



## **Protecting and Restoring the Kidneys of the Great Lakes:**

*An Assessment of Wetlands Programs in Michigan, Minnesota, Ohio and Wisconsin*

July 2009

By Jane Reyer, Coral Wolf, and Michael Murray, Ph.D.



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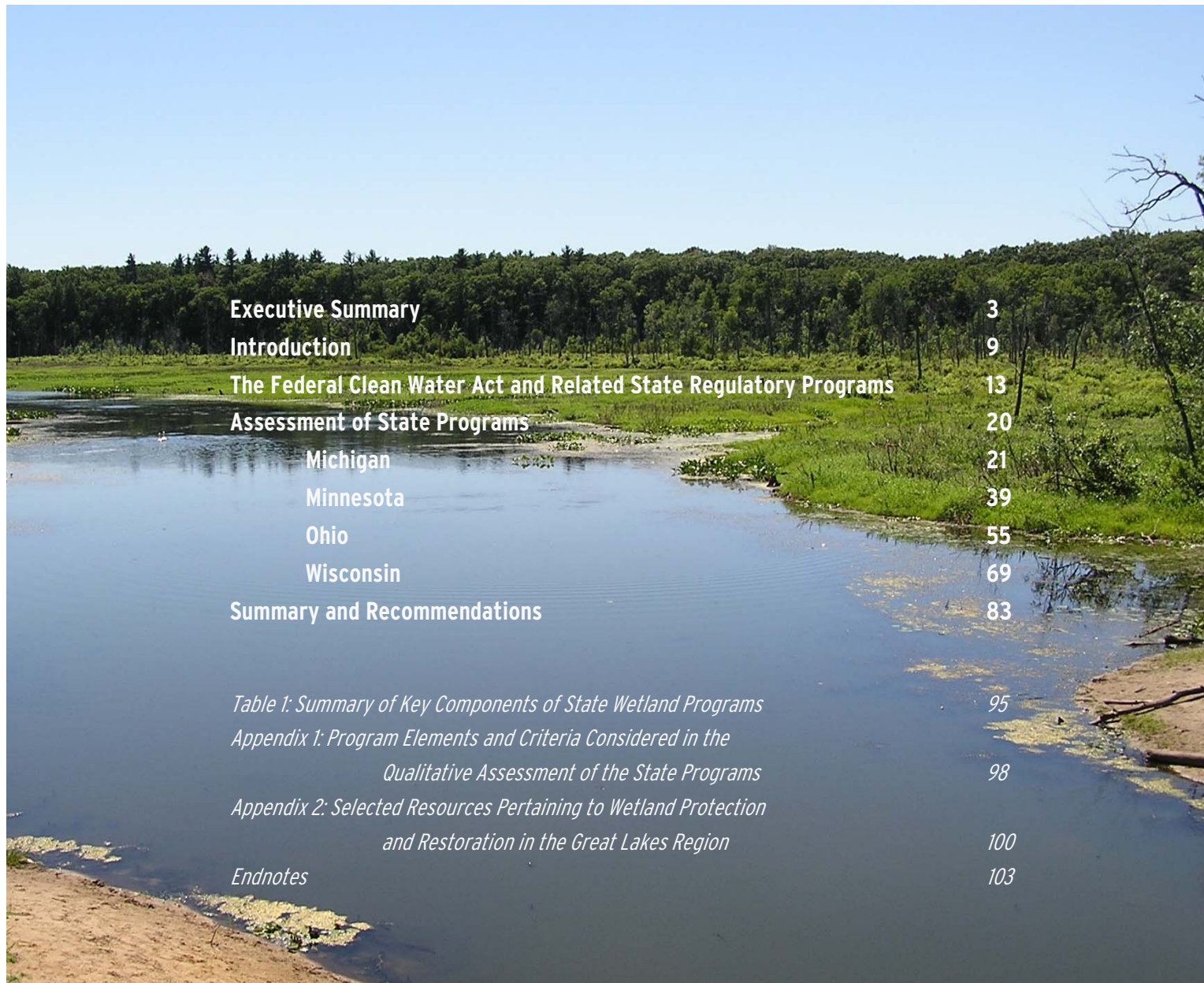
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**W**etlands are a crucial component of the Great Lakes Ecosystem and surrounding region. In addition to providing habitat for fish, waterfowl and other wildlife, they produce a diverse array of other services such as protecting shorelines, stabilizing water supplies (through both floodwater storage and groundwater replenishment), and reducing chemical loads in polluted runoff (serving as the kidneys of the Great Lakes). These tangible benefits of wetlands provide valuable economic benefits to everyone.

Yet the Great Lakes region has lost over 50 percent of its wetlands, and some coastal areas of the Great Lakes have seen 95 percent declines. Despite federal and state wetlands protection programs and ongoing efforts at mitigating wetlands losses, it is not clear that we are meeting the no net loss goal for wetlands extent, and even less clear regarding wetland health.

This report examines the key aspects of wetland protection programs in four Great Lakes states (Michigan, Ohio, Wisconsin, and Minnesota). We assessed the level of protection as well as programs for restoration, and identify opportunities to improve these programs.

We focused on the following wetland program elements: condition assessment, permitting program/sequencing process; inventory and permit tracking; protection of isolated wetlands; protection against drainage, exemptions, enforcement, mitigation, restoration programs; and public notice and participation.

Results of the assessment show a varying picture on strengths and weaknesses in state programs, with a number of areas for improvement. Some of the key findings include the following:

- All four states have a very high percentage of applications approved.
- While all states have developed wetland condition assessment programs, Ohio's is likely one of the most sophisticated programs in the country.
- Wetland inventories are still not complete in most of the states.
- Statutory and/or rulemaking restrictions and exemptions pose challenges to coverage of some isolated wetlands.
- Statutory gaps in coverage of drainage activities remain in Ohio and Wisconsin.
- Exemptions for agricultural, forestry, and some drainage activities remain problematic, and losses associated with these activities are generally not tracked.
- In spite of reasonable siting priority language in statutes or rules, mitigation sometimes occurs far removed from impact sites, and the quality of mitigation projects is not always regularly tracked.



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- Restoration efforts have been increasing, in recent years, and all states have some type of wetlands restoration or broader Great Lakes restoration strategy in place or development, and have made some efforts at identifying potentially restorable wetlands.
- Public notice and participation procedures vary, ranging from online notices and other announcements in Michigan and Ohio to more restricted announcements in Minnesota, to lack of pre-decision notices in Wisconsin.

At the same time, we identified approximately two dozen recommendations for key components that we believe can help strengthen state programs. Some of the key recommendations include the following:

- Ensure a strong commitment to sequencing principles (in particular for some wetlands, such as lower quality and/or isolated wetlands receiving less protection), and should ensure either statutory changes for review time frames or provision of adequate staffing and resources to thoroughly process permit applications in a manner that protects wetland resources.
- Periodically conduct an independent assessment of wetland extent, which will help provide a more complete picture of wetland changes.
- Conduct an assessment on protection of isolated wetlands, and identify potential options (including statutory and/or rule changes) to improve protection of such wetlands.
- Periodically assess the quality of mitigation projects, as was recently done in Ohio, and ensure that programs include components such as reference wetlands, a priority for on-site or within subwatershed (and in-kind) mitigation, and requirements for monitoring, use of performance standards, and financial assurances.
- Revise statutes and/or regulations as necessary to facilitate the pursuit of projects undertaken for purely restoration/ecological purposes, and expand efforts in developing potentially restorable wetlands inventories, as well as developing a scheme to aid in prioritization regarding restoration activities.
- Expand work on condition assessment of wetlands (such as pursuing the types of more sophisticated tools in widespread use in Ohio), and periodically report on changes with time; improved tracking and reporting of all (including exempt) wetland activities is also needed.
- Examine the potential for wetlands protection and restoration programs to incorporate climate change considerations in their implementation.
- Finally, the U.S. Congress should formally restore Clean Water Act protections for isolated wetlands and other waters left unprotected by Supreme Court decisions over the past decade, and both Congress and the state legislatures need to provide increased funding to ensure effective implementation of regulatory and voluntary wetland protection and restoration programs.

## Summary of Recommendations for Each State

### Michigan

- Maintain administration of the Section 404 program, and identify additional resources (and potential increased efficiencies) to ensure effective implementation of the program.
- Modify or eliminate the statutory exemption language for non-contiguous wetlands less than five acres in size to ensure better protection for small, isolated wetlands.
- Reexamine exemptions (including agricultural and forestry), and fully address limitations identified in the USEPA program review.
- Track and report exempt and illegal activities; to supplement these efforts, the state could periodically conduct inventory surveys to better gauge the overall impact of human activities on the state's wetlands.
- Expand efforts at wetland condition assessment, and also incorporate a process for prioritizing wetlands in current restoration efforts, including the broader MI Great Lakes Plan.
- Ensure adequate funding is available to fully staff wetlands-related program work, including to allow for adequate response to citizen complaints of illegal activities (and otherwise full implementation of the compliance and enforcement program) and adequate monitoring of mitigation projects.

### Minnesota

- Reexamine *de minimis* exemptions, including:
  - considering limiting the total acreage of *de minimis* exemptions allowed within each of the major watersheds of the state
  - not allowing application of the exemption to areas within a certain distance of sensitive or high quality natural resources (e.g., Lake Superior)
  - restricting *de minimis* exemptions allowed on a parcel (to prevent additional activities/wetlands loss through subdivision process).
- Track and report on illegal and exempt activities, and either support or carry out efforts such as the U.S. Fish and Wildlife Service sample analysis of wetland changes, to better gauge the overall impact of human activities on the state's wetlands.
- Eliminate application of the "timing law" to decisions involving wetland activities, to ensure adequate review and input on decisions.
- Ensure that sequencing is followed in practice (with clear consideration of avoid and minimize options).
- Increase mitigation ratios (in particular for out-of-kind and out-of-watershed projects), and build on the recent restoration initiative in northeastern Minnesota in identifying restoration and preservation opportunities (with appropriate ratios and locations) in the region.

- Maintain the current enforcement approach, whereby enforcement and conservation officers are part of the decision-making process for ordering wetland restoration over replacement.
- Increase opportunity for public input on wetland decisions, potentially through development of a publicly accessible database/listing of applications.

### **Ohio**

- Fill the statutory gap in coverage of drainage and excavation of wetlands, in particular given potentially increasing pressures in agricultural areas with increasing biofuels production and ongoing development pressures.
- Examine opportunities to increase protection of isolated wetlands, including in or near urban areas, where a lower categorization that is often inherent means less protection, and thus lower opportunities to maintain or even restore these broad, more heavily impacted areas.
- Ensure that sequencing is followed in practice in reviewing permit applications, with clear demonstration of alternatives analysis.
- Track and report exempt and illegal activities to help ensure a more accurate picture of wetlands trends, as would periodic surveys of wetland extent.
- Expand on the approach proposed in 2006 calling for a preference for mitigation within the same 14-digit HUC (or current 12-digit USGS HUC) watershed, however

extending to include category 1 wetlands (rather than just category 2 and 3), given the importance of maintaining or restoring wetlands in some more heavily impacted areas

- Simplify permitting requirements for wetland restoration projects (to facilitate, for example, restoration of lower quality wetlands that happen to be classified as category 3 because of proximity to Lake Erie).

### **Wisconsin**

- Fill the statutory gap in coverage of drainage of isolated wetlands (in other than shoreland districts), in particular with potentially increasing pressures in agricultural areas with increasing biofuels production and ongoing development activities.
- Complete the wetlands inventory, providing additional resources as needed for this important task.
- Improve compliance and enforcement efforts, including enhancing WDNR resources to educate and inform landowners and local governments about wetland presence, encouraging disclosure requirements on wetlands in local zoning permits and real estate transactions, providing uniform citation authority for conservation wardens, and legislative provision of additional resources, including for compliance monitoring and enforcement.
- Track and report exempt and illegal activities, to help ensure a more accurate picture of wetlands trends, as would periodic surveys of wetland extent.

- Consider statutory or rule changes indicating that mitigation be required as part of any wetland permit issued, to ensure that the otherwise relatively strong program is utilized more often; the mitigation program itself could be strengthened by prioritizing mitigation in the smaller of the compensation search area or the 12-digit HUC watershed of the impact location, as well as ensuring adequate resources for monitoring.
- Build on work in identifying potentially restorable/priority wetlands for restoration, in particular in the Great Lakes watershed, and incorporate an ongoing process into implementation plans for the draft Great Lakes Strategy.
- Consider statutory and rule changes necessary to ensure opportunity for public comment on applications for isolated wetland permits, as well as simplify the process for obtaining a public hearing.

In summary, while there have been a number of improvements in wetland protection and restoration programs in the four states assessed here, implementation of recommendations contained in this report will lead to even greater progress as we continue working toward increased protection and restoration of these vital natural resources in our region.



As in other parts of the world, human interaction with wetlands has been significant in the Great Lakes region. Cultures in the region have used wetlands as a resource for centuries, including in providing food (such as wild rice harvesting among Native Americans). Wetlands were particularly widespread in the region – near the end of the 18th Century, the six western Great Lakes states (Illinois, Indiana, Michigan, Minnesota, Ohio and Wisconsin) had approximately 55 million acres of wetlands, or one-fourth the total in the lower 48 states.<sup>1</sup>

Following the arrival of Europeans and over the next several centuries, the aquatic landscape in the region changed dramatically, as a number of activities that can directly or indirectly cause wetland loss or degradation were pursued, including drainage for agriculture; stream channelization; dredging and flood control projects; filling (such as solid waste disposal, development, road-building); building of dikes and dams; various polluting activities; mining (of peat and other materials); and groundwater withdrawal. Much of federal policy through the middle part of the last century in the U.S. encouraged wetland destruction or alteration, for flood control (e.g. the Swamp Land Act of 1849), agricultural use (e.g., U.S. Department of Agriculture Agricultural Conservation Program in the mid-20th Century), or other purposes.<sup>2</sup>

The combined impacts of all these activities were significant, with the Great Lakes region losing over 50 percent of its wetlands over the past two centuries.<sup>3</sup> Much of that loss has

been to drainage (in particular for agriculture). By the mid-1980s, large areas of cropland in several of the region's states had been drained, and large fractions of the total state area were under drainage (e.g., 30 percent of total land area in Illinois and Indiana and 20 percent in Ohio). While historic wetland losses in other Great Lakes states has also been significant, it has been over 85 percent in Illinois, Indiana, and Ohio.<sup>4</sup>

However, in more recent decades, the full benefits of wetlands have become increasingly recognized by researchers, policymakers, and the general public. The benefits of wetlands (or the goals of management) include:

- Maintaining water quality;
- Reducing erosion;
- Protecting from floods and storm damage;
- Providing a system to process airborne pollutants;
- Providing a buffer between urban residential and industrial sectors;
- Maintaining a gene pool of marsh plants and providing examples of complete natural communities;
- Providing aesthetic and psychological support for human beings;
- Producing wildlife;



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- Controlling insect populations;
- Providing habitat for fish and other aquatic organisms;
- Producing food, fiber and fodder; and
- Expediting scientific inquiry.<sup>5</sup>

In addition to these benefits of wetlands more broadly, there has been increasing interest in their potential to contribute to protecting and restoring the Great Lakes, through many of the processes noted above. In addition to providing important habitat to fish, wildlife and other organisms, wetlands in the Great Lakes serve other important functions, including capturing nutrient, sediment and other pollution from nonpoint sources (the most significant route by which pollutants enter waters of the Great Lakes basin).

Yet as with wetlands losses more broadly in the Great Lakes states, Great Lakes coastal wetlands have not been immune to destruction or alteration, with historic losses estimated at approximately 50 percent overall, and over 95 percent in some areas (such as Western Lake Erie).<sup>6</sup> More recently, the picture for Great Lakes coastal wetlands in some respects appears to have improved – for example a recent US Fish and Wildlife (USFWS) assessment reported a net gain of 24,650 acres of wetlands in Great Lakes coastal watersheds from 1998-2004.<sup>7</sup> However, when considering that gains in shrub wetlands largely balanced losses from forested wetlands (following timber harvest), all of the net gains could be attributed to increases in non-vegetated wetlands (i.e., ponds).<sup>8</sup> In addition, development pressures have remained high – a recent study of land use/land cover change in the U.S. portion of the Basin

found that of about 15,685 hectares (38,742 acres) of wetlands lost to development from 1992 – 2001, 38 % of losses occurred within 10 km of the Great Lakes shoreline.<sup>9</sup>

Ongoing threats to the extent or quality of wetlands take on even more importance when considering potential impacts of climate change in the region. One future climate scenario showed a general negative impact on both Great Lakes coastal and inland wetlands, and a general drying in climate would particularly impact precipitation-dominated wetlands (e.g. bogs). Earlier ice-out and snow melt would lead to shorter wet periods, and potentially alter timing of life cycles of some species. Decreased summer water levels would increase wetland fragmentation and isolation, reducing habitat and migration corridors and causing other negative impacts. Increased intensity and frequency of storms could destroy nests of ground-nesting birds. Changes in water levels could alter nutrient and metal cycling in wetlands; generally lower water levels and warmer temperatures would likely result in decreased nutrient and carbon storage potential in wetlands. At the same time, in Great Lakes coastal areas where wetlands remain (or are restored) and are healthy, they can serve as “reservoirs of biodiversity” for offshore areas.<sup>10</sup>

Yet despite federal and state wetlands protection programs, questions remain about whether we can do more to effectively conserve the extent of our wetlands and improve their quality. State and federal programs are supposed to be designed to protect wetlands, or if wetlands are destroyed, to provide compensating mitigation. However, many of the programs

have significant loopholes that defeat this purpose. Given the close links between federal and state wetland protections under the Clean Water Act, the single most crippling loophole is the recent loss of Clean Water Act protections for geographically isolated wetlands, ponds, and lakes, and intermittently flowing streams and their adjacent wetlands. This Clean Water Act rollback was triggered by U.S. Supreme Court decisions in 2001 and 2006 and subsequent agency guidance.<sup>11</sup>

The implications of these decisions have not been as significant in the two states that have been delegated authority to administer the Clean Water Act wetlands protection program (under Section 404 of the Act) – Michigan and New Jersey. And in some other cases, states have made efforts to fill this gap. At the same time, reversing this rollback through congressional action is an important step in strengthening the broad framework for wetlands protection in the country.

Within the region, researchers, policy makers, environmental advocates and others have increasingly recognized that restoration and protection of wetlands is a priority. The Great Lakes Regional Collaboration Strategy, released in 2005, established long-term goals as well as a short-term (5-year) goal of restoring or protecting 550,000 acres of wetlands, as well as the same acreage of associated uplands, by 2010.<sup>12</sup> Reaching these and other wetland goals will require that effective regulatory and incentive programs are in place.

This report examines the wetland protection and restoration programs in four states with significant wetlands abundance and large Great Lakes watersheds – Michigan, Ohio,

Wisconsin, and Minnesota – assesses the level of protection for wetlands in each state, attempts to identify the greatest legal and procedural barriers to adequate protection of wetlands, and offers recommendations to improve programs. It is intended to build on other recent assessments and summaries, in particular the Great Lakes Aquatic Habitat Network & Fund 2004 report, *Wetland Protection Summary in the Great Lakes Basin: C.P.R. for Wetlands: Conserve, Protect, and Restore*,<sup>13</sup> summaries of state programs produced by the Association of State Wetland Managers,<sup>14</sup> and the Environmental Law Institute 2008 report *State Wetland Protection: Status, Trends and Model Approaches*.<sup>15</sup> In addition to examining statutory and regulatory language in the state programs, this assessment also attempted to examine the apparent effectiveness in wetland policy implementation through interviews with both agency staff and nongovernmental organization (NGO) representatives in the four states. We examined a number of key components of programs, including sequencing approach, exempt activities, protection from drainage, isolated wetlands, mitigation, restoration activities, and public participation. Detailed discussion of state programs follows a brief overview of the federal program and relationship to state programs.



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Since its passage in 1972, the federal Clean Water Act has been the primary legal tool for protecting Great Lakes wetlands from pollution and destruction. Most state wetland protection programs have been closely linked to the federal Clean Water Act through mandated state water quality standards, state water quality certifications, and section 402 “National Pollution Discharge Elimination System” (“NPDES”) and section 404 dredge and fill permitting programs.<sup>16</sup> Nationally, many state wetland regulatory programs are founded on the section 401 state water quality certification authority to review Clean Water Act permits, and to issue, deny, or waive certifications of their compliance with state water quality standards.<sup>17</sup> Consequently, to fully assess the degree of wetland protection within a state, both federal and state regulatory programs – and the interplay between them – must be considered.

The Clean Water Act prohibits the discharge of any pollutant into “waters of the United States” absent a Clean Water Act permit – typically either a 402 NPDES permit for most pollutants or a 404 permit for discharges of dredged or fill material. In all but four states and the District of Columbia (none of these four are in the Great Lakes region), 402 permits are issued by the state water quality agency which has assumed permitting authority from the U.S. Environmental Protection Agency (USEPA).

Only two states – Michigan and New Jersey – have formally assumed 404 permitting authority. The United States Army Corps of Engineers (“Corps” or “USACE”) retains primary

authority for 404 permitting in most states. In Ohio, Wisconsin, and Minnesota, the Corps administers the 404 permitting program. The State of Michigan has assumed jurisdiction over the 404 permitting program for most wetlands within the state. However, the Corps retains jurisdiction over wetlands on the Great Lakes themselves. Furthermore, Michigan is required to implement and enforce its own regulatory program in a way that provides the same degree of protection as provided by the Corps program.<sup>18</sup>

While pollution of wetlands is a serious problem, the more immediate threat to wetlands is their outright destruction through dredging, draining, and filling. Consequently, this report focuses primarily on the Clean Water Act section 404 program and related state permitting programs that regulate discharges of dredged and fill material associated with these types of activities. The 404 program is outlined below. The remainder of this report individually assesses the Michigan, Ohio, Wisconsin, and Minnesota wetland regulatory programs, which vary significantly from one another.

