardening were found to be twice as likely to have poor biological condition. If these stressors were eliminated, the study suggests up to 20% of wetland area currently in poor condition based on the plant indicator would improve to good or fair.
- **Chemical stressors.** The study measured the presence of heavy metals and high levels of soil phosphorus as indicators of chemical stress. In 69-73% of wetlands in the nation, the

level of stress resulting from these factors was low. A moderate level of stress from heavy metals was found in the Eastern Mountains/Upper Midwest (31% of wetland area) and the West (47% of wetland area).

- **Biological stressors.** Non-native plants were evaluated as a source of biological stress. Nationally, non-native plant stress was found at low levels in 61% of the wetland area. However, this was not true in the West, where high or very high non-native plant stress was observed in 71% of the wetland areas.

Do wetlands pose a risk from algal toxins?

Certain types of algae can produce a toxic material known as microcystin that can be harmful to wildlife and humans. This chemical has been found in some surface waters, limiting human use for both recreation and drinking water. NWCA detected this toxin in only 12% of wetland area nationally, and based on risk levels established by the World Health Organization, very little wetland area was found to be at either moderate or high risk from algal toxins.

For More Information. This brief summary provides only a portion of the information available in the NWCA reports. Additional fact sheets providing a general summary are also available.

NWCA Website: <http://water.epa.gov/type/wetlands/assessment/survey/>

NWCA Public Report: (Add link here)

NWCA Technical Report: (Add link here)

ASWM NWCA Template Communication Documents and Guidance:

<http://www.aswm.org/wetland-science/wetland-assessment/7220-aswm-draft-national-wetland-condition-assessment-communication-documents-and-templates-for-use-by-states-and-tribes>