

Climate in Wetland Permitting

Evaluate wetland permit requirements and modify, if necessary, to incorporate climate adaptation considerations when issuing wetland permits

In coastal areas of Michigan, wetland restoration and enhancement projects typically require permits issued by the Michigan Department of Environmental Quality (DEQ) and the U.S. Army Corps of Engineers, under Section 404 of the federal Clean Water Act and Section 10 of the federal Rivers and Harbors Act, as applicable. A single “joint permit application” package is completed by the applicant and reviewed by both agencies.

Restoration and enhancement of wetlands can often include construction activities that might disturb a wetland temporarily, or modify it entirely, in order to restore desired ecological processes, features and functions over the long term. Methods commonly used in restoration are often similar to those methods that, in other circumstances, can degrade and destroy wetlands, including draining water, dredging or removing soil, or adding soil or fill. Restoration and enhancement projects have the end goal, however, of improving wetland functions and values. Placing a structure in a wetland, even structures such as piers to support a boardwalk for management access or educational purposes, also requires a permit.

The permit process ensures that scientists, regulators and resource managers examine the project from a variety of standpoints to make sure there are no unintended consequences. For example, a wetland restoration project that aims to restore aquatic bird habitat may inadvertently impact habitat for fish species. Wetland planners are called upon to consider all ecological implications of a proposed project, including climate change. A project that fails to evaluate climate adaptation needs may not be effective under changing climate conditions. Anticipated climate change impacts and appropriate adaptation measures are important factors that should also be considered in the coastal wetland permitting process.

For coastal wetlands, permit requirements should include consideration of how the project will enhance local or regional climate change adaptation. This process starts during the development of the permit application form. The application form should include relevant questions such as: *“Does this project incorporate climate adaptation?”* and *“If so, please explain how this project will enable the wetland (including through human intervention) to better adapt to changing climatic conditions,”* Or *“If so, please explain how this project will improve climate resiliency of the local/regional community.”*

A second and equally important step is to evaluate permit applications, in part, on inclusion of climate adaptation considerations. Section 30311 of the Michigan Natural Resources and Environmental Protection Act (Public Act 451) of 1994, as amended, sets forth statutory criteria for evaluation of permits by Michigan Department of Environmental Quality (DEQ). DEQ staff use an internal document called the Project Review Report to evaluate wetland permit applications against these statutory criteria. Michigan DEQ staff should expand or modify this checklist to more deliberately consider how climate change adaptation fits into determining whether or not a project satisfies the criteria in the checklist. For example, reviewers should con-

sider how adaptation elements of a wetlands project could be “in the public interest” or whether climate adaptation elements of a project might affect the “extent and permanence of the beneficial or detrimental effects that the proposed activity may have on the public and private uses and benefits the wetland provides,” or “[t]he probable effects [of the project] in relation to the cumulative effects created by other existing and anticipated activities in the watershed.” In other words, state permit application reviewers should incorporate evaluation of climate adaptation factors as part of their formal wetland permit application review process.

Case Example | San Francisco Bay Plan Implementation: San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) is a state commission created in 1965 to protect and restore the San Francisco Bay. BCDC has authority to regulate new development activities that occur within 100 feet inland from the shoreline around the bay as well dredging and filling activities in the open water, marshes and mudflats of greater San Francisco Bay; portions of most creeks, rivers, sloughs and other tributaries that flow into San Francisco Bay; and diked salt ponds that were once connected to the bay.

In 1969, BCDC developed the San Francisco Bay Plan (the Bay Plan), which was amended in 2008 to include climate change adaptation by requiring that it be considered in planning and be addressed in projects affecting coastal wetlands through a focus on tidal marsh, tidal flat and shoreline protection projects. Specifically, the Bay Plan states:

“[a]ny ecosystem restoration project should include...an analysis of...how the system’s adaptive capacity can be enhanced so that it is resilient to sea level rise and climate change...and an appropriate buffer, where feasible, between shoreline development and habitats to protect wildlife and provide space for marsh migration as sea level rises...”

For shoreline protection projects, the Bay Plan calls for the property where the project will occur to be “*properly engineered to provide erosion control and flood protection for the expected life of the project based on a 100-year flood event that takes future sea level rise into account.*”

California state law, which authorizes BCDC to issue or deny permit applications, requires that adequate measures be provided to prevent damage from sea level rise and storm activity that may occur on fill or near the shoreline over the expected life of a project. It further stipulates that new projects on fill or near the shoreline should either:

- be set back from the edge of the shore so that the project will not be subject to dynamic wave energy;
- be built so the bottom floor level of structures will be above a 100-year flood elevation that takes future sea level rise into account for the expected life of the project;
- be specifically designed to tolerate periodic flooding; or
- employ other effective means of addressing the impacts of future sea level rise and storm activity.

Although the permit applications have not yet been formally changed to reflect these policy changes to address sea level rise, in practice, BCDC staff require applicants for larger fill projects to address the impacts of climate change on their project, including preparing risk assessments and maps showing projected sea level rise effects on the proposed improvements.

Challenges and Benefits

Permitting for activities in coastal wetlands is covered under statute in Michigan and all other coastal states. Because the permit application and review processes are established (and typically described in statutes and rules), modifications to include climate adaptation considerations would either require revisions to statute or rules, or would need to be within the discretion of permitting authorities, based on statutory language. While the relevant statutory language in Michigan does not specifically address climate change, it provides flexibility for regulatory authorities to consider climate and adaptation measures in the permit review process. The benefits to coastal wetlands and surrounding communities can be enormous. Building adaptation considerations into permitting can better ensure that coastal wetland restoration and enhancement projects will stand the test of time in a climate-changing world.

Who should implement the practice?

This practice should be implemented by wetland permitting agencies as a requirement of applications for projects that impact wetlands.

When should this practice happen?



Tools and Resources

2013 Public Act 98 | <http://www.legislature.mi.gov/documents/2013-2014/publicact/pdf/2013-PA-0098.pdf>

Michigan Natural Resources and Environmental Protection Act (Public Act 451) of 1994, as amended | [legislature.mi.gov/documents/2013-2014/publicact/pdf/2013-PA-0098.pdf](http://www.legislature.mi.gov/documents/2013-2014/publicact/pdf/2013-PA-0098.pdf)

San Francisco Bay Conservation and Development Commission (BCDC) | www.bcdc.ca.gov

San Francisco Bay Plan | www.bcdc.ca.gov/laws_plans/plans/sfbay_plan