### Scope of Clean Water Act Protections:

#### Waters of the United States

Clean Water Act permits, including 404 permits, are only required where there is a discharge into “waters of the United



Nancy Warren

States.”<sup>19</sup> Since the mid-1970s, USEPA and Corps regulations have defined “waters of the United States” to include both geographically isolated wetlands and wetlands adjacent to tributaries and other waters.<sup>20</sup> During this period, the annual rate of freshwater vegetated wetlands loss nationwide was dramatically slowed, from an estimated 334,400 acres per year to 82,500 acres per year.<sup>21</sup>

However, Clean Water Act protections for wetlands were called into question by Supreme Court cases in 2001 (*SWANCC*) and 2006 (*Rapanos*).<sup>22</sup> Subsequent agency guidance responding to *SWANCC* in 2003, and responding to *Rapanos* in 2007 and 2008 went much further than the Court decisions required in rolling back Clean Water Act protections for geographically isolated wetlands, intermittently flowing streams, and wetlands adjacent to those streams.<sup>23</sup> As a result, discharges into a significant portion of wetlands and tributaries in the Great Lakes region many no longer require Clean Water Act permits. Absent the requirement of a Clean Water Act permit, states lose their 401 certification powers to protect wetlands unless they can be clearly grounded in independent state law.

The four states considered in this assessment have different avenues for addressing isolated wetland issues. Because Michigan has been delegated authority to run the Section 404 program, it does not rely on certification authority (of federal decisions) to protect wetlands under this section, nor is it affected to the same extent as the other states by the recent federal decisions on jurisdiction. While Michigan state law has

exemptions for coverage for certain isolated (or “noncontiguous”) wetlands, the state estimates that the wetlands program covers approximately 96 percent of the total wetlands acreage in the state, and includes coverage for a substantial fraction of isolated wetlands that would not likely be protected under the current federal program.<sup>24</sup> (The Michigan 404 program is discussed in detail in the state section below.)

For the other three states included in this assessment, while they have adopted policies to fill the post-*SWANCC/Rapanos* regulatory gap to some extent, these state programs have loopholes and other shortcomings that leave many Great Lakes wetlands exposed to pollution and destruction in the absence of strong federal Clean Water Act protections. Both state and federal programs for Great Lakes wetlands protection would be substantially strengthened if Congress were to pass a Clean Water Act amendment defining “waters of the United States” in a manner that clearly restores Clean Water Act protections to those wetlands and other waters protected prior to Supreme Court intervention in 2001.

#### **Scope of Clean Water Act Protections:**

#### **Activities Regulated and Exemptions**

A Clean Water Act 404 permit (and the associated state 401 certification) is only required for a discharge of dredged or fill material. Wetland *drainage* does not require a 404 permit absent an associated discharge of dredged or fill material into a wetland or other waters of the U.S. While wetland drainage is often executed through ditches excavated in wetlands or other

waters, the “redeposits” of dredged material incidental to these dredging activities are presently not being regulated under the Clean Water Act where they are deemed “incidental fallback.”<sup>25</sup> Nationally, many wetlands are vulnerable to unpermitted dredging and drainage as a result of this Clean Water Act loophole. Of the four states covered by this report, Ohio and Wisconsin leave this gap largely unaddressed (see discussion in individual state sections below).

In addition, the Clean Water Act itself includes a list of activities that do not require 404 permits for dredging and filling in wetlands. These activities include: 1) normal farming, silviculture and ranching activities; 2) maintenance of structures such as dikes, dams or levees; 3) construction or maintenance of farm or stock ponds or irrigation ditches; 4) maintenance of drainage ditches; 5) construction of temporary sedimentation basins on a construction site; 6) construction or maintenance of farm roads, forest roads, or temporary roads for moving mining equipment where constructed and maintained using best management practices; and 7) activities covered by an approved state areawide waste treatment program.<sup>26</sup> These exemptions do not apply to activities intended to drain or fill additional waters and convert them to a new use.<sup>27</sup> Nevertheless, the United States as a whole continues to lose wetland acreage under these exemptions, and many states adopt the same exemptions into state law. Reining in wetland losses due to these exempt activities is a priority for addressing wetland loss in the Great Lakes states as well as in the nation as a whole.

In addition to the limitations in Clean Water Act jurisdiction outlined above, exemptions for drainage in Ohio and Wisconsin are two areas for improvement in Great Lakes wetlands protection. In addition, based on our assessment, none of the states has good information on the amount of wetland loss due to these Clean Water Act exclusions from jurisdiction and 404 permit exemptions. Periodic reporting of assessments of impacts of unregulated wetland activities would help determine whether additional protection is needed.

### **404 Permits and Permit Review**

Under the federal Clean Water Act 404 program, the Corps issues both “individual” and “general” permits. Individual permits are subject to a public notice and comment period, and undergo a Corps “public interest review” focused on the specific wetland at issue. The Corps regulations governing this process are found at 33 C.F.R. §§ 320.4, 323.1-.6, 325.1-.10 (2008). In general, this review balances the private interest in the use of property with the public interest in preservation of water resources. In addition, the Corps must apply the EPA 404 regulations found at 40 C.F.R. Part 230 (“404(b)(1) Guidelines”).<sup>28</sup> These EPA regulations are designed to ensure that wetland fills “. . . will not have an unacceptable adverse impact either individually or in combination.”<sup>29</sup> They prohibit issuance of a 404 permit where practicable alternatives exist; where water quality standards may be violated; where endangered or threatened species are jeopardized or critical habitat impacted; where the discharge will individually or cumulative contribute to significant degradation of the aquatic

environment; or where appropriate and practicable steps have not been taken to minimize aquatic ecosystem impacts.<sup>30</sup>

The Corps must also comply with the National Environmental Policy Act (NEPA),<sup>31</sup> which generally means issuing an Environmental Assessment (EA) and a Finding of No Significant Impact (FONSI) when the permit is issued.<sup>32</sup> For permit decisions impacting particularly large or sensitive wetlands, the Corps may prepare an Environmental Impact Statement (EIS).<sup>33</sup> NEPA, like the 404(b)(1) guidelines, requires consideration of alternatives. Finally, the Corps must comply with the federal Endangered Species Act by consulting with the U.S. Fish and Wildlife Service (USFWS) to determine whether any listed threatened or endangered species or designated critical habitat might be affected by the fill.<sup>34</sup>

General permits cover activities that the Corps has determined will have only minimal adverse impacts on the environment, either individually or cumulatively.<sup>35</sup> The Corps issues a public notice and solicits comments on the blanket use of a general permit to authorize many individual activities with minimal additional individualized permit review. (In Michigan, by contrast, individual activities are still reviewed under general permits – see discussion in state section below.) The Corps also undertakes a public interest review, prepares an EA and FONSI, and consults with the Fish and Wildlife Service before issuing the general permit. Thereafter, activities covered by the general permit are not subject to additional public notice or review. Some general permits require notification to the Corps of activities undertaken pursuant to the permit, while others do

not. Also, some require mitigation and some do not. The Clean Water Act limits general permits to five years, so every five years, the Corps must revisit its general permits for reissuance, modification, or revocation.

Although wetland fills that proceed under general permits typically are for small acreage, cumulatively they can add up to significant wetland loss. The Corps' general permit program is a hodgepodge of nationwide,<sup>36</sup> regional, and state programmatic general permits. Each state can use its 401 certification authority to condition or deny the Corps' application of these 404 general permits within the state. As a result, the Corps' general permit program can differ considerably from state to state. In some states, including Minnesota and Wisconsin, the Corps has since 2000 used the general permit program to issue state or regional programmatic general permits (or letter-of-permission evaluation procedures) that conditionally approve certain smaller fills that are also regulated by the state. These general permits may substitute for nationwide general permits, avoid duplicative requirements, and more efficiently utilize limited state and federal agency resources.<sup>37</sup> A thorough assessment of the 404 general permit program as it applies in each of the Great Lakes states studied is beyond the scope of this report. However, we recommend that a careful state-by-state assessment be undertaken of the use of 404 general permits and their impact on wetlands protection in each state with the goal of an informed and strategic intervention in the Corps' general permit re-issuance process.

## Wetland Impact Avoidance, Minimization and Mitigation

Central to the Clean Water Act 404 permitting standards is the prohibition of permit issuance where there is a practicable, environmentally preferable, alternative site or design with fewer impacts on wetlands and other waters.<sup>38</sup> The 404(b)(1) Guidelines and related agency rules and guidance require that every individual 404 permit issued demonstrate “sequential mitigation”: first, impact avoidance to the maximum extent practicable; then minimization of unavoidable impacts to the extent practicable; and finally compensatory mitigation to restore, enhance, or create aquatic resource functions to replace those to be destroyed through the authorized activity.<sup>39</sup>

Federal and state dredge and fill permits are rarely denied outright. Instead, the Corps and state permitting agencies more typically work with the permit applicant to reduce the number of wetland acres affected by, for example, requiring a reconfigured footprint of the project on the land available (i.e., impact minimization). Sometimes a permit will be denied when the wetland at issue is an exceptionally rare type of ecosystem, or (in some states) the wetland is located in an area where an exceptionally low percentage of historic wetland acreage remains. In other cases, a broad group of wetlands might have stringent protections, such as the most protected category of wetlands in Ohio for which a relatively high bar for permit issuance exists. But in general, the large majority of permits are typically either issued based on the original application or following modifications (and in some cases

issued after-the-fact).<sup>40</sup> In part, this high issuance rate may suggest increasing awareness on the part of permit applicants of the importance of not degrading wetlands.

In any case, if a wetland is to be impacted, compensatory mitigation is then the approach that can potentially aid in protecting overall wetland health. A goal of compensatory mitigation has been stated in the 1990 MOA between the Corps and USEPA: “The Corps will strive to avoid adverse impacts and offset unavoidable adverse impacts to existing aquatic resources, and for wetlands, will strive to achieve a goal of no overall net loss of values and functions.”<sup>41</sup>

However, a number of papers and reports have raised questions on the effectiveness of the mitigation process, including the feasibility of replacing wetland values and functions.<sup>42</sup> Some examples of problems that can occur through the compensatory mitigation process include the following:

- Net loss of wetland area in some cases, due to lack of implementation of the required actions, or incomplete or unsuccessful implementation;
- Net loss of wetland area in some cases, due to modification/restoration of existing wetlands on-site as the compensatory component;



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- Loss of function due to conversion of one wetland type to another;
- Challenges in predicting the functional value of enhanced wetlands, or in demonstrating rigorously that in fact enhancement has occurred;
- Lack of identification of reference systems against which enhancement can be compared;
- Incomplete performance standards (e.g., on hydrology, soil, faunal) provided, such as lack of detail or survival requirements for plantings; and
- Incomplete management planning (e.g., for sedimentation or weed control), and/or inadequate assurance on monitoring.<sup>43</sup>

In spite of regulatory frameworks that often prioritize more local mitigation, in some cases, wetlands that are restored or created to replace the wetlands lost are not located in the same subwatershed, and sometimes are not even in the same major basin (e.g., from within to outside the Great Lakes Basin). A recent study of Section 401 certifications and Ohio Isolated Wetland Law permits issued in the Cuyahoga River Watershed from 1995 through 2002 found that though the 23 permits resulted in a net gain of wetland area overall, the watershed experienced a net loss of wetland acreage due to export (via mitigation banks) outside the watershed.<sup>44</sup>

Even where wetlands are established or restored locally, in many cases the replacement wetland type differs. For example, in the Cuyahoga River Watershed study, if restricting the

analysis to mitigation within the watershed, emergent wetlands were replaced at a 2.3:1 ratio, while scrub/shrub wetlands were replaced at a 0.03:1 ratio – i.e., a significant shift to open-water/emergent wetlands. This general pattern was also seen for 12 independent projects (nine of which did mitigation “on-site”) that did not use a mitigation bank.<sup>45</sup>

Thus while it might appear on paper that wetland acreage overall remains the same or increases slightly through mitigation efforts, the overall effect is almost certainly an ongoing loss of diversity in our wetlands. Also, though generally only intended to be used in exceptional circumstances, preservation of existing aquatic areas, or even upland buffer areas, is also used as mitigation.<sup>46</sup> In addition, agencies often lack the resources and commitment to rigorously set mitigation permit conditions, monitor compliance, and enforce for non-compliance.<sup>47</sup> A recent study of mitigation wetlands in Illinois highlighted the importance of appropriate permit conditions; absent those, many mitigation projects might show compliance success but not ecological or functional success (e.g., poor hydrologic regimes or high abundance of invasive species).<sup>48</sup>

To be sure, there has been increasing attention in recent years to development of better wetland assessment tools, which can, for example, better assess mitigation progress and more rigorously compare ecological health of mitigated and natural or reference wetlands. For example, Ohio Environmental Protection Agency has developed indices of biotic integrity that have been used to assess disturbance gradients in wetlands.<sup>49</sup>

These types of assessments have begun to inform performance standards based on ecological criteria which are incorporated into permit conditions, and in some cases, progress is already being observed (see discussion in Ohio section).<sup>50</sup>

In an effort to address some of the deficiencies in compensatory mitigation, the Corps and USEPA in April 2008 issued a mitigation rule.<sup>51</sup> The new rule includes provisions for impact avoidance;<sup>52</sup> a so-called “watershed approach;”<sup>53</sup> long-term management;<sup>54</sup> “ecologically-based” performance standards;<sup>55</sup> and monitoring and enforcement.<sup>56</sup> The new rule requires permit application public notices to contain an explanation of how impacts are to be avoided, minimized, and compensated for, including whether third-party mitigation will be used.<sup>57</sup> Once a permit is issued, monitoring reports must be submitted by the permittee or third-party sponsor in accordance with special conditions.<sup>58</sup>

While several of these provisions are important steps forward, the Corps and USEPA still fail to acknowledge past compliance and enforcement failures and the resources required to correct them.<sup>59</sup> In addition, the new mitigation rule perpetuates many mitigation deficiencies by: 1) allowing broad discretion to side-step the avoidance and minimization requirements of the 404(b)(1) guidelines;<sup>60</sup> (2) allowing for stream mitigation despite woefully inadequate science to support its success;<sup>61</sup> (3) promoting an unfounded preference for mitigation banking;<sup>62</sup> (4) relying on a so-called “watershed approach” without safeguards requiring its application in a scientifically sound manner;<sup>63</sup> (5) weakening limitations on the

use of preservation, which is not compensation;<sup>64</sup> and generally allowing broad discretion to allow destructive projects to proceed without adequate compensation.<sup>65</sup> Furthermore, the new rule allows use of a default one-to-one mitigation ratio in certain cases.<sup>66</sup> Given a history of high failure rates, poor monitoring, and poor enforcement, a one-to-one mitigation ratio falls far short of a mitigation ratio necessary to achieve no net loss of wetlands or streams. The highly discretionary federal mitigation rule means states must strengthen their avoidance, minimization, and mitigation standards to hold the line on wetland loss in the Great Lakes.

# Assessment of State Programs

**T**his section contains a detailed assessment of wetlands protection programs in the four states examined for this project. The assessment for each state entailed two major components:

- 1) Examining relevant statutory and regulatory language for each state, as well as other program information (e.g., restoration programs).
- 2) Interviewing selected state agency and environmental nongovernmental organization (NGO) staff in each state to assess comprehensiveness and effectiveness of the state programs.

Programs were assessed in ten broad program areas:

- Condition assessment
- Sequencing/permit requirements,
- Wetlands inventory and permit tracking
- Isolated wetlands
- Protection from drainage
- Exemptions
- Enforcement
- Mitigation
- Restoration activities
- Public notice and participation.

Details on the criteria examined among these program elements are provided in Appendix I.

For each state, a brief overview of historic and current wetlands resources is provided, followed by an overview of regulatory programs and the permitting process, and then discussions of other key components noted above (discussions of condition assessment, enforcement, isolated wetlands, protection from drainage, and public notice and participation are generally provided within the permitting process sections). State-specific summaries and recommendations are provided at the end of each state section, and then the Summary and Recommendations section provides an overall summary and recommendations for each program area, including key recommendations for strengthening the federal wetlands program.



Michigan Department of Environmental Quality

**O**f its 11 million acres of pre-settlement wetlands (which represented about 30% of its landcover), Michigan has lost approximately 50%. As the state is located almost entirely within the Great Lakes Basin, all wetland losses in the state can have implications for the Great Lakes. Most wetland losses occurred in the southern one-third of the state, the area containing most of the important agricultural lands, as most losses have been caused by drainage for agricultural purposes. Most of the extant larger wetlands complexes are in lowland conifer and hardwood areas in the Upper Peninsula and the upper portion of the Lower Peninsula.<sup>67</sup>

Michigan has the most Great Lakes shoreline of any state. Of the estimated 369,000 acres of pre-settlement coastal wetlands in Michigan, only about 106,000 acres (28%) remained by the early 1970s. The 18,000 acres of wetlands along Saginaw Bay comprise the largest remaining freshwater coastal wetland system in the nation.<sup>68</sup>

Though the state reports on permitted wetland activities to USEPA, more comprehensive information on losses of wetland acreage (in particular when considering activities outside the permitting program) is not readily available, similar to the case in other states. Wetland losses for activities that are exempt from state and federal regulation, such as agriculture, continue to be a concern. Exempt activities do not result in documentation of wetland loss (such as obtaining a permit or reporting the loss), thereby making accurate estimates of actual

wetland loss difficult. Another concern for Michigan wetlands is the protection of isolated wetlands (under 5 acres in size); though implementation in practice seems to lead to significant coverage, state law makes more comprehensive coverage of such wetlands more challenging.

## Regulatory Overview

Michigan is the only state assessed here (and one of only two states nationally, with New Jersey), that has assumed authority to administer the Section 404 permitting program under the federal Clean Water Act.

Assumption of this authority followed state adoption of the Goemaere-Anderson Wetlands Protection Act (WPA) of 1979, found in Part 303 of the state's Natural Resources and Environmental Protection Act (NREPA).<sup>69</sup> In October 1984, EPA approved Michigan's permitting program as the first state-administered Section 404 program in the nation. Under the Section 404 authority, the U.S. Army Corps of Engineers has delegated much of its regulatory authority to the Michigan Department of Environmental Quality (MDEQ). Procedures to be followed in state implementation of the program were identified in a 1983 Memorandum of Agreement (MOA) between the Michigan Department of Natural Resources (MDNR) and USEPA Region V.



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The Wetlands Protection Act and attendant regulations establish: the state policy to protect against loss of wetlands; state legislative findings on the benefits of wetlands; a permit program regulating activities in wetlands; enforcement mechanisms, including civil and criminal penalties; and provisions on regulation of wetlands by local governments. The latter provisions allow local governments to regulate wetlands of less than five acres in size, with certain restrictions.<sup>70</sup>

A separate set of statutes covers Michigan's inland lakes and streams, regulating dredging, filling, construction, and other activities in inland lakes and streams and associated wetlands below the ordinary high water mark.<sup>71</sup> A comparable set of statutes regulates construction, dredging, and other activities on the Great Lakes, their bottomlands, and some adjacent wetlands.<sup>72</sup> If an activity is regulated under one of these two programs, a separate wetlands permit is not required, but the wetland criteria do apply.<sup>73</sup>

Four activities in wetlands are prohibited without a permit under the WPA:

- 1) depositing or placement of fill material;
- 2) dredging or removal of soil or minerals;
- 3) constructing, operating or maintaining any use or development; and
- 4) draining surface water.<sup>74</sup>

Michigan's program is thus significantly broader than the federal program.

A statutory exclusion in Michigan pertains to isolated wetlands: the program does not automatically cover "noncontiguous" (or isolated) wetlands – as defined by the state – of less than five acres unless protection of the area is found to be essential.<sup>75</sup> Michigan regulations define "contiguous" as a wetland having a permanent surface water connection or direct physical contact with, or a seasonal or intermittent direct surface water connection with, a surface water body, even if separated by a barrier, such as a dike or berm. Also, a wetland within 500 feet of the ordinary high water mark of an inland lake or pond, river or stream, or within 1000 feet of Great Lakes or Lake St. Clair is presumed to be "contiguous."<sup>76</sup> Noncontiguous wetlands less than five acres can be covered "if the department determines that protection of the area is essential to the preservation of the natural resources of the state from pollution, impairment, or destruction and the department has so notified the owner..."<sup>77</sup>

MDEQ has stated that based on federal guidance, as many as 930,856 acres (or about 17 percent) of Michigan wetlands acreage non-adjacent to any Great Lake or inland lake or stream might not receive protection under the current federal program.<sup>78</sup> At the same time, MDEQ estimates that between the state and federal wetlands programs, approximately 95-96 percent of wetland acreage in the state is currently covered in practice – i.e., only 4-5 percent does not fall under jurisdiction of any wetland protection program.<sup>79</sup> Based on these definitions and the fact that the state can make a determination on the "essential" nature of individual wetlands as natural resources in the state,<sup>80</sup> it appears the Michigan program is covering

substantial wetland acreage currently left unprotected federally.<sup>81</sup>

The state's Wetlands Protection Act also authorizes local units of government to regulate wetlands activities subject to certain criteria, including that local units of government desiring to regulate wetlands activity must publish a wetland inventory and notify MDEQ before adopting a wetlands ordinance, must use the same wetland definition as in Part 303, and an ordinance cannot require a permit for activities exempted under Part 303.<sup>82</sup> As of April 2008, 43 local units of government had adopted wetlands ordinances.<sup>83</sup>

An important exception to the delegation of federal authority applies to the Great Lakes themselves, connecting channels, and river mouth areas upstream to the limit of the traditional navigation channel or the Great Lakes ordinary high water mark. These waters, which are listed in a 1983 Memorandum of Agreement between MDEQ and the Corps, still require a federal permit from the Corps for wetland fills. Wetlands in these areas are also covered by Michigan statutes, and thus a joint permit application is required for wetland fills in these areas,<sup>84</sup> just as they are for non-isolated wetlands in other states.

Additional protection for some Great Lakes coastal wetlands in the state is achieved through the Shorelands Protection and Management provision of NREPA (Part 323).<sup>85</sup> This provision covers areas deemed by MDEQ to be at risk of property loss through erosion or flooding, as well as "environmental areas" in which appropriate use regulations are to be developed as necessary to protect these areas, which are identified by the

department "on the basis of studies and surveys to be necessary for the preservation and maintenance of fish and wildlife."<sup>86</sup> Activities within an environmental area requiring a permit from the department (or a local agency under an ordinance approved by MDEQ) include dredging, filling, grading, or other alterations of the soil; alteration of natural drainage (except for work related to drainage improvement works or existing dikes); and alteration of vegetation utilized by fish and wildlife.<sup>87</sup>

In addition to specific natural resource protection statutes, Michigan has a general environmental protection statute, the Michigan Environmental Protection Act (MEPA).<sup>88</sup> MEPA allows "the attorney general or any person [harmed] [to] maintain an action [...] for declaratory and equitable relief against any person for the protection of the air, water, and other natural resources and the public trust in these resources from pollution, impairment, or destruction."<sup>89</sup> In theory, MEPA provides protection for wetlands that fall outside of WPA coverage (such as noncontiguous wetlands of less than five acres not otherwise covered, as noted above). In practice, however, the criteria for showing impairment that justifies judicial intervention under MEPA may be difficult to satisfy.

