

Adaptation Performance Indicators

Establish indicators for climate change adaptation to measure performance

Establishing clear statements of desired outcomes, along with metrics to measure success at achieving those outcomes, is a well-established best practice in many fields. (Note this practice is related to others, including Best Practice #13.) Although there have been some conceptual papers around monitoring and indicators for adaptation performance there are few examples of adaptation performance indicators in practice. A major challenge is that many adaptation goals and objectives cannot be measured in the near-term because they target responses to climatic changes over decades. This can be addressed in part by developing more explicit short- and medium-term objectives for proposed adaptation actions. Such objectives may yield informative indicators that can be measured over short or intermediate time horizons, with the additional benefit of supporting active adaptive management. Longer-term performance may be assessed using the same indicators over longer time horizons or with the development of specific indicators that assess trends against objectives over the long term.

All projects should clearly articulate near- and longer-term adaptation-related objectives along with metrics that provide a means to measure progress toward those objectives. Indicators may address a range of objectives, including ecological (e.g., waters and watersheds, fish and wildlife), socioeconomic (e.g., outdoor recreation), and institutional or performance (e.g., organizational effectiveness), depending on the goals of the adaptation project. A number of efforts have been undertaken in the past two decades to develop and implement ecosystem indicators throughout the Great Lakes region, and various criteria have been proposed, including data availability, feasibility and meaningfulness (e.g., SOLEC, IJC indicators). Regarding performance indicators, simply measuring whether a set of actions was completed as planned is insufficient; some measure of their effects is also essential.

Even if a wetlands management or climate adaptation project is funded only in the short term, it should be designed so that it supports adaptation performance indicator implementation. This can be done by ensuring that data and information collected for the project comport with those data required to assess progress (i.e., implement the adaptation performance indicators) toward achieving intermediate or longer-term objectives.

For indicators to be effective, measurement of change must be accompanied by timely analysis and reporting of performance, trends and scientific assessments (which may involve hypothesis testing) as appropriate. Particularly since the field of adaptation indicators is in its infancy, sharing ideas and results will help move the field forward.



Point Pelee National Park, Ontario, Canada

Case Example

Case examples of adaptation performance indicators are lacking. As such, no case example is provided here. It is worth noting, however, that, the most recent U.S. National Climate Assessment also noted the paucity of adaptation indicators (see Tools and Resources). Performance monitoring has been identified in the literature as an important objective in coastal wetland restoration (see the Tools and Resources section below) and is described in Best Practice #17 in this Toolkit. In the Great Lakes, there have been numerous efforts to develop indicators of ecosystem health, most notably through the State of the Lakes Ecosystem Conference process and subsequent efforts to build on that process. While many of these are designed to assess the state of a resource or the level of stress on a resource, some “response” indicators are helpful in assessing whether a given action is performing the way it was intended.

Other efforts have been undertaken to develop performance indicators in related contexts. For example, the National Treasury of South Africa developed the *Framework for Managing Programme Performance Information*, which considered a number of institutions and components, including oversight, policy development, strategic planning, and operational planning, budgeting, reporting and institutional involvement from the national to local levels. The framework also includes criteria for performance indicators, including reliable, well-defined, verifiable, cost-effective, appropriate and relevant, and with a logic that ties ultimate impacts back to actions and activities. These types of considerations were used in developing criteria for identifying best practices in this project, and such an approach would be viable in identifying and implementing performance measures in the context of addressing adaptation concerns in coastal wetland restoration.

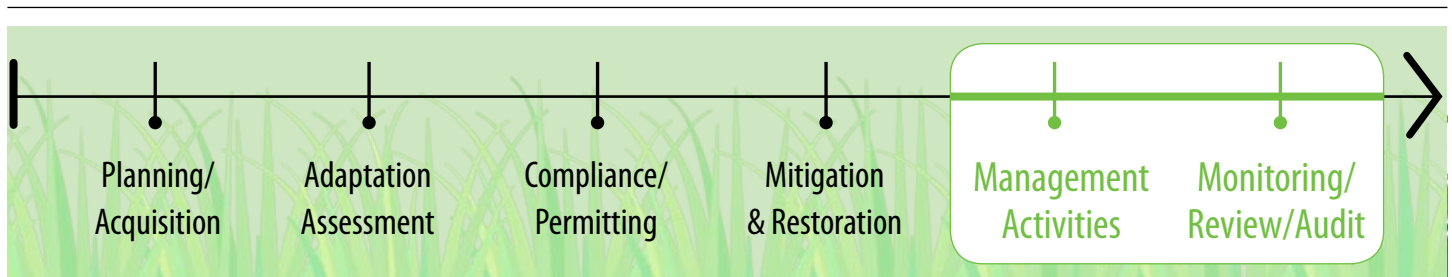
Challenges and Benefits

Because there is little precedent, coming up with practicable but informative indicators is difficult. Also, ensuring that shorter-term projects can support longer-term assessment of adaptation performance requires knowledge of longer-term wetland and climate change adaptation objectives before projects begin—usually in the planning and design phase. As noted above, a major challenge is that many adaptation goals and objectives cannot be measured in the near-term because they target responses to climatic changes over decades. The approach outlined above, however, offers a way forward despite this challenge. Monitoring performance of wetland adaptation efforts can support active adaptive management and provide data needed for evidence-based adaptation. Accordingly, a major benefit is the ability to determine whether adaptation efforts are actually making a difference at different spatial and temporal scales.

Who should implement the practice?

This practice should ideally be implemented at some level by anyone taking adaptation action, but is most important for those who develop and manage all types of wetland conservation and restoration projects. It should be used by planners and managers who have the opportunity to develop and build adaptation performance indicators into a project. To this end, public agencies and organizations interested in assessing ecosystem trends over time should also develop adaptation performance indicators that can readily be used by wetland managers.

When should this practice happen?



Tools and Resources

International Joint Commission – Indicators Assessment of Progress | Set of indicators to be used in the IJC’s triennial assessment of progress. | www.ijc.org/en/_AOP/Indicators

State of the Lakes Ecosystem Conference (SOLEC) Indicators | Selection of indicators emphasizing ecosystem condition, including indicators addressing coastal wetland communities (i.e., plants, birds, amphibians), as well as indicators relevant to climate (such as air temperature and extreme precipitation events). | binational.net/solec/pub_e.html

National Climate Assessment Indicators: Background, Development and Examples (2012) | This report describes a rationale for developing a system of indicators for a climate assessment process, provides a set of examples and briefly touches on research needs, including those related to adaptation indicators. | <http://data.globalchange.gov/report/nca-ti-indicators-2012>

A Comprehensive Review of Climate Adaptation in the United States: More Than Before, but Less Than Needed (2013) | Review of adaptation activities in the United States. | digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1301&context=publichealthresources

Climate Change Adaptation Plan for Coastal and Inland Wetlands in the State of Michigan (2012) | Report of Association of State Wetland Managers that reviews numerous climate change issues relevant to wetland protection and restoration in Michigan. | www.michigan.gov/documents/deq/Michigan_Wetlands_and_Climate_Change_Report_Final_Final_403251_7.pdf

Framework for Managing Program Performance Information (2007) | Framework developed to identify and implement performance indicators and information in various program management contexts. | www.thepresidency.gov.za/pebble.asp?relid=14809