As is the case with other states assessed here, Michigan is developing a program to assess wetland condition, following the three-level approach developed nationally by USEPA and partners.<sup>90</sup> The approach entails increasing degrees of site-specific/intensive monitoring, with components and applications including:

**LEVEL 1 (landscape level):**

Statewide inventories and other approaches to assess trends and help prioritize preservation and restoration activities (see further discussion in restoration section below);

**LEVEL 2 (rapid assessment method):**

Evaluate general condition of individual wetlands with relatively simple metrics, with applications including in permit decisions, using the Michigan Rapid Assessment Method (MiRAM) tool; and

**LEVEL 3 (intensive site assessment):**

Provide quantitative data on individual wetland condition, verify results of other level assessments, diagnose causes of degradation, and provide performance criteria.



Huron River Watershed Council

The state has been involved with the Great Lakes Coastal Wetland Consortium in developing Level 3 tools (including indices of biotic integrity (IBIs)), and is developing IBIs for depressional wetlands.<sup>91</sup>

**Implementation of Permitting Program**

The requirements and process for obtaining an individual permit for activities affecting wetlands are found in Michigan Compiled Laws sections 324.30306 through .30311. The permit

application must be filed before the activity occurs, and MDEQ may require an environmental assessment before granting the permit.<sup>92</sup> The permit must meet criteria in two broad categories in order to be granted. First, the permit must be in the “public interest.”<sup>93</sup> The public interest analysis requires a balancing of the expected benefits of the activity against the detriments, with a consideration of nine factors:

1. The relative extent of the public and private need for the proposed activity;
2. The availability of feasible and prudent alternative locations and methods . . . ;
3. The extent and permanence of the beneficial or detrimental effects . . . ;
4. The probable impact . . . in relation to the cumulative effect created by other existing and anticipated activities;
5. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values and on the public health or fish or wildlife;
6. The size of the wetland . . . ;
7. The amount of remaining wetland in the general area;
8. Proximity to any waterway; and
9. Economic value, both public and private, of the proposed land change to the general area.<sup>94</sup>

Second, the permit must not lead to “unacceptable disruption to aquatic resources.”<sup>95</sup> Resource values to be considered include flood and storm control, wildlife habitat, groundwater recharge and protection, pollution treatment, and erosion

control.<sup>96</sup> The activity must either be “wetland dependent” (i.e., the activity is of a type that requires a location within wetland conditions to fulfill its basic purpose) or have no “feasible and prudent alternative.”<sup>97</sup> Feasible and prudent alternatives are those that would have less adverse impacts on aquatic resources and are capable of being done after considering cost, logistics, and existing technology, and may include choosing a different location for the activity.<sup>98</sup> MDEQ may place conditions on permits or requirements for mitigation in order to protect aquatic resources.<sup>99</sup>

Michigan requirements that the applicant take steps to avoid and minimize wetland impacts and provide mitigation for any unavoidable impacts also mirrors federal law. While the federal Endangered Species Act and National Environmental Policy Act requirements do not apply to state-issued permits, USEPA, in approving Michigan’s assumption of authority to run the Section 404 program, is covered by these laws, and the MOA between Michigan and USEPA leading to the assumption of authority does reference these laws. In addition, the general permit procedures developed by MDEQ identify conditions under which wetland actions could not be processed through a general permit, including wetland association with natural areas containing state or federally listed or proposed threatened or endangered species,<sup>100</sup> and steps have been developed (involving the Michigan Natural Features Inventory and MDNR staff, and subsequently USEPA and the USFWS during federal review) to address these scenarios.<sup>101</sup>

Similar to the federal wetlands program, MDEQ may issue five-year general permits on a statewide basis for a category of activities that are similar in nature and have only a minimal adverse effect on the environment, both individually and cumulatively.<sup>102</sup> In contrast to the federal program, applications under general permits in Michigan undergo relatively full regulatory review, although no public notice or hearings are required.<sup>103</sup>

While there are 49 nationwide federal permits, Michigan lists 23 general permit categories.<sup>104</sup> Michigan categories (all with specific criteria) include fences, driveways; placement of utility structures (e.g., lines, pipelines); access roads for oil, gas, and mineral wells; public road projects; stormwater outfalls; and several types of repair, maintenance or emergency response actions. Many federal NWP do not have Michigan equivalents, such as those for agricultural activities and mining. Conversely, some of the Michigan general permits do not seem to have specific federal equivalents, including provisions for elevated or floating structures such as boardwalks, driveways, and septic system replacement. In addition, there are a number of Federal conditions not included in Michigan’s general permit categories document, including a prohibition on the use of more than one general permit for a single project, soil erosion and sediment controls, and protection of specific resources such as spawning and waterfowl breeding areas.

One newer general permit issued in Michigan addressing a potentially important ecological issue concerns “beach

maintenance.” In 2003, state law (Parts 303 and 325 of NREPA) was amended to exempt certain shoreline activities from requiring a permit, and to streamline activities related to beach and bottomland management.<sup>106</sup> In response to a request from the legislature, MDEQ completed a report on the impacts of beach maintenance and vegetation removal,<sup>107</sup> and following work of a subsequent workgroup, a new general permit category was created allowing shoreline property owners to request authorization for certain shoreline management activities through a simplified permitting process. These activities include leveling or grooming of sand in areas free of vegetation; construction and maintenance of a temporary walkway in areas free of vegetation; limited mowing of vegetation for a pathway, certain recreation activities, or in previously mowed areas of Saginaw Bay and Grand Traverse Bay; and limited mowing for control of invasive species, using an invasive species control plan in accord with MDEQ recommendations.<sup>108</sup> Apart from mowing activities, such activities would also require a Corps nationwide permit.<sup>109</sup>

The enforcement program is administered by MDEQ. In response to violations, MDEQ can issue a compliance order, or may request the state attorney general commence a civil action.<sup>110</sup> After-the-fact permits are allowed at MDEQ’s discretion; however, they are considered enforcement actions, and are only issued if the application would have been approved had it been properly filed before the activity. In addition, permit fees are doubled, and if mitigation is required, the mitigation ratio is doubled.<sup>111</sup> The state received beginning in 2005 a USEPA grant for a pilot enforcement project, which

has been used to establish a new Compliance and Enforcement Unit, hire and train additional staff, and increase tracking and reporting on complaints and enforcement actions.<sup>112</sup>

Concerning the time period for permit processing, the WPA requires a decision on an application within 90 days of receipt. However, if a public hearing is held, the period is 150 days. If a decision is not made by those deadlines, the permit is considered to be automatically approved.<sup>113</sup>

Public notice for wetland activities in the state goes beyond statutory requirements. Individual permits require public notice, and the WPA requires the state compile biweekly lists of applications during the previous two weeks, and mail them promptly to all individuals who request them (and also pay a fee).<sup>114</sup> However, MDEQ also provides the lists to many other interested parties, including neighboring property owners, local units of government (including township, municipal, and county officials), drain commissioners, health departments, federal agencies, watershed groups, and others.<sup>115</sup> Paper notices have also been supplemented more recently by an on-line system (Coastal and Inland Waters Permit Information System (CIWPIS)),<sup>116</sup> and in many cases, upon request, notices are sent via email.<sup>117</sup> Furthermore, the department may issue a public notice, at its discretion, for an application that would normally fall under the general permit category, to allow for public review and comment.<sup>118</sup> For individual permits, the public has 21 days following mailing of notification of an individual permit proposal to comment or request a hearing.<sup>119</sup> Finally, hearings may be requested by the public, or may be held even

without a request if MDEQ determines that the application is of sufficient potential impact to warrant a public hearing.<sup>120</sup>

The USEPA recently completed a multi-year review of Michigan's section 404 permitting program (in response to a petition by two Michigan environmental groups), and identified a number of areas where statutory and/or administrative changes would be necessary to ensure consistency with federal programs. Between the time of commencement of the review (in 1998), issuance of an initial report (in 2002) and issuance of the final report (in 2008), a number of these changes had already been implemented.<sup>121</sup>

On jurisdictional issues, the USEPA program review had initially identified a gap in coverage due to the statutory exemption for isolated wetlands in counties with a population of less than 100,000 people prior to completion of wetlands inventories for those counties. With the completion of those inventories by the state in 2007, EPA's primary jurisdictional concern was resolved.<sup>122</sup> Regarding the statutory exemption for isolated (or non-contiguous) wetlands less than 5 acres in size, USEPA found that in spite of this language, wetlands coverage in the state "in practice" is at least as broad in scope as federal Section 404 jurisdiction<sup>123</sup> (and as noted above, it appears to be significantly broader).

Other areas of concern in the USEPA program review regarding lack of consistency in Michigan's program with federal requirements or on authority issues included the following:

- Permitting authority issues, including on assessing environmental effects of activities associated with minor permits; the lack of a five year time limit for permits in Michigan statute; and apparent lack of authority (in state law and rules) concerning the state's ability to revoke permits.<sup>124</sup>
- Ensuring compliance with all CWA guidelines, and ensuring that Michigan law clearly prohibits the issuance of permits that would jeopardize the existence of threatened and endangered species and designated critical habitat, or that would result in significant degradation of waters.<sup>125</sup>
- Limitations in the enforcement program, including on the extent to which the state follows federal requirements on public participation (including citizen intervention) in the state's enforcement process.<sup>126</sup> (As noted above, MDEQ received in 2005 a grant from USEPA to fund a three-year compliance and enforcement pilot program, which included hiring of additional staff by 2007.)<sup>127</sup>
- Questions on Section 404 jurisdiction (state vs. federal) over Indian lands.<sup>128</sup>

The state had either already initiated or agreed to make statutory, rule, or other changes (e.g., in the USEPA-MDEQ memorandum of agreement) to address these and several other issues identified in the USEPA program review (and discussions would continue over the question on authority over Indian lands).<sup>129</sup> Regarding overall administration of the permit

program, while the USEPA review identified several areas for improvement, the agency found that MDEQ is “doing a good job” of administering the permit program.<sup>130</sup>

### **Wetlands Inventory and Permit Tracking**

As noted above, Michigan recently completed wetlands inventory maps for the state, as required by the WPA.<sup>131</sup> The county-by-county inventories were compiled based on three data sources: National Wetlands Inventory (NWI) data from the USFWS, land cover, as mapped by the Michigan DNR Michigan Resource Inventory System, and soil cover, as mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service. The inventories represent information suggesting probable locations of wetland or other areas. Areas identified as having or not having wetlands would need site investigations to confirm whether the identification on an inventory is correct.<sup>132</sup> Ducks Unlimited has also been involved in a joint effort with the Michigan DEQ, USEPA, and USFWS to update (based on aerial photos from 1998, 2005 and 2006) and fill in gaps in the inventory, though the effort is not yet completed.<sup>133</sup>

Concerning permit tracking, MDEQ has an online database tool, the Coastal and Inland Waters Permit Information System (CIWPIS), to assist in tracking permitting activity, including for wetlands. The database provides summaries of Joint Permit Applications received through the Land and Water Management Division. Records (available for the past five years) provide information on the applicant, proposed activity and location, type of permit, regulatory authority, and

key processing dates. Searches can be conducted based on a number of parameters, including applicant name, waterbody, and location (e.g., county, township).<sup>134</sup>

As a requirement of administering the Section 404 program, Michigan submits annual reports to USEPA on actions taken under the program. Though not formally required, these reports have included estimates of wetland acreage impacted by the program. For example, for fiscal year 2007, 4,294 applications for construction projects were received under Section 404, approximately one-third of which involved wetland impacts. The majority (60 %) were processed as minor permits, approximately one-third were public noticed, and 9 percent were processed under general permits. Concerning total actions, approximately three-fourths (73%) were issued, fifteen percent were issued after modifications, five percent were issued after-the-fact, three percent were denied, and four percent were closed.<sup>135</sup> Wetlands impact data for the permits received and processed (compiled from the CIWPIS database) were reported to be as follows:

Total acreage of wetland impacts requested:	561 acres
Total acreage of wetland impacts authorized:	277 acres
Acreage of compensatory mitigation provided:	355 acres <sup>136</sup>

Thus, while the majority of permits were issued directly, modifications to other permits resulted in an overall decrease (by approximately 50%) in the total acreage of wetland impacts.

## Exemptions

Michigan courts have found that the purpose of the WPA is to enable Michigan to assume authority to administer the federal Clean Water Act wetland program, and that for such State administration to be permissible, the WPA must be enforced in accordance with, and be at least as stringent as, its federal counterpart.<sup>137</sup> In addition to recreational activities not regulated under Section 404, Michigan's statutory exemptions include:

- numerous farming and forestry activities, including construction of roads;<sup>138</sup>
- maintenance of existing serviceable structures including dikes and levees that existed before Oct. 1, 1980;
- maintenance, operation or improvement of existing drainages;
- certain mining activities (e.g., construction or improvement of temporary roads to move mining equipment, construction of copper or iron tailings basins and water storage areas);
- maintenance or improvement of public roads and highways within the right-of-way; and
- maintenance, repair, and construction of certain utility lines.<sup>139</sup>

Many of the above state exemptions have parallels under federal law.<sup>140</sup> Most noticeable are the parallels for farming, forestry, and some road construction. However, Michigan law

includes exemptions for several activities either not present or broader in scope than federal law, which according to USEPA included:

- **Scope of farming and related activities:** Some Michigan exemptions for farming and other activities are broader in scope than those in federal regulations. For example, Michigan law does not require that farming or other operations be ongoing and established, and exempts discharges associated with drainage or other activities in a wetland that allow an area to be changed from one exempted use to another.<sup>141</sup>
- **Breadth of exemptions related to drainage activities:** Exemptions associated with drainage activities (in particular "improvement" for all public drains established before 1973, as well as all drains used for agricultural purposes associated with agricultural discharges) in Parts 301 and 303 are more permissive than federal regulations.<sup>142</sup>
- **Iron and copper mining and utility maintenance activities:** Michigan exemptions for construction of iron and copper mining-associated tailings basins and water storage areas, as well as for utility maintenance activities have no equivalent in federal law, according to the USEPA review.<sup>143</sup>

MDEQ has noted that in some of these and related areas, certain activities are regulated through sections of Michigan law other than Part 303.<sup>144</sup> In any case, according to the USEPA review, MDEQ had agreed to seek statutory changes

(including beyond Part 303), rule changes, and Attorney General opinions as necessary to ensure consistency of the state program with federal exemptions.<sup>145</sup>

## Mitigation

Under the WPA, MDEQ may require mitigation for a permit to help offset the impact of a discharge of fill material.<sup>146</sup> The goal of mitigation is to assure no-net-loss of wetlands.<sup>147</sup> Under the rules, mitigation may only be considered once MDEQ has determined that the wetland impact otherwise qualifies for a permit, that there is no feasible and prudent alternative to avoid the impact, and that the applicant has used all practical means to minimize wetlands impacts.<sup>148</sup> These requirements mimic the federal mitigation sequencing of attempting to avoid and minimize impacts before considering mitigation. Under the rules, mitigation is required to compensate for the impacts of the permitted activity unless a general permit applies. MDEQ may waive mitigation if the impact affects less than one-third of an acre without reasonable opportunity for mitigation, or if the basic purpose of the activity is to increase wetland acreage.<sup>149</sup>

Acceptable methods of mitigation include wetland restoration or creation, purchase of credit from a wetland bank, or preservation of existing wetlands.<sup>150</sup> The rules give preference to restoration of previously existing wetlands over the creation of new wetlands. Preservation of existing wetlands is an option only under special circumstances (e.g., to protect rare or threatened habitats). The regulations also give preference to

restoration or creation of the same ecological type of wetland that is affected, and to onsite or in-watershed mitigation.<sup>151</sup>

According to the regulations, mitigation proposals should focus on restoring wetland functions in the impacted area. The ratios of mitigation acres to acres impacted start at 1.5:1, but ratios of 2:1 and 5:1 are included for certain types of wetlands. For preservation of existing wetlands, the ratio rises to 10:1. These ratios may be increased if the mitigation creates a different ecological type of wetland from the one impacted, and MDEQ has discretion to increase the ratio by 20% if it deems such an increase beneficial to water resources.<sup>152</sup> In most circumstances the mitigation must be established prior to the wetland impact, and a permanent conservation easement is usually required to protect the mitigation area. In addition, MDEQ may require financial assurance to ensure the continuing viability and quality of the restored or created wetland.<sup>153</sup>

A monitoring plan must be submitted to the state with any mitigation plan submitted by a permittee.<sup>154</sup> Monitoring of mitigation projects is required for at least five years following completion of construction, and guidelines include specific recommendations for components such as hydrology data, vegetation, wildlife use, photographic documentation of mitigation development, and reporting of problem areas and corrective measures. Permittees are also required to submit to MDEQ annual monitoring reports.<sup>155</sup>

As in other states, there has been some use of mitigation banking in Michigan, with rules having taken effect in 1997. MDEQ states that banking can provide benefits to the permit

applicant (by reducing processing time and costs and by increasing confidence in the availability of mitigation sites) and wetland resources (including by combining smaller mitigation projects into larger, better designed and managed areas).<sup>156</sup> The bank sponsor, which can be any person (or persons working cooperatively), must ensure (via legally binding instruments) that the mitigation bank is maintained in perpetuity.<sup>157</sup> Mitigation banking does not appear to be heavily used in the state, with only 11 banks listed by MDEQ as of October 2008.<sup>158</sup>

## Restoration Activities

Michigan has adopted some measures to decrease the regulatory burden on purely restoration activities. For example, wetland restoration and enhancement is one of the general permit categories for minor activities (with specific criteria) in the state,<sup>159</sup> and MDEQ may waive mitigation requirements for activities undertaken to create or restore wetlands or increase wetland habitat.<sup>160</sup>

Michigan has been active in wetland restoration work for a number of years, including through collaborative work involving the MDEQ, MDNR, the state Department of Agriculture (MDA), federal agencies and NGOs. The state's Wetland Conservation Plan from the mid-1990s included goals of restoring 50,000 acres by 2010, and a long-term goal of restoring 500,000 acres. The state had contributed \$10 million through 2004 for wetland protection efforts through the federal Conservation Reserve Enhancement Program and the Clean Michigan Initiative, primarily directed at wetland conservation and enhancement on private lands.<sup>161</sup>

While development of a restoration database has been unsuccessful,<sup>162</sup> the state has reported restoration gains of approximately 4,000 acres per year in recent years.<sup>163</sup>

Wetland restoration work in Michigan has focused in three areas:

1. Activities of the Michigan Wetland Working Group, a group composed of federal, state and NGO representatives working to improve coordination and facilitate restoration projects;
2. Reducing regulatory burdens and delays for restoration projects; and
3. Developing relationships with watershed groups and others to promote wetland restoration as a means to improve environmental quality in watersheds.<sup>164</sup>

Several programs support wetland restoration in the state, including the Michigan Wetlands Reserve Program, with over 39,000 acres enrolled in the program,<sup>165</sup> the state MDA Conservation Reserve Enhancement Program (which supports specific practices – including wetland restoration – among farmers and other landowners),<sup>166</sup> and the MDNR Landowner Incentive Program (which provides advice, funding, and management planning to individuals and organizations involved in species protection or restoration).<sup>167</sup> Other federal Farm Bill conservation programs in Michigan and other Great Lakes states with relevance to protection and restoration of the Great Lakes have been recently summarized.<sup>168</sup>

As is the case in other states, a number of wetlands restoration projects have been implemented through the North American Waterfowl Management Plan, many of which have received funding through the North American Wetlands Conservation Act (NAWCA). NAWCA funding has been leveraged nearly four-to-one in Michigan, with 37 projects involving conservation or restoration of nearly 41,000 acres of wetlands and related habitat since 1990 either completed or underway.<sup>169</sup> In addition, further wetlands restoration has occurred through the USFWS Partners for Fish and Wildlife program, with 13,675 acres of wetlands restored at 1,072 sites in the state from 2000- 2008.<sup>170</sup>

The MDNR has also produced a report, *Managing Michigan's Wildlife: A Landowner's Guide*, with a chapter on wetlands that includes management considerations for various wetlands types.<sup>171</sup> More recently, the state released a report on Great Lakes restoration which included goals for wetland protection and restoration in the state. These included a long-term goal of restoring 500,000 acres of wetlands (and establish up to 1,000,000 acres of associated upland grassland buffers) by 2079, and a three-year goal of restoring 18,000 acres of wetlands, the latter requiring a 50 percent increase in restoration efforts under the Wetland Reserve Program, the Conservation Reserve Enhancement Program, and the Partners for Fish and Wildlife Program, according to the report.<sup>172</sup>

### **Mining Activities**

Michigan has had a long history of hard rock mining in the Upper Peninsula. In 2004, NREPA was amended to include

coverage of nonferrous metallic mining (or sulfide mining) under the new Part 632, and in 2006, the state finalized rules regulating nonferrous metallic mining. The rules cover permits (including an environmental impact assessment and reclamation plan), financial assurance, mining operations (including protection of water and postclosure monitoring), and reporting, meetings, and public hearings.<sup>173</sup> The environmental impact assessment must discuss potential impacts to wetlands (among other natural resources), a reference to measures proposed to reduce or mitigate impacts, and an analysis of feasible and prudent alternatives for the mining activities.<sup>174</sup>

### **Assessment**

As with those interviewed for other states covered by this report, agency and NGO staff believe that MDEQ does have the expertise necessary to provide adequate protection for Michigan's wetlands. As with the other states, however, inadequate funding remains a problem. One difficulty with the state assuming jurisdiction over the federal program is that funding to run the federal program is not passed along to the state. Thus Michigan must provide the same level of protection as the federal program in other states, but use state (and any other federal funds, such as through grants) to do so, and that has become increasingly difficult in recent years. For example, as noted in a report from the state Environmental Advisory Council, the overall budget for the state Land and Water Management Division (with broader duties than wetlands protection) declined from \$14.2 million to \$13.8 million from

2002 to 2008 (with a more dramatic 28 percent drop in general fund appropriations), while the number of staff dropped from 135 to 112. Meanwhile, staff workload has increased, including for wetlands associated projects such as addressing beach maintenance activities (resulting from 2002 amendments to statutes) and increasing use of mitigation and conservation easements in wetland permitting.<sup>175</sup>

One interviewee pointed out that permitting fees do not begin to cover the cost of the program, and a potential remedy would be a revised permit fee structure that provides adequate funding for the program. On the other hand, another respondent noted the value in the program being supported through general funds, given the importance of the government protecting the public trust and that all Michigan citizens benefit from wetland protection, rather than operating solely through a fee-for-service type model.

Another difficulty that is also a problem in other states is legislatively-mandated timeframes for permitting. MDEQ is expected to review permit applications, assess potential impacts, and make a permit decision within deadlines that do not always allow for adequate review.<sup>176</sup> If deadlines are missed, permits are issued by default.

Michigan has what has become a good public notice system, with a biweekly state publication supplemented by the on-line tracking system and publication in local newspapers. This is in part to satisfy federal requirements, and is one way in which delegation of the federal program has served to strengthen the

state program. In addition, public hearings are generally held whenever a member of the public requests one, and as noted above, in some cases potential stakeholders are identified and provided with a notice, even in the absence of a request.

On the other hand, a 2007 Michigan Supreme Court decision made citizen suits concerning alleged environmental harm (including wetlands degradation) potentially harder to bring, due to increased requirements on standing. In the case, the Court reversed a Court of Appeals decision in finding that the citizens bringing the suit did not demonstrate that they used the waters in question (Osprey Lake Impoundment and associated wetlands), and thus did not have standing to sue.<sup>177</sup> Implications of this decision concerning citizen suits on wetlands degradation remain to be seen.

Enforcement limitations were identified earlier in the USEPA program review process, and the state resolved many of those issues. Remaining issues involving public involvement in enforcement settlements as identified in the final USEPA program review report are in the process of being resolved, though revision to the USEPA – MDEQ Memorandum of Agreement on the 404 program.<sup>178</sup> However, the funding



Michigan Department of Environmental Quality

situation noted above (and discussed further at the end of this assessment) has affected the enforcement program, recently forcing MDEQ to forego response to lower priority complaints about unauthorized activities.<sup>179</sup>

NGO respondents identified the exemptions in both federal and state law for agriculture and forestry as the areas they thought allowed the largest continuing loss of wetlands. Of the exemptions, NGO respondents felt that the biggest problem is with agricultural exemptions. One NGO respondent referred to the practice of “growing condos”, in which a landowner or developer starts a farm, growing what is clearly going to be an unprofitable crop. After a couple of years, the farm is converted to urban development. At that point the wetland is gone, and it may be unclear to regulators that the development is being built on what was once a wetland. The respondent also pointed out a problem with the drain code, under which drainage allowed for agriculture is sometimes used to drain nonagricultural land.<sup>180</sup> Exemption for forestry activities was also of concern with NGO respondents.

In addition, one NGO respondent noted that there have been repeated legislative attempts to expand exemptions under the Wetlands Protection Act, efforts which could undermine state authority to maintain administration of the Section 404 program.<sup>181</sup> The recently completed USEPA program review highlighted other exemption issues, which the state has committed to address.

Because losses associated with exempt activities are not tracked, it is impossible to know how great the impact is. As with the

other states, improved tracking and record-keeping would allow a better assessment of how well the state program is meeting its goals, and could provide much-needed support for improvements to the program. An ongoing effort between MDEQ and Ducks Unlimited to update the state’s inventory has the potential to address some of these concerns.

The other area of potential continuing loss is of isolated (or in Michigan terms “noncontiguous”) wetlands of less than five acres. However, MDEQ notes that based on the state’s definition of “noncontiguous”, any wetland within 500 feet of a lake or stream is considered to be contiguous, and thus unprotected wetlands in the state are rare. Between state and federal programs, the state estimates only approximately 4-5 % of wetland acreage in Michigan is not covered, as compared to as much as 16 % if the current federal program operated alone in Michigan.<sup>182</sup> And if MDEQ is aware that a small wetland may be threatened, it has the authority to assess the area and to designate it as a “critical” resource to provide protection. However, this type of assessment requires a level of staffing that it appears does not exist.

Challenges with the general permit program were identified by one environmental representative – due to ongoing agency budget limitations, many applications under general permit categories have received more cursory review, and generally do not involve site inspections.<sup>183</sup> In addition, general permits allow many wetland fills without mitigation if the impact is less than one-third of an acre. On the other hand, mitigation ratios for wetland impacts that do require mitigation are generally

strong. Forested and coastal wetlands require at least a two-to-one mitigation ratio, with a five-to-one ratio if the wetland type is considered rare, which is the case for most coastal wetlands.

As in Wisconsin and Minnesota (discussed below), the loss of Lake Superior basin wetlands has been less significant than in the rest of Michigan, and it is sometimes difficult to find wetland restoration opportunities in the Upper Peninsula. In that case, MDEQ has more frequently allowed preservation of wetlands as mitigation in the UP than in the rest of the state. This is likely positive from an environmental protection perspective, given that the ratio for wetland preservation is ten-to-one,<sup>184</sup> and the alternative of creating new wetlands has generally not proven successful. Furthermore, preservation is allowed as an option only if the preserved wetland is particularly valuable, is under threat from development, invasive species, or some other threat, and whose preservation will ensure permanent protection for wetlands that would otherwise be lost or degraded.<sup>185</sup>

An additional threat to some Lake Superior basin wetlands in Michigan (also seen in Minnesota and Wisconsin) derives from nonferrous metallic sulfide mining proposals. For example, Kennecott Eagle Minerals Company applied for – and received – a permit from MDEQ under the new mining rules (as well as air and groundwater discharge permits) to operate the Eagle Project Mine, about 30 miles northwest of Marquette. (The mining and groundwater discharge permits have been challenged (by NWF and other parties)).<sup>186</sup> The mining permit requires monitoring of groundwater and wetland water

elevations through the life of mine dewatering operations, and additional monitoring and potentially mitigation if levels drop more than prescribed amounts.<sup>187</sup> One modeling study completed before permit issuance found that impacts to groundwater drawdown in the area of wetlands and to flows in the Salmon Trout River could be more than 10 times greater than impacts predicted in a study done as part of the mine application.<sup>188</sup>

On mitigation in general, although MDEQ's rules ostensibly require that mitigation plans take into account the wetland functions that are being lost to or impacted by the permitted activity, agency staff note that function is very difficult to replace. Restoration of historically lost or impacted wetlands has proven far more effective than the creation of new wetlands, and thus the emphasis in regulations (and the preference of regulators) is for restoration efforts for mitigation. At the same time, restoration projects rarely replace the specific functions that are lost. In addition, MDEQ is aware of the need to monitor mitigation sites, and generally requires financial assurance until a monitoring period has passed. However, the USEPA review reported earlier challenges for MDEQ in having staff time available for assessing mitigation site progress,<sup>189</sup> and staffing and resource limitations since then have not likely made coverage of mitigation progress any easier.

More broadly, these mitigation challenges highlight the general premise of permitting wetland destruction, and the only apparent remedy is to make wetland permits much more

difficult to obtain in the first place. Approximately 93-95% of the permits applied for in Michigan are granted, although many, if not most, of the permitted projects allow a smaller amount of wetland destruction (approximately 50 to 75%) than was originally requested.<sup>190</sup> While there is no doubt that the permitting program vastly reduces the amount of wetland that would otherwise be lost, there is still concern about potential

impacts on our water resources with ongoing wetland destruction or degradation.

As with some other states, local governments play an important role in wetland protection in the state, with the Wetlands Protection Act authorizing local governments to regulate wetland activities using the same definition, standards, and

### The Future of Michigan Wetlands Regulation Is In Question

As of this writing (spring 2009), the future of Michigan's wetlands program is currently in question. Governor Jennifer Granholm proposed ending funding of the wetlands program for the 2009-2010 fiscal year, and several bills to revise the state's wetlands program have been introduced (or re-introduced) into the state legislature.<sup>191</sup> Given the 180 day notice requirement in federal rules, the state on March 31, 2009 submitted a letter to USEPA Administrator Lisa Jackson announcing the potential transfer of administration of the 404 program back to the federal government, including an "alternative transfer scenario."

However, while proponents argue potential cost savings associated with this transfer, it is not at all clear that the state would actually realize any significant financial benefit from the change. Indeed, as noted in the 2008 Environmental Advisory Council report, while the "structural imbalance" between funding levels and scope of work puts the delegation of the 404 program at risk, loss of delegation would "impose additional costs on Michigan citizens and businesses".<sup>192</sup> These costs would

take several forms, including the generally longer time frame for permitting decisions through the federal program (which in some cases in the region can be up to two years), as well as the less comprehensive review - and likely less protection - for the over 900,000 acres of current non-federal wetlands in Michigan. This would mean more wetlands at risk, and thus fewer ecosystem services provided. In addition, Michigan would have to expand its Section 401 certification program to evaluate and certify permits issued by the Corps under federal administration of the 404 program.

In summary, while we believe there are some shortcomings in the current Michigan wetlands program as discussed in this report, returning the program to federal administration under Section 404 would neither result in a stronger, more comprehensive program, nor likely result in any substantial cost savings overall. Instead, the state should identify resources as needed and make a commitment to maintain administration of this important program.

## Summary of Recommendations for Michigan's Wetlands Program

- The state should maintain administration of the Section 404 program, and identify additional resources (and potential increased efficiencies) to ensure effective implementation of the program.
- Although in practice the current state program covers much more wetland acreage than would be covered under the current federal program alone, modification or elimination of the statutory exemption language for non-contiguous wetlands less than five acres in size would ensure better protection for small, isolated wetlands.
- The state should reexamine exemptions (including agricultural and forestry), and fully address remaining limitations identified in the USEPA program review.
- In addition to finalizing the state wetlands inventory, the state should begin tracking exempt and unregulated activities; to supplement these efforts, the state could periodically conduct inventory surveys to better gauge the overall impact of human activities on the state's wetlands.
- Along with producing an improved inventory of wetland extent, the state should expand efforts at wetland condition assessment, and also incorporate a process for prioritizing wetlands in current restoration efforts, including the broader MI Great Lakes Plan.
- The state needs to ensure adequate funding is available to fully staff wetlands-related program work, including to allow for adequate response to citizen complaints of illegal activities (and otherwise full implementation of the compliance and enforcement program) and adequate monitoring of mitigation projects.

application procedures established in the Act. Tip of the Mitt Watershed Council has summarized a number of approaches local governments can pursue to protect wetlands – in addition to enacting stand-alone wetland ordinances, measures can include natural features setback ordinances, open space zoning, stormwater management programs, and other site planning tools.<sup>193</sup>



Joan Weyandt

Of its 15 to 18 million acres of pre-settlement wetlands (which represented about 40% of its land cover), Minnesota has lost approximately 50%. Minnesota's wetlands vary by region of the state, based on a combination of factors including differences in the underlying landforms, vegetation and climate:

- The land in Minnesota ranges from glacial lake plains and outwash plains in the northwestern part of the state, through glacial till plains and end moraines in the center and much of the southern portion, to dissected areas (not covered by ice during the most recent glacial advance), in particular in the southeast.
- Ecological provinces/general vegetation zones in the state include the Laurentian Mixed Forest (conifer-hardwood) zone in the northeast, the Eastern Broadleaf Forest zone ranging northwest to southeast, the Tallgrass Aspen Parklands in the northwest, and the Prairie Parkland along the western and southcentral portions of the state.
- The climate in Minnesota varies across the state, with average annual temperatures ranging from about 36°F in the north to 46°F in the south, and average annual precipitation ranging from approximately 20 inches in the west to 30 inches in the east.
- Most remaining large wetlands and wetlands complexes are in the northern portion of the state, and peatlands are more common in the northeastern part of the state.<sup>194</sup>

In general, wetland losses have been more significant in the southern and western portions of the state (generally the Prairie Pothole portion of the state, which has been under greater agricultural pressure), and these characteristics have shaped the regulatory framework the state uses in managing wetland activities.

The portion of Minnesota located in the Great Lakes Basin is relatively small, made up of four major watersheds (and one smaller watershed) largely restricted to parts of three counties (Cook, Lake, and St. Louis) in the northeastern part of the state. On the other hand, the area contains a significant – and varying – abundance of wetlands, ranging from approximately 4 percent of the watershed in the Lake Superior North and South watersheds (both of which are long narrow areas bordering Lake Superior) to 31 percent in the St. Louis River watershed (which is primarily inland and has only limited extent along Lake Superior).<sup>195</sup> Due to the harsh shoreline along Lake Superior (high wave action, unprotected beaches, and bedrock or clays typically found around much of the lake), marshes are uncommon along the Lake Superior coastline, and instead poor fens are more commonly found in the relatively few sheltered sites.<sup>196</sup> Along



Friends of the Boundary Waters Wilderness

the Minnesota portion of the shoreline, wetlands are largely restricted to behind sand beach ridges north of Split Rock Point. In contrast, the St. Louis River watershed has 558,000 acres of wetlands,<sup>197</sup> which serve important functions in this river which has been identified as an Area of Concern.

While there is a growing effort within the Minnesota environmental and regulatory communities to increase wetland protection, there has not necessarily been the same urgency applied to wetlands within the Lake Superior Basin. It is estimated that within the Lake Superior watershed, over 90% of historic wetlands remain today.<sup>198</sup> However, an earlier assessment noted that for Lake Superior as a whole, a comprehensive assessment of coastal wetlands losses was not available.<sup>199</sup> A more recent higher level assessment of Great Lakes and other coastal wetlands in the Eastern U.S. did indicate that on the whole, wetlands density in the Minnesota portion of the Lake Superior watershed was either “high” or “very high”, though there was no indication of where the conversion from 1998 – 2004 of approximately 150,000 acres from forested to shrub wetland (via timber harvesting in the region) occurred.<sup>200</sup>

Although it still has most of its historic wetlands, the Lake Superior Basin currently faces significant threats to wetland health. Numerous proposals to mine copper, nickel, and precious metals have been put forth across northern Minnesota, Wisconsin, and Michigan in recent years. In such areas, siting a new mine can mean a large loss of wetlands. For instance, Polymet Mining Inc. has proposed to extract copper, nickel,

cobalt and precious metals and process ore in an existing facility in St. Louis County, MN. Permits are under development, and a draft environmental impact statement (EIS) is under development by the Minnesota Department of Natural Resources (MNDNR) and the U.S. Army Corps of Engineers.<sup>201</sup> Scoping work thus far has identified 114 wetlands covering over 2,500 acres within an area slightly larger than the mine site, with just over one-half the wetlands consisting of black spruce and open bog communities, and an anticipated 1,257 acres of wetlands that would be impacted through the life of the project.<sup>202</sup> Additional threats to wetlands in the Lake Superior Basin include residential and commercial development, including along the North Shore, and forestry activities.

The state reported a net loss of a total of 1,367 acres of wetlands through all activities under the Wetland Conservation Act from 2001-2003.<sup>203</sup> On the other hand, a recent assessment by USFWS researchers reported more substantial losses since 1980 in the Prairie Pothole Region of 4.3 percent of total acreage, and as high as 15 percent in the southwestern portion of the state.<sup>204</sup>

In addition to recent wetlands policy assessments by national organizations, other assessments of Minnesota’s wetlands programs have been released in the past few years, including statewide reports from the Minnesota Center for Environmental Advocacy<sup>205</sup> and the Sierra Club,<sup>206</sup> both of which were helpful in identifying issues of focus in this assessment.

## Regulatory Overview

The Minnesota state wetland protection program has two major components: the Public Waters Work Permit Program (PWPP), administered by the state Department of Natural Resources (MNDNR); and the Wetland Conservation Act (WCA), administered by local government units (LGUs) under the regulations and oversight of the Board of Water and Soil Resources (BWSR).

The MNDNR Public Waters Work Permit Program applies to “public water wetlands,” which are included in the statutory definition of “public waters.” These are type 3 (shallow marshes), type 4 (deep marshes), and type 5 (open water wetlands)<sup>207</sup> of more than ten acres.<sup>208</sup> All three of these types of wetlands are typically covered by standing water, and are essentially regulated as lakes.

The large majority of wetlands in the state are regulated under the Wetland Conservation Act, passed in 1991 after increasing recognition of incomplete protection of the state’s wetlands by the PWPP and the federal Section 404 program. The statute notes that the state legislature found that wetlands provide public value, and affirmatively stated that “...it is the public interest to: (1) achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands...”<sup>209</sup>

The basic requirement of the WCA is stated as follows:

Wetlands must not be drained or filled, wholly or partially, unless replaced by restoring or creating wetland

areas of at least equal public value under a replacement plan approved as provided in section 103G.2242, a replacement plan under a local governmental unit's comprehensive wetland protection and management plan approved by the board under section 103G.2243, or, if a permit to mine is required under section 93.481, under a mining reclamation plan approved by the commissioner under the permit to mine.<sup>210</sup>

A third wetland program in the state – common to all states – is the Section 401 certification program. As stated in the federal section above, Section 401 of the Clean Water Act requires state certification (in this case by the Minnesota Pollution Control Agency (MPCA)) of federal permits or licenses involving discharges under Section 404 of the Clean Water Act (administered by the Corps), ensuring that the discharges will comply with state water quality standards. As BWSR has noted, a large majority of wetland projects regulated under the WCA are also regulated under Section 404 in Minnesota (and vice versa), and the state has noted the value in making the process more efficient.<sup>211</sup> While the MPCA waived most determinations for Section 404 projects in 2001-2006, the agency has more recently been reviewing Corps individual permit applications for activities in wetlands that meet certain criteria.<sup>212</sup>

As with other states, Minnesota has been utilizing a three-tiered approach to assess wetland condition. The state in 2004 had released a draft wetland management classification system, with an objective of confirming that no net loss of wetlands

function and values was occurring in the management area, while providing flexibility for development. The combination of an inventory (including of wetland type, landscape position) and field assessment (including of functional capacity) would be used in assigning a wetland to one of four management classes, which would then determine the management strategy, mitigation standards, and other management options.<sup>213</sup> As part of this effort, the state has been revising a rapid functional assessment method for Minnesota wetlands originally developed in the early 1990s, called the Minnesota Routine Assessment Method (MnRAM) Evaluating Wetland Function. Though the tool (considered a level 2 method) can produce quantitative scores, the method overall is considered more qualitative, and so not currently appropriate for quantifying wetland impacts or compensatory mitigation.<sup>214</sup> However, it does still have regulatory applications, and is being increasingly used by LGUs in wetland planning. In addition, the state has been increasing development of both level 1 and 3 tools.<sup>215</sup>

### **Implementation of Permitting Programs**

Implementation of the regulatory process in Minnesota differs between the two major state programs. Under the MNDNR Public Waters Work Permit Program, a permit is required for any activity that will “change or diminish the course, current, or cross section of public waters, entirely or partially within the state, by any means, including filling, excavating, or placing of materials in or on the beds of public waters.”<sup>216</sup> The most common purpose of wetland fill, to create upland, is expressly

prohibited (except in very limited circumstances) in public water wetlands,<sup>217</sup> as is the disposal of “rock, sand, gravel, or any other solid material resulting from activities carried out above the ordinary high water level.”<sup>218</sup>

Permanent or total drainage of public water wetlands for non-mining activities is prohibited outright, and temporary or partial drainage is allowed for very limited purposes, which do not include the creation of dry conditions for development or construction.<sup>219</sup> While these prohibitions are strong, it must be borne in mind that the MNDNR program covers a relatively small fraction of wetlands in the state.

Projects through the MNDNR program can be permitted either through a general permit (which includes 5 categories) or individual permits, and historically, approximately one-half of the authorizations were for bridge and culvert projects. In addition, projects regulated through the Public Waters Work Permit Program can be waived to the WCA program, to be regulated by a LGU.<sup>220</sup>

Under the other major state wetlands program (covering the majority of wetlands activity), the Wetland Conservation Act program, regulations are developed and promulgated by BWSR, but implemented by local government units. For implementation of the WCA, the state is divided into regions based on presence of “original” (i.e., present at the time of statehood in 1858) wetlands – i.e., a region where less than 50 percent of pre-settlement wetlands remain (generally the southern and western portions of the state), a region where

between 50 and 80 percent of wetlands remain (generally a swath in central Minnesota), and the region where over 80 percent of original wetlands remain (generally northern and northeastern Minnesota), and rules in the program often have provisions specific to these regions.<sup>221</sup>

The WCA defines wetlands in a relatively standard manner (i.e., regarding the presence of water, hydric soils, and hydrophytic vegetation),<sup>222</sup> and utilizes the modified federal Circular 39 approach in identifying wetland types.<sup>223</sup> The WCA applies to all wetlands in the state, except for “public water wetlands” (i.e. those identified on MNDNR inventory maps), which are regulated under the PWP, as discussed above.<sup>224</sup>

Under the WCA, rather than being issued permits, a landowner applies for and receives a formal “determination” by a LGU. Certain questions that arise in the permitting process (e.g., concerning public value, size, location, or wetland type) are to be submitted to a Technical Evaluation Panel (“TEP”) which would include a representative appointed by the LGU.<sup>225</sup> If advice is requested from the TEP, the TEP provides a determination and recommendation on other technical matters to the LGU, which in turn must consider and include the decision of the TEP in their approval or denial of a plan or determination (including, for example, a replacement plan, wetland banking plan, or exemption determination).<sup>226</sup>

The BWSR regulations also include a comprehensive statement of the values to be considered in making wetland permitting decisions,<sup>227</sup> and note the applicability of the

Minnesota Environmental Rights Act, which states that “. . . an action which is likely to have material adverse effects on natural resources must not be allowed if there is a feasible and prudent alternative consistent with the requirements of the public health, safety, and welfare and the state's paramount concern for the protection of its natural resources. Economic considerations alone do not justify adversely effective actions.”<sup>228</sup>

The BWSR regulations include a list of situations related to fish and wildlife under which permits must be denied, as follows:

“A replacement plan for activities that would have a significant adverse impact that cannot be mitigated on a special or locally significant fish and wildlife resource must be denied. These activities include, but are not limited to:

1. fish passage and spawning areas;
2. colonial waterbird nesting colonies;
3. migratory waterfowl concentration areas;
4. deer wintering areas; and/or
5. wildlife travel corridors.”<sup>229</sup>

On the other hand, like many states, Minnesota has statutory language in support of the “takings” proposition (i.e., that the denial of a wetland fill permit can amount to the taking of property without compensation.) Minnesota statutory law provides that a landowner must be compensated if their permit application is denied, unless it is also denied under federal law or under some other provision of state or local law.<sup>230</sup> Although

it is uncertain whether local governments would be any less likely to grant permits if this requirement did not exist, it virtually ensures that wetlands will receive no greater protection under state law than they do under federal law.

Enforcement authorities under the WCA include the MNDNR commissioner, conservation officers, and LGU-licensed peace officers.<sup>231</sup> These authorities can issue cease and desist orders for unauthorized activities, as well as restoration or replacement orders in certain situations – i.e., when the drain, excavation, or fill has already been completed when discovered; when the LGU grants the application but it is reversed on appeal; or when the LGU denies the application.<sup>232</sup> In addition, BWSR recently developed an Administrative Penalty Order plan to apply in cases where existing enforcement orders are insufficient to correct a violation.<sup>233</sup>

The BWSR regulations require each local government to hire qualified staff to implement the program, with the threat of a moratorium on wetland permits in the jurisdiction if it does not do so.<sup>234</sup> The regulations also provide a procedure for implementing a moratorium if a local government fails to enforce the law.<sup>235</sup>

Wetland loss associated with mining activities is regulated under the separate Permit to Mine statute.<sup>236</sup> For any activity that requires a mining permit, the MNDNR issues and oversees the wetland permit for all types of wetlands. Mining activities include the mine itself, waste stockpiles, and processing facilities, and cover ferrous and nonferrous minerals and peat mining. Impacts on wetlands from mining have been

particularly significant in the northeastern portion of the state, where mining activity has been concentrated; according to BWSR, from 1994 to 2003, mining activities had impacted 1,133 acres of wetlands, with 1,161 acres restored or created via mitigation. The agency estimated in 2003 that with increasing interest in metallic mining in the region, mining activities could impact as much as 3,000 acres within the next decade.<sup>237</sup>

Concerning public comment, the WCA provides that copies of all wetland value replacement plans (or applications) must be sent to members of the public who have requested them, but more widespread notification (e.g. via a local newspaper, state publication, or Web site) is not required.<sup>238</sup> (LGUs are required to enter data from wetland permit applications (such as drained, filled, and/or replacement acres) into a statewide Web-based database, but the database is not publicly accessible.<sup>239</sup>) In addition, the minimum public comment period to the LGU established through the WCA is 15 days, although the requirement does not apply for impacts less than 10,000 square feet.<sup>240</sup> Once a decision has been made by the local government unit, appeals to BWSR challenging the issuance of a permit can be made by members of the public who have requested notice of wetland decisions, or by a petition signed by 100 residents of the county.<sup>241</sup>

Regulations under the WCA are currently being revised, with hearings to be held in spring 2009 and a final rule to be published by August, 2009 (see further discussion below in Assessment section).<sup>242</sup>

## Wetlands Inventory and Permit Tracking

In support of the PWPP, MNDNR has inventoried both public water wetlands and other public waters, and prepared county maps, through the Public Waters Inventory program, which was completed in the early 1980s.<sup>243</sup> However, the maps do not show precise wetland locations or boundaries; finer level maps are available, through regional MNDNR and other offices.<sup>244</sup> In contrast, under the WCA, there is no comprehensive inventory or maps of wetlands regulated. However, as in other states, the National Wetlands Inventory maps, prepared by the USFWS, provide general location information on many wetlands in the state.<sup>245</sup>

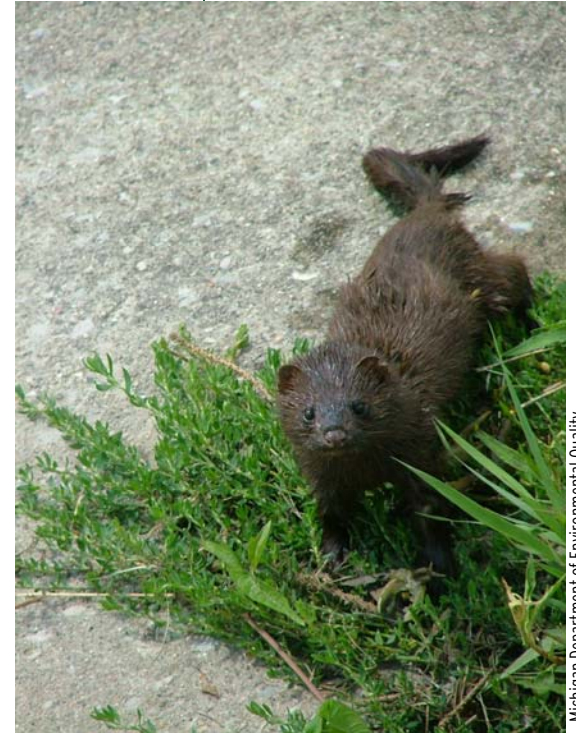
The state has recognized the importance of better tracking wetlands losses and gains, in light of the no-net-loss policy adopted under the WCA:

Minnesota's no-net-loss policy for wetlands has been an effective rallying point for wetland protection and conservation. However, after more than a decade of a comprehensive wetland regulatory program in Minnesota, we are still unable to fully and accurately ascertain whether the wetland no-net-loss directive has in fact been met, much less whether the state is making significant strides toward increasing the quantity, quality, and biological diversity of Minnesota's wetlands by restoring or enhancing diminished or drained wetlands in accordance with Minnesota Statutes 103A.201.<sup>246</sup>

In light of this need, the state recently began the Comprehensive Wetland Assessment, Monitoring, and

Mapping Strategy, with the overall goal of developing a scientifically sound approach for monitoring and assessing the statewide status and trends of wetland quantity and quality. A report on the strategy notes some existing efforts that provide some tracking information, such as the statewide eLINK database, into which LGUs enter information on applications. However, while the effort has increased ability to track the quantity of wetlands, permit tracking does not currently account for changes in wetland quality, although the MnRAM tool can potentially aid in tracking wetland condition changes.<sup>247</sup>

Although the state is still developing the comprehensive monitoring and assessment program, BWSR did estimate based on incomplete WCA data (including reported exemptions, regulated impacts and required mitigation) a net loss of 1,367 acres of wetlands from 2001 – 2003.<sup>248</sup> However, actual losses could be more substantial: as noted in the Introduction to this section, a recent USFWS assessment of the Prairie Pothole Region based on circa 1980 delineations and more recent sample plot aerial photography estimated a net loss (i.e., including restoration projects) of 4.3 percent of wetland acreage in the region since 1980.<sup>249</sup> The most recent biennial report from BWSR did not contain estimates of net losses or gains from authorized activities in the 2004-2005 period.<sup>250</sup>



Michigan Department of Environmental Quality

## Exemptions

Under the PWPP, certain activities involving drainage systems and public water wetlands are not covered.<sup>251</sup> In addition, MNDNR authorizes some activities in public waters that do not require a permit, such as installation of a boat dock.<sup>252</sup>

The WCA includes exemptions (regarding a replacement plan) for a number of activities. These include agricultural activities (including activities related to “normal farming practices”), certain drainage activities, activities exempted from federal regulation under the Clean Water Act; activities authorized by the Corps under a general permit, certain public works or public utility projects, and logging and other forestry activities, including the building of logging roads.<sup>253</sup> The law also contains a *de minimis* exemption, which is higher in the historically less impacted region of the state (i.e., up to 10,000 square feet for most wetlands in the 80 percent intact region), but lower within shoreland protection zones.<sup>254</sup> These exemptions do not apply to public water wetlands.

## Mitigation

For all non-exempt wetland activities, impacted wetlands must be replaced under a replacement plan approved by the local government unit. The WCA requires a sequencing approach among permit applicants, whereby they first attempt to avoid and minimize wetland impacts, and then to follow a number of principles (in decreasing priority), including rectifying the impact, reducing or eliminating the impact over time, and lastly, carrying out compensation measures.<sup>255</sup> In compensation,

priority is given to wetland restoration, followed by “replacing or providing substitute wetland resources or environments.”<sup>256</sup>

Implementation of the statutory avoid/minimize/replace sequencing requirements includes an alternatives analysis, which must be completed whenever a permit applicant indicates that he or she cannot avoid the wetland impact.<sup>257</sup> This regulation explicitly states that “[a]n alternate site may not be excluded from consideration only because it includes or requires an area not owned by the applicant that could reasonably be obtained, used, expanded, or managed to fulfill the basic purpose of the proposed project.”<sup>258</sup>

In most of the state, wetlands must be restored or replaced on a 2:1 ratio (2 acres restored to 1 acre lost).<sup>259</sup> However, on agricultural land or in the section of the state identified as having over 80 percent of pre-settlement wetlands intact, the minimum compensation ratio is 1:1.<sup>260</sup> In addition to providing replacement on a project-specific basis, replacement can entail application of previously established banking credits, through the Minnesota Wetland Bank. The Bank, which is operated by BSWR, divides the state into 10 service areas for administration, based on major watersheds. Credits are established by restoring or creating a wetland under a plan approved in advance by the LGU; the LGU determines the number and type of credits received for a given project, upon completion of the work.<sup>261</sup>

Wetland replacement in general follows a priority scheme, including higher priority for on site or in the same minor

watershed as the affected wetland, followed by in the same watershed as the affected wetland, followed by in the same county as the affected wetland.<sup>262</sup> For areas that retain more than 80 percent of their original wetlands (again, generally the northern and northeastern sections of the state), the replacement sequence is less stringent, whereby wetland banking can be used after evaluating on-site and within-watershed replacement, and extending to statewide replacement.<sup>263</sup> Because of the generally higher fraction of non-impacted wetlands in the Lake Superior Basin (and hence fewer restoration opportunities), replacement opportunities for wetlands destruction in the Basin are typically greater in another part of the state (i.e., the Mississippi River or Hudson Bay watersheds); for example, only six of 977 acres of available credits in the Minnesota Wetland Bank as of March 18, 2009 were in the Lake Superior Basin.<sup>264</sup>

To address the more limited mitigation opportunities in the northeastern portion of the state, BWSR recently worked with other agencies, tribes and industry in developing the Northeast Minnesota Wetland Mitigation Strategy. A goal of the strategy is to improve the ecological quality and efficiency of wetland mitigation in the 18 counties of northeastern and north central Minnesota. Objectives include to develop a regional wetland mitigation inventory, conduct a regional mitigation siting study, conduct research on non-traditional mitigation methods, and update the NWI for the region. A report on the first phase of the inventory and assessment component of the project indicated approximately 8,400 potential wetland mitigation sites covering an area of over 1.1 million acres, with farmed

sites accounting for 60% of the potential mitigation area, and partially drained sites an additional 28%.<sup>265</sup>

## Restoration

Under the WCA, wetland restoration does not require a replacement plan, if the work is carried out for conservation purposes under a contract or easement providing the landowner the right to drain the restored or created wetland, or if the activities have not involved any assistance or financing from public or other private entities, and if the wetland has not been used for wetland replacement or deposited in the state wetland bank.<sup>266</sup>

A number of wetland restoration efforts have been developed in the past decade in Minnesota.<sup>267</sup> The state earlier developed broad policy goals related to wetland restoration, including through the 1997 Minnesota Wetlands Conservation Plan (with a goal "...to maintain and restore the quality and diversity and increase the overall quantity of wetlands in the state...").<sup>268</sup> The recently released Minnesota Statewide Conservation and Preservation Plan included a wetland restoration goal as part of a major habitat recommendation, and highlighted the importance of restoration in recommendations relating to drainage policy and streambank erosion.<sup>269</sup>

Much of the wetland restoration work in the state occurs through the broader Reinvest in Minnesota (RIM) program. The RIM Reserve Program, created in 1986 and administered by BWSR, has goals of improving water quality, reducing soil erosion, and enhancing fish and wildlife habitat by retiring

private marginal cropland from agricultural production, planting permanent native vegetation, and restoring previously drained wetlands. Landowners who voluntarily enroll their land in a conservation easement are paid a percentage of the assessed value of their land.<sup>270</sup>

The RIM program enrolls land through several means, including the "regular" RIM Reserve, the Conservation Reserve Enhancement Program (CREP) (operated in partnership with the U.S. Department of Agriculture), and the Permanent Wetland Preserves (PWP) program.<sup>271</sup> The PWP program was established under the WCA to assist landowners in obtaining permanent easements on certain wetland types. In administering the program, BWSR encourages Soil and Water Conservation Districts and local screening committees to place a priority on wetland basins that are highly susceptible to alteration, have a farming history, are not protected by state and federal laws, and have a small chance of being impacted by activities on adjacent parcels not enrolled in the program.<sup>272</sup>

Minnesota has been actively involved in other federal restoration programs, including a number of wetlands restoration projects implemented through the North American Waterfowl Management Plan, many of which have received funding through the North American Wetlands Conservation Act (NAWCA). NAWCA funding has been leveraged over three-fold in Minnesota, with 66 projects involving conservation or restoration of over 180,000 acres of wetlands and related habitat since 1990 either completed or underway.<sup>273</sup> The state has also enrolled over 87,000 acres of wetlands for

long-term or permanent conservation easement through the Wetlands Reserve Program.<sup>274</sup> The importance of this and other federal Farm Bill programs in Minnesota and other Great Lakes states in relation to broader Great Lakes restoration has recently been highlighted in a report by the Healing Our Waters – Great Lakes Coalition.<sup>275</sup> In addition, a further 69,800 acres of wetlands restored at 15,986 sites in the state from 1987- 2008 has occurred through the USFWS Partners for Fish and Wildlife program.<sup>276</sup>

Five Minnesota agencies released in January 2009, as a supplement to the 1997 Minnesota Wetlands Conservation Plan (MWCP), the *Wetlands Restoration Strategy: A Framework for Prioritizing Efforts in Minnesota*.<sup>277</sup> Key elements of the strategy are to prioritize restoration efforts based on desired outcomes (e.g., water quality improvements, habitat gains, hydrologic benefits), improve coordination of restoration efforts, and design and produce restoration projects with functional benefits and long-lasting value. The earlier MWCP listed two wetland management goals for broad areas of the state: a net gain through restoration of wetland functions in more highly impacted areas of the state (i.e., the areas with less than 80 percent of original wetlands), and maintaining the high quality of existing wetland function in the northeastern portion of the state (i.e., the > 80 percent wetland area).<sup>278</sup>

The state is using two approaches to identify potentially restorable sites – a recently developed (and still to be completed) USFWS Restorable Wetlands Inventory for the southern and western portions (i.e., more highly impacted,

Prairie Pothole portion) of the state, and an ongoing GIS-based digital terrain analysis approach that is being considered for other portions of the state. Prioritization will then be based on the base layer of potentially restorable sites, and applying filters for water quality improvement, wildlife habitat improvement, and water quantity management.<sup>279</sup>

Given historic wetlands losses, the overall restoration emphasis in the framework (as well as the Statewide Conservation and Preservation Plan) is on restoration in the state areas more heavily impacted historically (i.e., prairie and prairie-forest transition zones in the southwestern and central portions of the state, respectively).<sup>280</sup>

## Mining Activities

As noted above, the MNDNR regulates any wetland drainage or fill that is the result of mining activities.<sup>281</sup> Although the rule mandates the same replacement scheme for mining activities followed for other wetland permits, filling or draining activities at mines that were approved and initiated prior to July 1, 1993 do not require a replacement plan or amendment to the permit to mine.<sup>282</sup>

The decrease in protection when mining activities are involved is reflected by the stated goals of the MNDNR regulations. The general goals include “. . . to limit the placement of any fill material into public waters in order to minimize encroachment, change, or damage to the environment”<sup>283</sup> and “. . . to protect and preserve public waterbasins and public water wetlands from damage or destruction by drainage.”<sup>284</sup>

For mining activities that affect wetlands, however, the goal is “. . . to ensure that alterations of public waters for mining or reclamation of mining areas will minimize adverse environmental effects, preserve water resources to the maximum extent feasible and practical, and encourage the planning of future land and water utilization while at the same time promoting the orderly development of mining and the use of sound mining practices.”<sup>285</sup> The MNDNR regulations state that the permit will be granted if the applicant shows:

1. There is no other feasible and practical location for the proposed mining activity;
2. There is no other feasible or economical method to mine except by draining, diverting, or controlling the public waters;
3. The proposed alteration of public waters is necessary and no other feasible and economical method for it is reasonably available;
4. The proposed alteration of public waters will not substantially impair the interests of the public in lands or waters or the substantial beneficial public use thereof, except as expressly authorized in the permit, and will not endanger public health or safety;
5. The proposed mining operations will be in the public interest and that the public benefits resulting from it will be sufficient to warrant the proposed alteration of public waters;
6. The activities represent the minimal impact solution with respect to watershed modifications, watercourse diversions or changes, drainage, runoff and seepage management, and

## Draft Changes to Minnesota's Wetlands Rules

Following on the release of the 2001-2003 Minnesota Wetland Report by the Board of Water and Soil Resources (documenting net annual wetland losses of approximately 456 acres per year under the Wetland Conservation Act) and a subsequent BWSR assessment, the Minnesota Legislature in 2007 adopted legislation affecting wetlands rules and their application (Laws of Minnesota, Chapter 57, Section 166). The statute included a provision requiring the adoption of exempt rules addressing wetlands activities, which would expire on August 5, 2009. BWSR began a rule development process in fall 2007, which led to development of two stakeholder advisory committees, and the eventual development of draft rules being considered for public comment in spring 2009.<sup>286</sup>

Among other things, the draft March 2009 rules (which include removal and replacement, renumbering, and/or revision to a number of rules) include the following:

- Clarify duties and responsibilities of local government units, including application and decision procedures;
- New rules on exemption standards, including removal of regulation (rather than exemption classification) for incidental wetlands (wetlands created in nonwetland areas by actions not having a purpose to create wetlands);
- Clarification that the Technical Evaluation Panel must provide recommendations on wetland applications, if requested by the local government unit; however, review

is required for applications involving public road projects, banking projects, and replacement wetland monitoring;

- Adoption of statutory language into a rule concerning public notice, including that interested members of the public must receive notice, and a minimum 15 day comment period be provided;
- Revisions to replacement standards, whereby the default ratio increases from 2:1 to 2.5:1, and from 1:1 to 1.5:1 in > 80 percent or agricultural areas; in addition, a higher ratio can be required if the local government unit determines it is necessary “to replace the public value of the wetland lost”;
- Requirements on components of a comprehensive wetland protection and management plan, if a local government unit chooses to develop one; and
- Concerning enforcement, policy would be changed whereby the choice of replacement or restoration, based on enforcement authority decision or a court order, would be made by the Technical Evaluation Panel, rather than the local Soil and Water Conservation District, enforcement authority, and the TEP.<sup>287</sup>

On the enforcement change, environmental groups have noted that in addition to not recognizing technical capabilities of enforcement personnel, the change may in practice weaken the presumption that restoration will be required.<sup>288</sup>

avoidance of major adverse changes in the ecosystem of public waters having substantial public value . . .<sup>289</sup>

## Assessment

Although this assessment has examined statewide wetlands policy in Minnesota, we have emphasized in many cases implementation in the northeastern portion of the state, given the ecological importance of the region on its own, and recognition of the importance of protecting and restoring Lake Superior. In addition, this assessment has focused on existing statutory and rule language and program implementation. As noted above, the Board of Water and Soil Resources is currently revising rules under the Wetland Conservation Act, with final rules to be adopted in summer 2009 (see box)

Concerning current program implementation, responses from NGO representatives in this study indicated positive assessment of the Board of Water and Soil Resources efforts to protect and restore wetlands. However, this assessment still identified a number of areas for improvements in wetlands programs in the state.

The WCA and the MNDNR program ostensibly regulate the full range of wetlands in the state, including isolated wetlands. However, the WCA exemptions apply to activities that most often occur in isolated wetlands. At the time the statute was enacted, the Corps included isolated wetlands in its programs, and some of these activities were covered. After the *SWANCC* case, the Corps no longer regulates these activities in isolated wetlands, leaving a gap in regulation. In an examination of the

impact of federal guidance issued in January 2003 on wetlands protection in the state, BWSR estimated that 11.4 – 17.8 % of National Wetlands Inventory-mapped acreage would fall out of federal jurisdiction, depending on the buffer widths used, with the greatest change in the historically most impacted prairie areas. In a “worst case scenario” (only considering wetlands directly connected to perennial tributaries), the lapse in jurisdictional coverage would range up to a 92 percent decrease for wetlands in the northern glaciated plains.<sup>290</sup>

In the Lake Superior basin, the two exemptions of primary concern are those for logging roads and other forestry activities, and the *de minimis* exemption. NGO respondents believed that the large logging companies do a good job of minimizing wetland impacts from logging, but that the exemption is too often used by developers and landowners for activities that should not be classified as forestry. For instance, a developer might put a road in to a site and use it initially to clear timber, and subsequently use that road as access for development.

The *de minimis* exemption for most wetlands in the Lake Superior basin is 10,000 square feet, which is about one-quarter acre. One environmental respondent with extensive experience on the North Shore area notes that “Coastal Lake Superior wetlands are tiny, and GIS maps often can’t handle the little information about the North Shore. In my experience, a fairly small plot of land here in the Great Lakes basin has a 50% chance of containing a wetland. There are a large number of ephemeral pools that just get lost.”<sup>291</sup> These small wetlands close to the Lake Superior shoreline are a high priority for

preservation among area conservationists. One potential change to state law to help this effort would be to extend the 400 square feet *de minimis* exemption that applies in other parts of the state to a certain distance inland from Lake Superior. MCEA also recommended in its 2006 report “limit[ing] the total acres/feet of *de minimis* exemption allowed within each of the 81 major watersheds identified for the state by DNR.”<sup>292</sup>

Another change relating to the *de minimis* exemption was suggested by MCEA, which found that developers are

sometimes able to divide the property slated for development into different parcels with different owners, and to obtain more than one *de minimis* exemption. MCEA’s recommendation was to “forbid subdivision of property in order to maximize *de minimis* exemptions and require that once a parcel has used a *de minimis* exemption, no more can be obtained in the future even if the project changes.”<sup>293</sup>



Minnesota Board of Water and Soil Resources

As noted previously, according to the BWSR, the “no net loss” goal of the WCA is not being met statewide due to exemptions; in the years 2001 through 2003, a net 1,367 acres of wetlands were lost through WCA programs.<sup>294</sup> And this figure accounts only for exempt activity wetland losses that are reported by

landowners under a voluntary reporting system. While BWSR encourages landowners to report wetland impacts that are covered by exemptions, they are not required to do so. Both regulators and conservationists in Minnesota are frustrated by the lack of knowledge regarding wetland losses due to exemptions. Both the MCEA and the Sierra Club reports recommend making the reporting of wetland losses under the WCA exemptions mandatory.<sup>295</sup>

Additional challenges with implementation of the program under the WCA are that local governments will not always have the resources (and hence staff expertise) to thoroughly review applications, and they will in addition sometimes face strong development pressures that can occur at the local level. A related resource issue was reflected in NGO assessment of the strength of enforcement of wetland laws – NGO respondents gave the MNDNR high marks for enforcement within the limits of their resources, but believed that enforcement by local governments can be more problematic.

Another issue identified by MCEA is the application of Minnesota’s “timing law” to wetland decisions.<sup>296</sup> This law requires that all decisions related to zoning and land use made by local governments be made within 60 days of receiving a complete application.<sup>297</sup> This time frame can lead to hasty decisions by local government units if public or other concerns need to be addressed.<sup>298</sup> MCEA recommends “eliminat[ing] the application of Minn. Stat. § 15.99 to determinations regarding application of, or exemption from, WCA, or to enforcement of WCA or any portion thereof.”<sup>299</sup>

Arguably, the largest issue with the state wetland permitting program in northeastern Minnesota is the special allowance for mining – both mineral mining and peat mining. It is possible that the largest loss of wetlands within the Lake Superior basin in the coming decades will be from these activities.

Another critical issue important in the Lake Superior basin is the allowance of mitigation outside the watershed. Although finding wetland areas to restore in a region that retains such a high percentage of its wetlands is admittedly difficult, this should not be used as the basis for allowing a net loss of wetlands within the basin. Wetlands protection and restoration has been identified as an important component of activities within the St. Louis River Remedial Action Plan, and potential activities identified earlier included setting up a land trust to protect riparian areas and wetlands, strengthening mitigation requirements for the Lower St. Louis River, increased fees to discourage wetlands destruction, and increased penalties for violations.<sup>300</sup> Completion and initiation of mitigation projects in the region, including potential ownership and management of mitigation banks, was recently identified as an action item of the South St. Louis Soil & Water Conservation District.<sup>301</sup>

BWSR implementation of the WCA receives high marks from NGO representatives for emphasizing restoration of wetlands rather than allowing the creation of new wetlands, as noted by one advocate: “BWSR tries hard to restore wetlands in their historic locations. I think they understand that it is ecologically questionable to create wetlands where they did not previously exist.”<sup>302</sup> The challenges in wetland creation and restoration

were also echoed by Mark Nelson of BWSR, who noted the challenges in establishing healthy wetlands with desired vegetation, and in particular the challenges in recreating a forested wetland.<sup>303</sup> For this reason, we do not recommend requiring construction of new wetlands within the Lake Superior basin as a higher priority than restoration or preservation projects.

On the other hand, many of our contacts feel that the avoid/minimize/mitigate sequence is not followed in practice (in particular for type 1 (seasonally flooded basins or flats) and 2 (inland fresh meadow) wetlands), even though it may appear to be on paper. The MCEA report notes:

...Unless the wetland is Public Waters Wetland, sequencing considerations quickly devolve to the question whether the cost of mitigation is more than the party proposing wetland destruction wants to pay. If the cost of mitigation is affordable to the individual or company proposing the work, avoidance and minimization do not receive separate consideration. This tips the goal or sequencing upside down because avoidance and minimization receive consideration only if the mitigation is determined to be too expensive.

An equally important sequencing question is whether avoidance and minimization opportunities are being lost because affordable mitigation goes forward without first and full consideration and legal enforcement of these requirements....<sup>304</sup>

Public notice is also an area that could use significant improvement in both the MNDNR and BWSR programs, with requirements to more broadly alert individuals of permit applications. While the state does have a Web-based database for tracking permit applications under the WCA (the eLINK system), the information is not available to the public. This is a problem that could be easily remedied through creation of a Web-accessible database or system (presumably linked in some manner to the eLINK database) that lists all MNDNR and WCA permit applications.

Other “wish list” considerations mentioned by NGO respondents were protection for a buffer area around wetlands, preservation of shoreline wetlands, and more emphasis on mitigating wetland impacts in the same sub-watershed, at the lowest watershed level possible.

## Summary of Recommendations for Minnesota’s Wetlands Program

- The state should reexamine *de minimis* exemptions, including:
  - considering limiting the total acreage of *de minimis* exemptions allowed within each of the major watersheds of the state
  - not allowing application of the exemption to areas within a certain distance of sensitive or high quality natural resources (e.g., Lake Superior)
  - restricting *de minimis* exemptions allowed on a parcel (to prevent additional activities/wetlands loss through subdivision process).
- The state should attempt to track and report on illegal and exempt activities, and either support efforts such as the USFWS sample analysis of wetland changes or periodically conduct its own, to better gauge the overall impact of human activities on the state’s wetlands.
- The state should eliminate application of the “timing law” to decisions involving wetland activities, to ensure adequate review and input on decisions.
- The state should ensure that sequencing is followed in practice (with clear consideration of avoid and minimize options).
- The state should consider increasing mitigation ratios (in particular for out-of-kind and out-of-watershed projects), and should build on the recent restoration initiative in northeastern Minnesota in identifying restoration and preservation opportunities (with appropriate ratios and locations) in the region.
- The state should maintain the current enforcement approach, whereby enforcement and conservation officers are part of the decision-making process for ordering wetland restoration over replacement.
- The state should increase opportunity for public input on wetland decisions, potentially through development of a publicly accessible database/listing of applications.

Of Ohio's 5 million acres of pre-settlement wetlands (which represented about 17% of its landcover), the state has lost over 90%. This percentage of wetland loss in Ohio is second only to that of California among U.S. states. While the primary cause of wetland loss has been drainage for agricultural, other pressures such as recreational use, urban development, mining, logging and fire have also contributed.<sup>305</sup>

Although only one-third of the state's area is in the Great Lakes Basin, wetlands losses have been higher in that portion of the state. For example, the Great Black Swamp in northwestern Ohio once amounted to 3,000,000 acres; 95 percent of this was altered following European settlement, accounting for 63 percent of Ohio's wetlands losses historically.<sup>306</sup> Large portions of the coastal marshes along Lake Erie (in particular the southwestern shore) have also been destroyed. Of the 988,000 acres of coastal wetlands that existed along the southwestern coast of Lake Erie shore in 1850, only 37,000 acres (4%) remain, and losses amounted to approximately 90 % for Lake Erie as a whole.<sup>307</sup>

The more common wetland types in Ohio include swamps (forested wetlands), wet prairies (emergent wetlands), coastal and embayment marshes, peatlands, and wetlands along stream margins and backwaters.<sup>308</sup> However, lacustrine and riverine wetlands can be significant in particular watersheds. For example, a more recent assessment of 243 wetland sites assessed among 400 randomly selected sites in the Cuyahoga River

Watershed found the area was dominated by depressional (37%) and riverine (36%, including 20% mainstem and 16% headwater) wetlands, with smaller amounts of other wetlands (slope (15%), impoundment (7%), fringing (4%) and bog (1%)).<sup>309</sup>

The Ohio Environmental Protection Agency (OEPA) makes a significant effort to track wetland permits and to keep a handle on whether the state is continuing to lose wetland acreage, with regularly published reports.<sup>310</sup> As with the other states, however, wetland losses from exempted activities are not reported, and thus a truly accurate picture is not possible to obtain. Of particular concern, Ohio does not regulate wetland drainage. The extent of wetlands losses associated with drainage is not known.

While respondents to this assessment did not have strong views on whether overall wetland acreage continues to be lost, they felt that the overall quality of Ohio's wetlands is declining because of mitigation failures and the replacement of vegetated wetlands with deep water areas. Of the four states assessed, however, Ohio seems to have the best mitigation monitoring program. Thus mitigation problems in Ohio may be no worse than in other states, but simply better known.



Dan Binder

## Regulatory Overview

Ohio has two programs under which activities affecting wetlands are regulated, both operated by OEPA. The first applies to activities regulated by the U.S. Army Corps of Engineers under § 404 of the Clean Water Act. As a “federal action,” the granting of a section 404 permit requires certification (under section 401 of the Clean Water Act) by the state that the permit will not result in a violation of state water quality standards.<sup>311</sup> Ohio has built this requirement into an extensive state regulatory program, wherein OEPA independently reviews proposed federal permits.<sup>312</sup> Ohio is in the process of amending its § 401 and antidegradation rules (see discussion in Assessment section).

The second program was instituted by the Ohio legislature following the January 2001 U.S. Supreme Court decision that limited federal jurisdiction over wetlands that are isolated from navigable waters.<sup>313</sup> In the wake of this decision, OEPA adopted emergency rules (lasting for 90 days) with a state permitting mechanism in April 2001, and in July 2001, Gov. Bob Taft signed House Bill 231 (which became the “Isolated Wetlands Law”), and established a permanent wetlands permitting program.<sup>314</sup>

The 401 certification program is authorized by Ohio Revised Code (ORC) section 6111.041, which directs OEPA to adopt water quality standards for “waters of the state” and to implement those standards in the issuance and denial of permits. “Waters of the state” are defined to include “marshes” and “other bodies or accumulations of water...”<sup>315</sup> A primary

focus of the 401 certification program is Ohio’s antidegradation law. Ohio’s antidegradation statute and rule create procedures and requirements that aim to protect existing designated uses of the waters of the state, and the water quality necessary to support those uses.<sup>316</sup> All surface waters that meet the regulatory definition of wetlands are assigned the wetland designated use.<sup>317</sup> The wetland antidegradation rule provides that “. . . wetland designated use shall be maintained and protected such that degradation of surface waters through direct, indirect, or cumulative impacts does not result in the net loss of wetland acreage or functions . . . .”<sup>318</sup>

Under the rule, wetlands are to be assigned a category by OEPA, for purposes of project reviews under the rule, ranging from category 1 (lower quality), to category 3 (higher quality).<sup>319</sup> Category 1 wetlands are considered as “limited quality waters,” whereas Category 2 and 3 wetlands are considered as “general high quality waters” under the antidegradation rule.<sup>320</sup> The category to which a wetland is assigned corresponds with the extent of antidegradation protection, with category 1 meriting the lowest protection and category 3 the highest.<sup>321</sup> Category 1 wetlands support minimal wildlife habitat and minimal hydrological and recreational functions, do not provide critical habitat for threatened or endangered species, and may be characterized by hydrologic isolation,<sup>322</sup> low species diversity, predominance of nonnative species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions.<sup>323</sup> Category 2 wetlands provide moderate wildlife habitat or moderate hydrological or recreational functions, such as a wetland

dominated by native species but not containing rare or threatened/endangered species, or a degraded wetland that could be restored.<sup>324</sup> Category 3 wetlands support superior wildlife habitat or hydrological or recreational functions, and may include wetlands that provide habitat for endangered

species, high quality forested wetlands, vernal pools, and wetlands that are rare in the region or state (e.g., bogs and fens).<sup>325</sup> Categorization applies to wetlands under both the IWP program and Section 401 certifications. Ohio has a number of tools to assess the condition of wetlands (see box).

## Wetlands Assessment Tools in Ohio

Ohio has developed arguably one of the most sophisticated and comprehensive systems in the country for assessing wetland quality, for both regulatory and non-regulatory purposes. (This is distinct from delineating whether or not a wetland is present at all.) Ohio's antidegradation rule requires that the state assign wetland categories based on functions and value (e.g., groundwater exchange, habitat for threatened and endangered species, biodiversity maintenance, and nutrient removal), sensitivity to disturbance, rarity and potential for compensation through mitigation).<sup>326</sup>

One principle tool the state uses in the assessment process is the Ohio Rapid Assessment Method for Wetlands (ORAM), adapted from a tool developed by the state of Washington in the 1990s (and considered as a "Level 2" assessment). In its application, the ORAM tool provides numeric scores based on wetland quality and disturbance levels which lead to placing a wetland in one of the three regulatory categories. Because it is essentially a screening level tool, the ORAM score by itself is not necessarily sufficient for categorization (in particular near break points between categories). In addition, if ORAM

produces a result inconsistent with narrative criteria in Ohio's code, the narrative criteria are controlling in the categorization.<sup>327</sup>

A second approach involves more intensive measures of ecological integrity/condition, through tools such as the Vegetation Index of Biotic Integrity (VIBI)<sup>328</sup> and the Amphibian Index of Biotic Integrity.<sup>329</sup> (These types of tools are collectively part of a "Level 3" assessment approach). The VIBI, for example, has involved several iterations of a system developed for vascular plants, and covering three broad wetland types (emergent, forested, and shrub-dominated). Following refinement of metrics and other developments with the tool, patterns at the ecoregion scale have emerged – for example, wetlands (apart from slope wetlands and bogs) in the unglaciated Allegheny Plateau had generally higher VIBI scores than similar wetlands elsewhere in the state. The tool has also resulted in proposed tiered aquatic life uses for wetlands, based on landscape position, plant communities, and ecoregions in Ohio.<sup>330</sup>

In considering whether to allow a degradation of water quality for any category wetland, the Director of OEPA may consider certain additional factors from the general antidegradation rule, such as important social or economic development issues. When making determinations regarding proposed activities that may lower quality, the Director must consider additional



factors, including the likely magnitude of proposed lowering of water quality; the anticipated impact on aquatic life and wildlife (including threatened and endangered species) as well as the impact on overall aquatic community structure and function; the degree of potential water quality lowering within parks or other preserves; impacts on waters with special designations; the presence of unique or rare resources; and the availability, reliability, and cost effectiveness of any non-degradation, minimal degradation, or mitigative technique alternative.<sup>331</sup>

The category to which a wetland is assigned determines the avoidance, minimization, and mitigation requirements that apply.<sup>332</sup> For each wetland category, alternatives analysis must be conducted that considers avoidance and minimization of adverse impacts and that shows that appropriate compensatory mitigation steps will be taken (see mitigation discussion

below).<sup>333</sup> The general rule is that an applicant must show that there is no practicable alternative with less adverse impact on the wetland and that impacts have been minimized. For category 1, minimization is limited to installing storm water and water quality controls, but for category 2 and 3 applicants additionally “shall minimize all potential adverse impacts foreseeably caused by the project...” Category 2 and 3 applicants must evaluate a number of criteria, including the sensitivity of the site, direct and indirect impacts, whether the lowering of water quality is necessary to accommodate important social or economic development, and, for category 3 wetlands, whether the activity is necessary to meet a demonstrated public need and whether the type of wetland is scarce.<sup>334</sup> This general structure parallels the avoidance/minimization/mitigation structure of federal regulation.

In addition to general water quality and antidegradation standards, Ohio’s water quality standards include narrative standards specific to wetlands.<sup>335</sup> These standards purport to protect the “hydrology necessary to support the biological and physical characteristics naturally present in a wetland” (including water currents, temperature, level, and pH), the “water quality necessary to support existing habitats and the populations of wetland flora and fauna” (including food supplies, reproductive areas, and dispersal corridors), and wetland-dependent recreational opportunities.<sup>336</sup>

Wetland fill projects must meet certain criteria to qualify for § 401 certification, and OEPA must make specific determinations before issuing the certification.<sup>337</sup> The applicant

must show that the discharge of dredged or fill material will not prevent the attainment or maintenance of applicable water quality standards.<sup>338</sup> The Director may deny the 401 certification if he or she determines that the discharge will lead to any adverse impacts on water quality.<sup>339</sup> In practice, the vast majority of certifications are approved: less than two percent are denied.<sup>340</sup> However, permitting staff typically suggest modifications or withdrawal of applications that will not be approved.<sup>341</sup>

The second wetlands protection program in Ohio, through the Isolated Wetlands Law, prohibits the placing of fill or dredged material in isolated wetlands without a permit.<sup>342</sup> The IWL defines an isolated wetland as “a wetland not subject to regulation under the Federal Water Pollution Control Act.”<sup>343</sup> The breadth of the definition means that if additional wetlands lose federal coverage pursuant to future litigation, they will then be covered by the IWL.

## Permitting Process

OEPA has issued § 401 certification for the federal Nationwide Permits (NWP) (also known as general permits) in effect in Ohio, along with a set of conditions and limitations on that certification.<sup>344</sup> Four general conditions and limitations pertain specifically to wetlands: 1) impacts to category 3 wetlands are prohibited (except for restoration and related activities); 2) impacts to category 1 or 2 wetlands may not exceed a total of ½ acre (with several exceptions, including surface coal mining and wetland restoration activities); and 3) restrictions on wetland mitigation activities, including denying certification to

use of a NWP to authorize activities associated with the construction and/or development of a new mitigation bank, and requirement that mitigation activities adhere to Ohio’s wetland water quality standards; and 4) discharges or diversions of storm water into wetlands shall meet codified physical and chemical criteria (or other criteria obtained from the director).<sup>345</sup> The conditions further specify that NWPs may not be combined to increase limitations and must utilize Best Management Practices when applicable.<sup>346</sup>

The most recent NWP certification also places specific conditions on certain NWPs. As one example, the certification for the NWP that authorizes utility activities limits the installation of buried utility lines to 500 total linear feet in forested wetlands and limits the number of stream crossings to three per stream mile.<sup>347</sup> Thus these conditions provide some extra protection to wetlands beyond federal requirements. In addition, the NWP certification includes provisions specific to Lake Erie, including a prohibition on temporary or permanent impacts to Lake Erie coastal wetlands (apart from impacts associated with maintenance and restoration activity NWPs).<sup>348</sup>

Similarly, OEPA uses its § 401 certification to place limitations on Letters of Permission issued by the Corps. For example, in the Buffalo District, OEPA provided certification with conditions for seven types of activities for which the Corps had issued letters of permission in the Lake Erie basin.<sup>349</sup> Most significantly, OEPA excluded category 3 wetlands from the letters of permission and imposed conditions to protect fish and endangered and threatened species in other areas. Other

limitations on letters of permission include limiting discharge of dredged material in open lake disposal areas in Lake Erie to a maximum of 10,000 cubic yards per year, and the exclusion of certain areas of the lake altogether.<sup>350</sup> In general, OEPA has 180 days to issue a certification following receipt of a complete application.<sup>351</sup>

For the Isolated Wetlands Law, three levels of review apply, ranging from level one (least rigorous) to level three (most rigorous). Procedures (including public notice and comment) and mitigation requirements vary according to the level of review.

Level one review applies to the filling of a category 1 or category 2 isolated wetland that is one-half acre or less.<sup>352</sup> At this level, OEPA is required to issue a general permit covering all such wetland fills throughout the state, which it did on April 10, 2007.<sup>353</sup> Permittees proceeding under the general rule must provide notice to OEPA; if the agency believes that the project would result in a significant negative impact on state water quality, it may notify the applicant that the project cannot proceed under the general permit, and an individual permit is then required. Certain conditions are included in the general isolated wetlands permit, such as the use of clean fill material and limitations on stockpiling dredged material. However, the permittee is not required to avoid the wetland impact if possible, and thus there is little restraint on the filling of these small acreages.

Under level two and three review, applicants must apply for an individual isolated wetland permit. Level two review applies to

any proposed fill or discharge of dredged material to category 1 isolated wetlands that are greater than a half acre and to category 2 wetlands that are greater than a half acre but less than three acres.<sup>354</sup> The statute provides that OEPA must issue a permit if the applicant has demonstrated that: there is no practicable on-site alternative that would have less of an adverse impact on the wetland; buffers have been provided for any avoided isolated wetland on-site; the wetland to be filled is not locally or regionally scarce and does not contain rare, threatened, or endangered species; the impact would not result in significant degradation to the aquatic ecosystem; appropriate mitigation has been proposed for any unavoidable impacts; and storm and water quality controls are installed to prevent an increase in peak surface water runoff.<sup>355</sup> A permit may be denied if OEPA finds that the activity would result in a short-term or long-term impact on water quality, and OEPA may impose any practicable terms or conditions on the permit to protect water quality and ensure compliance with water quality laws.<sup>356</sup>

Level three review pertains to category 2 wetlands greater than three acres and any category 3 wetland.<sup>357</sup> In addition to the requirements for level two review, a level three applicant must conduct a full antidegradation review under ORC § 6111.12 and the accompanying rules.<sup>358</sup> OEPA may not issue a permit under level three review unless the applicant has shown that the filling will not “prevent or interfere with the attainment or maintenance of applicable water quality standards.”<sup>359</sup> OEPA may also deny any application that would result in an impact on water quality, and may impose any practicable terms or

conditions on the permit to protect water quality and ensure compliance with water quality laws.<sup>360</sup> The statute gives the agency 90 days to make a determination on a permit application involving level two review, and 180 days for level three review.<sup>361</sup>

Enforcement in the state entails three options when agency staff are not able to resolve continuing compliance issues, including issuance of a Director's Final Finding Order (DFFO), issuance of a DFFO with a civil penalty, or pursuit of judicial enforcement by OEPA attorneys or the state Attorney General's office. For jurisdictional wetlands, these approaches are generally not used for violations, and instead OEPA typically works with the Corps in resolving issues involving federal permits.<sup>362</sup> For isolated wetlands, OEPA works independently of the Corps and USEPA and may pursue options such as an administrative order or judicial consent decree.<sup>363</sup> Enforcement actions for the OEPA Division of Surface Water are posted online, but are not categorized (e.g., to include wetland activities).<sup>364</sup> The state issued general enforcement reports through calendar year 2006, although reports in recent years (and more recent Annual Reports) have not had figures on enforcement actions (apart from one case study) involving wetland activities.<sup>365</sup>

The IWL requires public notice (with a period to comment and request a hearing of a maximum of 20 days) for individual permit applications (with different requirements for level 3 applications).<sup>366</sup> OEPA provides public notice of isolated wetland permit applications (and 401 certifications) on its Web

site and by publication in local newspapers. In addition, it mails notices to those who have requested them. A public hearing is required for any permit application that affects a category 3 wetland, including a section 401 certification<sup>367</sup> or state general isolated wetland permit, and such hearing may be required for a category 2 wetland if there is public interest.<sup>368</sup>

## Wetlands Inventory and Permit Tracking

Wetlands inventory development in Ohio remains in progress. Work through the National Wetlands Inventory had been completed on the northern and eastern portions of the state by the early 1990s.<sup>369</sup> Currently, Ducks Unlimited is working with Ohio Department of Natural Resources (ODNR), OEPA, USFWS, and other

partners to complete and update the Ohio wetlands inventory. This effort has involved working with digitized USGS 1:24000 quad maps and aerial photos taken in 2004, 2006 and 2007, and field verification and assessment steps. As of fall 2008, most NWI data was yet to be converted into GIS format,<sup>370</sup> although the effort is scheduled to be completed by summer 2009.<sup>371</sup>

The state has been developing a general tracking system called the Surface Water Information Management System to address



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national pollutant discharge elimination system permits and permit-to-install applications and activities.<sup>372</sup> More recently, the system has been expanded to include information on 401 certifications and isolated wetland permits, and though information from the database can be provided to interested individuals, the system is currently designed for internal tracking of permit related information by OEPA staff.<sup>373</sup>

The IWL requires OEPA to report every year on permits issued under that law.<sup>374</sup> OEPA has issued such a report every year since 2002, and since 2003, OEPA has included information on other programs as well (such as § 401 certifications). The reports provide a valuable summary of wetland activity in Ohio and some insight into the comparative impact of the programs on wetland destruction.

In fiscal year 2007 a total of 73 permits to fill isolated wetlands were issued, with 26.2 acres being filled and 60.5 acres of mitigation provided.<sup>375</sup> General permits accounted for 62 of the fills, but only 9.2 of acres filled and 21.8 acres of mitigation. Section 401 certifications had a larger impact on Ohio's wetlands, with 86 certifications issued, for a total of 124.5 acres filled and 419.5 acres of mitigation provided.<sup>376</sup>

As for nationwide permits in Ohio, data were not available for FY 2007, but for FY 2006, 793 fills proceeded under these general permits, with a total of 57.3 acres of wetlands impacted. The NWP with the largest impact on wetland acreage was for residential, commercial and institutional development (with 205 fills impacting 32.9 acres, or 57 percent of total acreage).

Fiscal year 2006 saw a decrease in the reports of illegal fills (114 compared to 165 in FY 2005), but still more than reported in FY 2004 (65).<sup>377</sup>

## Exemptions

All activities that are exempted from federal law are in practical effect also exempted from the state 401 requirements.<sup>378</sup> In addition, activities such as draining wetlands that are not covered by the federal program are also not covered under the state program. Concerning the Isolated Wetlands Law, two general categories of activities are exempted from this statute: normal farming, silviculture, and ranching activities, and maintenance of existing structures.<sup>379</sup> There is no minimum acreage limitation.

## Mitigation

As noted in the Regulatory Overview section for Ohio, the wetland antidegradation rule stipulates use of an alternatives analysis (first considering avoidance and minimization of adverse impacts) in considering a proposed wetland activity, with the approach varying by wetland category.<sup>380</sup> The rule establishes mitigation ratios and the type of acceptable mitigation. The wetlands restored or created for mitigation must always rate as category 2 or 3, and always at an equal or higher quality than the wetland impacted.<sup>381</sup> On-site mitigation (unless impracticable) is preferred, as well as restoration or creation of equivalent wetland types and functions (unless there is a compelling ecological reason against it).<sup>382</sup> The rule establishes a preference for wetlands restoration, although

alternative forms of mitigation (wetland creation, enhancement, or preservation of wetlands or buffer areas) may be considered on a case-by-case basis.<sup>383</sup> If approved, wetland enhancement and preservation are subject to special requirements, and both must be accompanied by wetlands restoration or creation.<sup>384</sup> Mitigation ratios and location vary based on wetland category. For category 1 wetlands, a ratio of 1.5:1 applies for both forested and non-forested wetlands, and mitigation location must be within the same Corps district. Higher ratios apply for category 2 and 3 wetlands, and also forested compared to non-forested wetlands in each (e.g., 2.5:1 vs. 2.0:1, and 3.0:1 vs. 2.5:1, respectively, for off-site mitigation). In addition, for both category 2 and 3 wetlands, off-site mitigation must occur within the same watershed (based on 8-digit USGS HUC codes).<sup>385</sup>

For isolated wetlands, all levels of review require mitigation.<sup>386</sup> Under level one review, whether to conduct on-site, off-site, or wetland bank mitigation lies within the discretion of the applicant. The applicant must show that the mitigation site will be protected in perpetuity and that the mitigation area is protected by appropriate management measures. For level two and three review, the order of preference for mitigation is first, on-site mitigation; second, off-site mitigation in the same watershed; and third, mitigation within the mitigation bank service area.<sup>387</sup> If sufficient ecological justification is present, mitigation in an adjacent watershed will be accepted. The applicable mitigation ratios are 2:1 for category 1 and nonforested category 2 wetlands, and 2.5:1 for forested category 2 wetlands; for category 3 wetlands, ratios are the same as those

that apply under 401 certification. The category 1 and 2 ratios are higher than those that apply under section 401 certification, but alternative mitigation measures (e.g., wetland preservation) are subject to the ratios and formulas in OAC 3745-1-54.<sup>388</sup>

## Restoration Activities

As noted in the regulatory overview section, Ohio's regulatory requirements are relaxed somewhat for activities undertaken for purely restoration purposes, at least for the 401 certification program. For example, in certification conditions related to Nationwide Permit 27 (on restoration), the prohibition on temporary and permanent impacts to category 3 wetlands is waived for specific activities in wetlands meeting certain scoring requirements.<sup>389</sup> However, those activities specified do not necessarily include all activities that might be pursued in support of a goal of broader ecological health in a wetland or wetland complex.

Regarding restoration projects in Ohio, most work has been undertaken through the ODNR Division of Wildlife.<sup>390</sup> The Department's Strategic Plan for 2001 – 2010 highlighted the importance of wetland protection and restoration, including the value of partnerships and the need to increase funding for restoration projects.<sup>391</sup> Though a restoration goal is not identified in the plan, a goal of 5,000 acres restored over the 2001-2010 period had been identified within the Division of Wildlife.<sup>392</sup> Partnerships have included working with agencies such as USDA, USFWS, US Natural Resources Conservation Service, other federal and state agencies, and collaboration with companies, private landowners, and NGOs.<sup>393</sup>

ODNR has a particularly active private lands program, including biologists on staff who assist landowners in identifying an appropriate program and with technical assistance. Funding (available through sales of Ohio Wetland Stamps and Ducks Unlimited MARSH funds) is available to cover up to 100 percent of restoration costs (up to \$1,500/acre restored, for a maintenance plan extending to 20 years).<sup>394</sup>

As in other states, a number of wetlands restoration projects have been implemented through the North American Waterfowl Management Plan, many of which have received funding through the North American Wetlands Conservation Act (NAWCA).<sup>395</sup> NAWCA funding has been leveraged nearly three-to-one in Ohio, with 17 projects completed or underway involving conservation or restoration of over 16,000 acres of wetlands and related habitat since 1990.<sup>396</sup> Wetlands protection and restoration has also occurred through the federal Wetlands Reserve Program, through which 21,366 acres had been enrolled for long-term or permanent conservation easement in Ohio by 2007.<sup>397</sup> The importance of this and other federal Farm Bill programs in Ohio and other Great Lakes states in relation to broader Great Lakes restoration has recently been highlighted in a report by the Healing Our Waters—Great Lakes Coalition.<sup>398</sup> In addition, further wetlands restoration has occurred through the USFWS Partners for Fish and Wildlife program, with 3,668 acres of wetlands restored at 528 sites in the state from 1987- 2008.<sup>399</sup>

The state's existing categorization process can aid in identifying wetlands with restoration potential. In fact, the antidegradation

rule notes that category 2 wetlands includes those "which are degraded but have a reasonable potential for reestablishing lost wetland functions".<sup>400</sup> OEPA considers these wetlands as an "implied" fourth category of (restorable) wetlands, and the state has incorporated "restorable wetland habitat" as a wetland use designation.<sup>401</sup> In a recent three-level assessment of the Cuyahoga River Watershed, researchers estimated that approximately 13 % of wetlands identified were in fair (i.e., restorable) condition.<sup>402</sup>

The Western Lake Erie Basin Partnership released a Strategic Plan in 2007 (modeled in part after the Great Lakes Regional Collaboration effort) that included separate goals for both wetland protection and restoration as part of the broader Habitat Conservation and Species Management goal. The plan calls for restoring 13,000 acres of wetlands by 2010, and 65,000 acres by 2015, in the Western Lake Erie Basin project area, through programs such as the Lake Erie and Michigan Conservation Reserve Enhancement Programs, the USDA Wetlands Reserve Program, and other programs.<sup>403</sup>

## Assessment

The biggest gap in wetland protection in Ohio is the lack of protection from drainage activities. Although the impacts of drainage are addressed if they are accompanied by activities that qualify as wetland fills, it is possible that a significant amount of wetlands continue to be lost to drainage. Because these activities are not covered by a regulatory program and thus are not reported, it is difficult to know how great a loss

this might be. In addition, excavation activities are not covered in Ohio, and as with drainage, the extent of these impacts is not clear.

Ohio's Isolated Wetlands Law does provide a mechanism to protect wetlands that lost coverage by federal law under the SWANCC decision. However, this legislation actually weakened the previously existing administrative protections for isolated wetlands by allowing approval of most wetland fills of ½ acre or less through a general permit. And in fact, the large majority of permits (62 of 73) issued under the IWL in 2006-2007 were issued through the general permit with level one review.<sup>404</sup> On the other hand, while Ohio's rules include hydrological isolation as a characteristic allowing for lower protection (category 1), small isolated wetlands can in fact receive a higher score (and be classified in a higher category and receive more protection) if they possess other attributes (e.g., higher quality vegetation community).<sup>405</sup>

Concerning category 2 wetlands, our contacts felt that these wetlands do not receive as much protection as they should. One OEPA staffer noted that there is limited protection in practice for isolated category 2 wetlands less than 3 acres, and very limited protection for isolated category 1 and isolated category 2 wetlands less than ½ acre.<sup>406</sup> Furthermore, in urban areas it is often difficult for a wetland to classify as high-quality, and as a result, wetland functions in urban areas continue to be threatened. On the positive side, small fills still require mitigation, which is not true in many states.

Funding has at times been a challenge for Ohio's wetlands and waters programs, as documented in recent annual wetlands reports. For example, concerning illegal fill complaints, OEPA acknowledged in its FY 2006 report that "staffing levels, budget constraints and statutory review time requirements make it difficult for the program to follow up on the majority of these [114 illegal fill] complaints in a timely manner."<sup>407</sup> However, funding did increase from FY 2006 – 2007, with the addition of two staff positions, increased contractual spending, and increased personnel costs.<sup>408</sup> The revenue sources for the program have also changed in recent years. For example, while over 80 percent of the cost of the combined wetland program came from the General Revenue Fund (GRF) in FY 2004,<sup>409</sup> (leaving the wetlands program highly dependent on state tax revenues and highly vulnerable to GRF funding cuts), FY 2006 and FY 2007 saw much more substantial contributions from certification fees, landfill tipping fees, and USEPA wetlands grants.<sup>410</sup>

On reporting, Ohio's legislatively-mandated reports provide a mechanism for assessing and tracking wetland loss and degradation. However, wetlands excluded from the section 401 and IWL programs are not covered by the reports, and in the final analysis it is difficult to determine whether Ohio has a better handle on the current status of wetland loss than do any of the other states.

Even though anti-degradation requirements specify that three alternatives must be assessed in each application to which those requirements apply, NGO representatives felt that the

avoidance and minimization options are not always seriously pursued with applications, but rather the focus is too quickly on mitigation measures to accompany activities at the preferred location. In comments on draft rules issued in 2006, NGOs argued that permits should be denied absent a more robust alternatives analysis, which should always include components such as consideration of upland sites within 25 miles, reconfiguration of building and parking lot footprints, and consideration of other developments within a 25 mile radius in assessing need for parking lots and other impervious surfaces.<sup>411</sup>

On mitigation, respondents to this study indicate the challenges in the program – despite an increase in wetland acreage, overall wetland quality and function may be continuing to decline. For example, as noted in the general Introduction, a study of mitigation projects in the Cuyahoga River Watershed found both a decrease in acreage (due to export of projects via mitigation banks outside the watershed) and a shift in wetland types, to more open-water wetlands.<sup>412</sup> This type of result (with loss in wetland function) is not considered successful wetland mitigation by OEPA.<sup>413</sup>

Mitigation is being addressed in rule changes as previously noted, and a draft rule released in 2006 would require a ratio of at least 1:1 (between restored or created wetlands and wetlands impacted), while overall compensatory mitigation ratios (which could include upland restoration) would be 2:1 for category 1 and 2 wetlands, and 3:1 for category 3 wetlands. The draft rule would allow greater flexibility in mitigation location for

category 1 wetlands (i.e., anywhere within the Corps District in which impacts would occur); mitigation for category 2 or 3 wetlands would follow a tiered approach, with a preference for within the same 14-digit HUC watershed, followed by within the same 8-digit HUC watershed, use of a mitigation bank, and then outside the 8-digit HUC watershed, with conditions.<sup>414</sup>

NGO commenters called for stricter requirements on mitigation location (i.e., first consider same 14-digit HUC sub-watershed, and then 11-digit HUC watershed (or equivalent 12-digit and 10-digit USGS sub-watersheds and watersheds), and applying the same sequence to both category 1 and category 2 and 3 wetlands. NGOs also argued that because of factors such as the time lag between wetland degradation and return of functions in mitigation wetlands, ratios should be higher; they also argued for higher ratios for after-the-fact permits.<sup>415</sup>

On the other hand, NGO representatives were supportive of performance standards in the draft rules (e.g., on site selection and buffer preservation), as well as the emphasis on monitoring of wetland mitigation projects.<sup>416</sup> As noted previously, Ohio has a very sophisticated wetlands assessment program, which includes assessing health of mitigation wetlands. So while problems in mitigation projects have been identified in Ohio, it is also likely that other states would identify similar problems with more thorough assessments.

Ohio has an active wetland restoration program, with numerous partnerships with federal agencies and others, including NGOs. One issue identified in this assessment

concerns challenges in obtaining permits for restoration projects in some cases. For example, because wetlands on or near Lake Erie are often designated as category 3, the permit requirements are more strict. While this is useful in preventing further degradation of wetlands in this highly impacted area, it can also make restoration projects more difficult to proceed, even in cases where the actual quality of the existing wetland is poor but it attains a category 3 status based on proximity to Lake Erie.<sup>417</sup> This situation could be addressed in part by revising Ohio administrative rules to include a section that simplifies permitting requirements for projects undertaken for purely restoration purposes.

Concerning public hearings, although citizens must show a significant public interest to receive a hearing, OEPA is considered quite willing to hold a hearing if the interest is there. Impacts to wetlands adjacent to Lake Erie receive an automatic public hearing (although changes proposed in spring 2009 would allow a hearing only at the discretion of OEPA – see box).

## Draft Changes to Ohio's Water Quality Rules

Ohio has undertaken a multistakeholder process to revise several water quality rules over the past several years, with some wetlands components. The four interrelated packages involve water quality standards, 401 water quality certifications, antidegradation, and stream mitigation. Changes to two draft rules that have been proposed are:

- Section 401 water quality certifications (OAC 3745-32/01 - 07): including definition of a state water quality permit as applying to either a 401 certification or a permit under the Isolated Wetlands Law; new language indicating that a wetland characterization analysis consistent with the ORAM approach be conducted; and changes related to stream impacts (including use attainability analysis).<sup>418</sup>
- Antidegradation (OAC 3745-1-05): including indication that public notice for 401 certification applications will be conducted pursuant to the requirements in section 6111.30 of the state Revised Code (covering the Isolated Wetlands Law); and that public hearing for 401 certification applications affecting Lake Erie or its shoreline would be held at the discretion of the OEPA Director.<sup>419</sup>

Other rule changes with wetland components are to be proposed in the near future.<sup>420</sup>

## Summary of Recommendations for Ohio's Wetlands Program

- The state should fill the statutory gap in coverage of drainage and excavation of wetlands, in particular given potentially increasing pressures in agricultural areas with increasing biofuels production and ongoing development pressures.
- The state should examine opportunities to increase protection of isolated wetlands, including in or near urban areas, where a lower categorization that is often inherent means less protection, and thus lower opportunities to maintain or even restore these broad, more heavily impacted areas.
- The state should ensure that sequencing is followed in practice in reviewing permit applications, with clear demonstration of alternatives analysis.
- As in other states, efforts to track and report exempt and illegal activities would help ensure a more accurate picture of wetlands trends, as would periodic surveys of wetland extent.
- On mitigation, the state should expand on the approach proposed in 2006 calling for a preference for mitigation within the same 14-digit HUC (or current 12-digit USGS HUC) watershed, however extending to include category 1 wetlands (rather than just category 2 and 3), given the importance of maintaining or restoring wetlands in some more heavily impacted areas. In addition, the state should require strong performance measures (involving use of appropriate IBIs) in mitigation plans.
- The state should simplify permitting requirements for wetland restoration projects (to facilitate, for example, restoration of lower quality wetlands that happen to be classified as category 3 because of proximity to Lake Erie).

**O**f its just under 10 million acres of pre-settlement wetlands (which represented about 24% of its landcover), Wisconsin has lost approximately 46%. Drainage of wetlands for agriculture has been the primary cause of wetland loss, but residential, commercial and industrial development has also contributed.<sup>421</sup>

The state can be divided into three major physiographic regions: the Superior Upland Province in the north, the Eastern Lake Section in the southeast, and the Wisconsin Driftless Section in the southwest. Nearly one-third of the state is in the Great Lakes Basin, with a small portion of the northwestern part of the state draining to Lake Superior, and the eastern one-third of the state draining to Lake Michigan. The remainder of the state is in the Mississippi River Basin watershed. Peatlands are more common in the northern part of the state, while swamps and marshes are more common in southern Wisconsin, particularly in the southeast. The Driftless Section was not affected significantly during the most recent glaciation, and wetlands are uncommon there, except in stream valleys filled by glacial drift. The majority of wetlands are in the northern portion of the state, including the large majority of the 18 counties having at least 20 percent of their land area as wetlands.<sup>422</sup>

In an earlier review, the Wisconsin Department of Natural Resources (WDNR) estimated that losses associated with Section 404 permits were approximately 11,800 acres statewide

from 1982 – 1990.<sup>423</sup> However, based on more recent annual reports from the the agency, the state appears to be doing a better job in avoiding and minimizing wetland loss. In 2006 a total of 55 acres of wetlands were filled through the permitting program,<sup>424</sup> and including transportation projects, annual losses have been estimated at approximately 250 acres.<sup>425</sup> It should be noted that these estimates do not include wetland impacts under illegal fills or exemptions, neither of which are tracked.

One key limitation in Wisconsin’s program is the lack of adequate protection against drainage of wetlands that are not located in a shoreline zoning district. Drainage activities are not tracked, and the significance of these activities (including overall acreage affected) is not known.

## Regulatory Overview

WDNR regulates impacts on wetlands through three programs. First, the Navigable Waters Protection Act requires a permit for depositing fill in or dredging “navigable waters,”<sup>426</sup> a term which is defined broadly. Second, Wisconsin uses its federal Clean Water Act water quality certification program to review and potentially veto permits for activities in wetlands



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subject to CWA jurisdiction.<sup>427</sup> Following the *SWANCC* decision (see general Introduction section above), the Wisconsin legislature passed legislation requiring water quality certifications for “nonfederal” wetlands.<sup>428</sup> Third, Wisconsin law requires counties and municipalities to regulate activities in wetlands within “shorelands” along lakes and streams.<sup>429</sup> WDNR sets minimum requirements and provides wetland inventory maps which the counties and municipalities must adopt or utilize in zoning ordinances.

The WDNR has promulgated wetland water quality certification regulations that apply to several different types of regulatory action, including navigable waters permits.<sup>430</sup> Thus if an activity needs a navigable waters permit, its impacts on adjacent wetlands will also be considered. Furthermore, the WDNR definition of navigability in itself covers some areas that would generally be considered wetlands. The definition provides that a navigable body of water is one that is “capable of floating on a regularly recurring basis the lightest boat or skiff used for recreation or any other purpose.”<sup>431</sup> This definition can thus be interpreted to cover many shallow and deep marshes as well as ephemeral ponds and other areas that are regularly inundated by a few inches of rain during spring runoff or heavy rains.<sup>432</sup>

The upshot of the WDNR’s wetland water quality certification regulations is that the same standards and considerations apply whenever: 1) WDNR is reviewing an application for a federal permit, with the potential for vetoing it under its Clean Water Act authority; 2) a WDNR water quality certification is

required for discharge to wetlands that do not fall within federal jurisdiction; or 3) a WDNR permit is required for discharge to or dredging in navigable waters.

A potentially significant exception to the application of the regulations exists for “. . . wetland alterations which are directly caused by operations on a metallic mineral prospecting site or mining site . . . ,” which are regulated under WDNR’s mining regulations.<sup>433</sup> Although there has been no metallic mining in the state since closure of the Flambeau copper mine in Rusk County in 1997,<sup>434</sup> the mining regulations may provide an opening for large-scale wetland destruction if new proposals come forward. According to the regulations, “[t]he objective of the applicant’s site selection process . . . shall be the selection of a viable site that would result in the least overall adverse environmental impact.”<sup>435</sup> However, the regulations do state that in some cases, there may be no alternative that is “found to be environmentally acceptable,”<sup>436</sup> and presumably in such instances the permit to mine would be denied. The state legislature in 1997 did pass what has become known as the “Mining Moratorium Law” (1997 Wisconsin Act 171), which requires mining applicants to present evidence that metallic sulfide mines in the U.S. or Canada have been operated and closed without causing acid drainage or heavy metal pollution of groundwater or surface water.<sup>437</sup>

The WDNR wetland regulations require protection of the following wetland “functional values [and] uses:”

- (a) Storm and flood water storage and retention and the moderation of water level fluctuation extremes;

- (b) Hydrologic functions including the maintenance of dry season streamflow, the discharge of groundwater to a wetland, the recharge of groundwater from a wetland to another area and the flow of groundwater through a wetland;
- (c) Filtration or storage of sediments, nutrients or toxic substances that would otherwise adversely impact the quality of other waters of the state;
- (d) Shoreline protection against erosion through the dissipation of wave energy and water velocity and anchoring of sediments;
- (e) Habitat for aquatic organisms in the food web including, but not limited to fish, crustaceans, mollusks, insects, annelids, planktonic organisms and the plants and animals upon which these aquatic organisms feed and depend upon for their needs in all life stages;
- (f) Habitat for resident and transient wildlife species, including mammals, birds, reptiles and amphibians for breeding, resting, nesting, escape cover, travel corridors and food; and
- (g) Recreational, cultural, educational, scientific and natural scenic beauty values and uses.<sup>438</sup>

The regulations preclude “significant adverse impacts” on water currents, erosion or sedimentation patterns; water temperature variations; the chemical, nutrient and dissolved oxygen regime of the wetland; the movement of aquatic fauna; the pH of the wetland; and water levels or elevations.<sup>439</sup> The

regulations also provide protection for existing wildlife habitat and populations.<sup>440</sup> Finally, the regulations provide that the following additional factors must be considered:

- (a) Wetland dependency of the proposal;
- (b) Practicable alternatives to the proposal which will avoid and minimize adverse impacts to wetlands and will not result in other significant adverse environmental consequences;
- (c) Impacts which may result from the activity on the maintenance, protection, restoration or enhancement of standards under s. NR 103.03;
- (d) Cumulative impacts attributable to the proposed activity which may occur, based upon past or reasonably anticipated impacts on wetland functional values of similar activities in the affected area;
- (e) Potential secondary impacts on wetland functional values from the proposed activity;
- (f) Any potential adverse impacts to wetlands in areas of special natural resource interest . . . ; and
- (g) Any potential adverse impact to wetlands in environmentally sensitive areas and environmental corridors identified in areawide water quality management plans.<sup>441</sup>

One of the findings required for WDNR approval of an activity impacting wetlands is that, based on all of the above considerations, “the activity will not result in significant

adverse impacts to wetland functional values, significant adverse impacts to water quality or other significant adverse environmental consequences.”<sup>442</sup> However, in some cases the WDNR may consider mitigation proposals in determining whether adverse impacts are significant. The mitigation rules are more fully discussed below.

The final wetland protection program in Wisconsin is the shoreland management program.<sup>443</sup> Under this program, WDNR has established requirements to limit land use activities in wetlands within 1,000 feet of a lake or 300 feet of a river or stream pursuant to county zoning ordinances.<sup>444</sup> A similar program applies to municipal zoning ordinances, but is limited to wetland areas of 5 acres or more.<sup>445</sup> The regulations do allow some uses that can have adverse impacts on wetlands, following the pattern established by the Clean Water Act. These uses include roadbuilding for logging and other silvicultural activities, agricultural activities, construction and maintenance of utility lines, the construction and maintenance of railroads, and the maintenance and repair of roads.<sup>446</sup> However, for most activities, there are additional provisos that no filling, flooding, draining or other wetland alterations are done.<sup>447</sup> All uses that are not expressly allowed are prohibited.<sup>448</sup> However, counties and municipalities may remove wetland areas from the restricted zoning upon a finding that certain enumerated wetland functions will not be impacted by the rezoning.<sup>449</sup> In the event that WDNR determines that an amended county shoreland zoning ordinance does not comply with state law, the department is required to adopt a complying ordinance for the county.<sup>450</sup>

Concerning assessments of wetland quality, as with a number of other states, Wisconsin has followed an approach endorsed by the USEPA National Wetlands Monitoring Workgroup. In this approach, Level 1 involves a coarser landscape assessment, with data typically obtained through remote sensing; Level 2 involves simple, relatively rapid assessments at the wetland site scale; and Level 3 involves more intensive, research-derived measures of biological integrity at the site scale.<sup>451</sup> Projects or products produced through the assessment process include an effort in the Milwaukee River Basin that included development of wildlife habitat and water quality decision support tools (and identification of potentially restorable wetlands) (Level 1),<sup>452</sup> development of a qualitative toolkit for wetland professionals to identify functional values in a specific wetland (Level 2),<sup>453</sup> and development of a floristic quality assessment methodology involving more intensive measures of the plant community to establish wetland health at the site level (Level 3).<sup>454</sup> The wetlands water quality standard rule references general use of ecological assessment methods in the context of determining wetland values and impacts of proposed activities.<sup>455</sup>

## Permitting Process

Wisconsin rules specify that the WDNR consider wetland functional values and the impacts of a proposed activity on those values in evaluating a permit. Factors to be considered by the state in a determination on a proposal include the wetland dependency of the project, practical alternatives that will avoid or minimize adverse impacts, and cumulative impacts and secondary impacts associated with the proposal.<sup>456</sup>

Projects must demonstrate three components in order to receive approval for the proposed activity. First, WDNR must determine that “[n]o practicable alternative exists which would avoid adverse impacts to wetlands”<sup>457</sup> before it even considers whether the wetland impacts will be significant. In other words, if there is a practicable alternative to locating a project in wetlands, WDNR approval must be denied. Second, if WDNR finds that there is no practicable alternative, the applicant is then required to take “. . . all practicable measures to minimize adverse impacts to the functional values of the affected wetlands . . .”<sup>458</sup> Third, if the first two conditions are met, any proposed activity must not result in “significant adverse impacts to wetland functional values, significant adverse impacts to water quality or other significant adverse environmental consequences.”<sup>459</sup> In considering impacts, WDNR can include consideration of any mitigation proposed as part of an application (with exceptions for areas of special natural resource interest or for cranberry operations having specific federal requirements;<sup>460</sup> see further discussion on mitigation below). Wisconsin rules include a procedure whereby proponents of a potential activity involving a wetland can approach the WDNR for a “preliminary assessment of the scope for an analysis of alternatives and the potential for compliance”, and potentially avoid actions in support of a proposal that would not be approved.<sup>461</sup>

The rules allow for limiting the consideration of alternatives in several situations, including in cases where the project is wetland dependent; where the wetland impacted area is one acre or less and outside the 100-year flood plain (and excluding

certain wetland types and specific locations); where the impacted area is 0.10 acres or less in general; or where the proposed activity involves a cranberry operation.<sup>462</sup> However, the requirement that the activity not result in significant adverse impacts does still apply to these activities.<sup>463</sup> At the same time, while the determination as to whether impacts will be significant takes into consideration any mitigation proposed by the applicant in most scenarios, Wisconsin does not require replacement of destroyed wetlands (see further discussion on mitigation below). For applications received in 2006, 92 percent were approved, 6 percent were withdrawn, and 2 percent denied.<sup>464</sup>

The state issued a water quality certification general permit applying to certain discharges, less than 2 acres, in “nonfederal” (i.e., isolated) wetlands in May 2008,<sup>465</sup> which generally mirrors policies for federal jurisdictional waters covered through the federal general permit for Wisconsin.<sup>466</sup> The general permit covers certain activities (most of which are either otherwise regulated or covered or are specifically exempt) that do not require application to or notification of WDNR under the permit, such as maintenance activities, oil/hazardous substances containment/cleanup, wetland restoration activities, moist soil management for wildlife, bank stabilization, and boat ramps. Other activities which may be authorized by the general permit do require an application to WDNR, including return water from upland contained disposal areas, cleanup of hazardous and toxic waste, completed enforcement actions, and temporary construction, access, and dewatering activities (and certain other activities are

specifically not authorized through this section). The permit also lists activities not authorized in either section, including activities in calcareous fens (or waters within 300 feet of them); filling, draining or inundating non-federal wetlands larger than one acre in the watershed of any water body listed as impaired on the Section 303(d) list; or activities in coastal non-federal wetlands in ridge and swale complexes in the state. For all authorized projects, the permit requires that “adverse impacts on waters and wetlands resources be avoided and minimized to the maximum extent practicable.” In addition, activities that would adversely affect federal or state-listed endangered or threatened species or certain cultural or archeological resources are not authorized under the general permit.<sup>467</sup>

Concerning public notice, under the Navigable Waters statute, public notices of completed individual permit applications must be sent to interested and potentially interested members of the public, and a public hearing may held upon request (or determination of WDNR). In addition, a 30-day public comment period is required for individual permits.<sup>468</sup> In contrast, applicants for water quality certifications must provide written notice under general state statutes, but only once a certification decision has been made by the WDNR. Contested case hearings are available to those “. . . whose substantial interests may be affected . . . .”<sup>469</sup>

Concerning compliance and enforcement, the state has structural limitations affecting the program’s effectiveness – for example, there is no language in statutory or administrative

code requiring the state to inspect sites after permit issuance, and WDNR agents are not permitted to issue citations for violations in isolated wetlands. However, in 2005, the state began an effort to improve the compliance monitoring program. For example, over the January 2005 – September 2006 period, 27 completed projects were visited, of which six were found to be in violation. In response to complaints from the public or other government staff, 325 violations were identified statewide in the January 2005 – June 2006 period, with the majority in the northern portion of the state. Due to the lack of more comprehensive inspections and the relatively small numbers of visits, the extent to which regional differences in the numbers of wetland violations reflects actual differences in illegal wetland activities is not clear.<sup>470</sup> Regarding resolving violations, because of regulatory constraints noted above, the state uses a multi-step administrative process to promote voluntary compliance, and if such measures are not successful (e.g., issuing an after-the-fact permit or notices requiring restoration), more formal enforcement through circuit courts with the Wisconsin Department of Justice can be pursued.<sup>471</sup>

### **Wetlands Inventory and Permit Tracking**

The current Wisconsin Wetland Inventory (WWI), was completed in 1985 (an as effort independent of the National Wetlands Inventory), based on aerial images from 1978-79. While the state legislature authorized updates on 10-year cycles, budget and staff shortfalls have prevented updates on this schedule. However, aerial photography is still being

obtained, and county maps are currently being updated and digitized.<sup>472</sup> As part of these efforts, USFWS is working to convert WWI codes to NWI codes, and Ducks Unlimited has been involved in planning updates with USFWS and WDNR, including development of a seamless database.<sup>473</sup>

Due to the inventory limitations, there is currently no reliable data on continuing wetlands loss in the state. However, the state has recently prepared annual reports tracking wetland activity, compiling information from databases of permits, compensatory mitigation projects, state Department of Transportation projects, and restoration projects. The most recent report (for 2007) indicated the following results:

- 2,788 acres of gains, through re-establishment of formerly drained wetlands
- 827 acres of “acre-neutral” positive impacts, through enhancement of existing wetlands
- 312 acres of losses, through permitted fills (with the majority transportation-related)
- 225 acres of “acre-neutral” negative impacts, mostly involving linear utility projects over long distances with temporary wetland disturbance.<sup>474</sup>

As noted in the report, some losses and negative impacts are not tracked, including illegal fills, legal drainage, and stormwater and wastewater discharges. In addition, some positive impacts (in particular protections through acquisitions or easements, or vegetation management) are not tracked.<sup>475</sup>

The state has an online Waterway and Wetland Permit Query System providing current and historical information on permitted activities in a statewide database.<sup>476</sup>

## Exemptions

The state law applies the same exemptions for water quality certification requirements in nonfederal wetlands as the federal CWA,<sup>477</sup> including lack of coverage of drainage activities that do not result in discharge of dredged materials amounting to more than incidental fallback. Similarly, certain activities that would otherwise be exempted do require certification if the discharge is incidental to an activity with a purpose of converting a nonfederal wetland into a use for which it was not previously subject, and if the activity may either alter the flow or circulation, or reach, of the wetland.<sup>478</sup> An additional exemption applies to projects involving artificial wetlands, including sediment and stormwater detention basins, waste disposal pits, fish rearing ponds, and farm drainage and roadside ditches. While notification of WDNR of proposed activities potentially affecting artificial wetlands is required at least 15 days prior to the start of the activity, other provisions of the water quality standards rule do not apply, unless WDNR notifies the applicant that the affected wetland has significant functional values or uses.<sup>479</sup>

## Mitigation

Unlike most states, Wisconsin does not have a requirement that any wetlands destroyed must be replaced. The state follows the general sequencing practice, whereby WDNR cannot consider a mitigation project unless the applicant “demonstrates that all

appropriate practicable measures will be taken to avoid and minimize adverse impacts on the wetland.”<sup>480</sup> However, while the emphasis is on avoiding and minimizing impacts (and the state considers cumulative impacts), in practice an applicant may attempt to show that a wetland fill will not result in significant adverse impacts even if no accompanying wetland restoration project is proposed. In fact, over 95 percent of permits in the state are issued without a mitigation component.<sup>481</sup>

Although the state had earlier decided against including formal mitigation requirements due to concerns (discussed generally in the Introduction) about the effectiveness of mitigation in remedying the loss of wetland functional values,<sup>482</sup> allowance of consideration of mitigation proposals was signed into law in 2000.<sup>483</sup> The state has established standards for compensatory mitigation projects, as well as procedures and standards for the establishment and operation of mitigation banks.<sup>484</sup> WDNR requires that applicants first evaluate the potential for on-site mitigation and mitigation in the same sub-watershed before it will consider proposals for off-site projects.<sup>485</sup> Compensation must be located within an area termed the “Compensation Search Area,” which is defined to include “the Geographic Management Unit (GMU) of the project . . . , the county of the project, and a circle with a 20-mile radius from the project site.”<sup>486</sup> Mitigation proposals cannot be considered in determining the significance of impacts to functional values in areas of special natural resource interest,<sup>487</sup> which include “. . . wetlands which are in proximity to or have a direct hydrologic connection to . . . Lakes Michigan and Superior . . . .”<sup>488</sup>

The WDNR strongly encourages restoration projects over enhancement or creation of wetlands, and the regulations indicate a preference for the establishment of a similar type of plant community.<sup>489</sup> The regulations also provide that the mitigation plan must include “. . . a zone of vegetated upland adjacent to the wetland that the department determines is adequate to filter run-off entering the wetland.”<sup>490</sup>

WDNR statutes and regulations include ratios of compensatory mitigation to wetlands destroyed, despite the fact that mitigation plans, as noted above, are not a requirement for a permit or water quality certification. The general rule is that 1.5 acres of wetland restoration is required for each acre destroyed, but in some circumstances a one-to-one ratio is allowed.<sup>491</sup> More mitigation acreage is usually required if the project is to enhance existing wetlands or to create new wetlands, and the use of created wetlands as mitigation is only permissible if it will provide significant wetland functional values.<sup>492</sup> The statutes and regulations include extensive monitoring requirements and allow WDNR to require financial assurance to ensure that money is available to address any failures of the mitigation project.<sup>493</sup>

## **Restoration Activities**

The regulatory system in Wisconsin facilitates wetland restoration efforts, through Wetland Conservation Activities rule NR 350, in which the purpose is identified as facilitating “the regulation of projects whose purpose is wetland conservation by establishing a process to review activities associated with the restoration of former wetlands, the

enhancement of degraded wetlands, and the maintenance or management of existing wetlands.”<sup>494</sup> Through this rule, applicants can apply for either a “shortform wetland conservation permit” (or general permit) or an individual permit. Projects can qualify for a general permit by meeting a number of criteria, including that the project purpose is wetland conservation (restoration, enhancement, preservation or management), the site shows evidence of reversible wetland degradation, and the project would involve certain activities (e.g., removing or disabling a section of drain tile, disabling surface drains, constructing dikes or otherwise altering hydrology, removing or introducing vegetation).<sup>495</sup>

The state has had several efforts related to setting wetland restoration goals. The Reversing the Loss Action Plan for 2008-2010 identifies specific actions in support of restoration through Goal 5, including to annually evaluate the permit process for wetland conservation projects, conduct inter-agency annual summits, and update the Wisconsin Plan to reflect changes to the Upper Mississippi River and Great Lakes Region Joint Venture plan for wetlands (see below).<sup>496</sup> In addition, a goal of restoring or protecting 55,000 acres of coastal, riparian, and wetland habitat (and associated uplands) in the state has been identified in the draft Wisconsin Great Lakes Restoration and Protection Strategy.<sup>497</sup>

The state Bureau of Wildlife Management oversees several wetland restoration programs, including through partnerships with federal agencies, NGOs and others. The state runs a grants program for wetland and upland restoration projects (through funds derived from waterfowl stamp revenues) based

on priorities identified in the 1992 Upper Mississippi River and Great Lakes Region Joint Venture – Wisconsin Plan (itself deriving from the North American Waterfowl Management Plan (NAWMP)).<sup>498</sup>

The state is also involved in a number of other related wetland restoration efforts. Funding through the North American Wetlands Conservation Act (NAWCA) has helped support a number of projects, including through the NAWMP. NAWCA funding has been leveraged three-to-one in Wisconsin, with 51 projects completed or underway involving conservation or restoration of over 112,000 acres of wetlands and related habitat since 1990.<sup>499</sup> Wetlands protection and restoration has also occurred through the federal Wetlands Reserve Program, through which 48,318 acres have been enrolled for long-term or permanent conservation easement in the state.<sup>500</sup> The importance of this and other federal Farm Bill programs in Wisconsin and other Great Lakes states in relation to broader Great Lakes restoration has recently been highlighted in a report by the Healing Our Waters—Great Lakes Coalition.<sup>501</sup> In addition, projects through the USFWS Partners for Fish and Wildlife program restored 18,684 acres of wetlands at 5,265 sites in the state from 1987- 2008.<sup>502</sup>

The state has been involved in several efforts related to identifying and prioritizing wetlands for protection or restoration. An earlier project on Great Lakes coastal wetlands through the state Bureau of Endangered Resources compiled information and prioritized sites based on a number of criteria, including “defensibility” from potential threats and potential for restoration.<sup>503</sup> More recently, the state has utilized GIS

technology in efforts to identify potentially restorable wetland areas at the watershed scale. Three criteria used in determining whether an area contains potentially restorable wetlands are: 1. Favorable (i.e. hydric) soils; 2. Inability to currently map the area as a wetland (in which case it would be a candidate for enhancement or rehabilitation); and 3. Opportunities (i.e., favorable land use) for restoring a site to a functioning wetland. For the most recently completed project in the Rock River Basin in southeastern Wisconsin, the researchers estimated that of the 270,667 acres of wetlands lost due to development (out of 632,297 acres pre-settlement), 87.6 percent of the acreage would have some potential to be restored.<sup>504</sup> In a similar effort, Landsat satellite imagery was used to create a statewide data layer of the presence and abundance of the invasive reed canary grass, which is an indicator of declining wetland health. The study found that emergent, open canopy was the wetland community type most heavily invaded, with 307,056 acres (or 26 percent) of the type being dominated (i.e., over 50 percent of vegetative cover) by the invasive plant. The results have implications for restoration, including in both identifying candidate sites and planning strategies to address the potential spread of the invasive grass into the restoration area.<sup>505</sup>

The state has also been involved in various educational efforts in support of wetlands restoration. For example, WDNR, in partnership with the Wisconsin Wetlands Association (WWA), published an updated edition of the *Wetland Restoration Handbook for Wisconsin Landowners* in 2004. The report includes a large amount of information related to wetland restoration, including discussion of indicators and the potential

for restoration, the importance of understanding regulations and identifying potential partners, control strategies for invasive plants, and recommendations on post-restoration site management.<sup>506</sup> More recently, WDNR, WWA, the Wisconsin Realtors Association and others collaborated in the creation of a toolkit to assist citizens in identifying wetlands in areas they are considering for purchase or construction projects.<sup>507</sup>

## Assessment

As with Ohio, which has a similar program, the most obvious gap in Wisconsin wetlands law is for drainage activities that do not involve the discharge of dredged or fill material to the wetland. Unless the activity takes place in a shoreland district, drainage is not regulated. As in many other areas, development pressures are strong in parts of the state (including the Lake Michigan Basin); statewide, from 1992- 2001, the percentage of agricultural land decreased by 17%, while developed land increased by 8%.<sup>508</sup> More recently, there has been significant growth in biofuels production in Wisconsin (and other states),<sup>509</sup> which may pose additional threats to agricultural (and potentially some forested) wetlands. In addition, transportation projects have been recognized as a large source of impacts to wetlands in the state.<sup>510</sup>

The WDNR received praise from the environmental community for the agency's expertise and commitment to wetland protection. However, as with the other states, both NGO representatives and WDNR staff identify a lack of resources as a serious constraint.

On alternatives analysis, while some in the environmental community believe WDNR generally does a good job, there was some concern among another group on the extent to which a full analysis is conducted in individual cases. For example, one NGO representative found fault with the lack of emphasis on finding alternatives to reduce the footprint for a large discounter in one application.<sup>511</sup>

A related issue concerns small fills. As explained in the Permitting Process section above, while wetland fills are generally not allowed if there is a practicable alternative, the impacts must be minimized as much as possible, and the activity will not result in significant adverse impacts, the WDNR can limit the scope of alternatives analysis in several situations, including for wetland-dependent activities, activities outside a 100-year floodplain for many wetland types under one acre in size, or for many impacts in wetlands less than one-tenth of an acre.<sup>512</sup> In practice, this means evaluating wetland values and functions (including those associated with any mitigation proposal) concurrently with alternatives to avoid and minimize, rather than after the alternatives test is met.<sup>513</sup>

Enforcement is another issue of concern in the state's wetlands program, due in part to statutory and administrative rule limitations noted above; as also noted previously, the state has made efforts in recent years to improve the compliance and enforcement program. Still, the Wisconsin Wetlands Association has identified a number of measures that could improve the compliance and enforcement picture for wetlands, including enhanced WDNR resources to educate and inform

landowners and local governments about wetland presence; disclosure requirements on wetlands in local zoning permits and real estate transactions; uniform citation authority for conservation wardens; additional resources for compliance monitoring and enforcement; and better tracking of both permitted and illegal wetland fill activities.<sup>514</sup>

An additional concern with the state program is the lack of a mitigation requirement in the permit issuance process, as well as the fact that so few permitted projects require mitigation. On the other hand, the state's mitigation program itself receives high marks, with exceptions in particular cases (example noted above). For wetlands along the shoreline or hydrologically connected to Lakes Michigan or Superior, mitigation proposals are not considered in assessing the degree of impact, as noted above. In addition, WDNR acknowledges the poor record of wetland creation projects and rarely allows such projects as mitigation for wetland destruction.<sup>515</sup> The law requires buffers and preservation of adjacent upland areas, the destruction of which is a factor that wetland ecologists cite as a leading cause of continuing wetland degradation. Finally, WDNR requires financial assurance from permittees in some cases to ensure that mitigation plans are successful.<sup>516</sup> One area for potential improvement would be in restricting the compensation search area to something closer to a subwatershed (12-digit HUC watershed) scale. Problems in mitigation monitoring (likely due to limited resources) were also identified as an issue by NGO representatives.

As with the other states, tracking wetland losses is a challenging issue. Because of lack of tracking of unauthorized or exempted activities, we do not know how much acreage continues to be lost. The same is true for drainage activities in wetlands that do not require a navigable waters permit and do not take place in a shoreland zone. On the other hand, the state has recently been doing a good job of otherwise reporting on losses and gains (e.g., through restoration activities), as well as wetland quality changes via acre-neutral activities (e.g., vegetation management or type conversion).<sup>517</sup>

Wisconsin has a very limited public notice process for water quality certifications (through the general public notice statute) – notification occurs only after a decision has been made, with no public comment period, and the only type of public hearing available is a contested case hearing.<sup>518</sup> Neighbors, community members, and conservation organizations rarely have the resources to pursue contested case hearings.<sup>519</sup> While the Corps does provide public hearings for controversial projects under its jurisdiction (and the state has a good process for public input on permit applications under the Navigable Waters Protection Act), a comparable process is not available for isolated wetlands under jurisdiction of WDNR.

The Wisconsin legislature has been more reasonable than other states in application processing time limits, giving WDNR 120 days to act on a water quality certification application, and then providing a cause of action in mandamus to compel a decision rather than granting the permit automatically if the deadline is not met.<sup>520</sup>

## Summary of Recommendations for Wisconsin's Wetlands Program

- The state should fill the statutory gap in coverage of drainage of isolated wetlands (in other than shoreland districts), in particular with potentially increasing pressures in agricultural areas with increasing biofuels production and ongoing development activities.
- The state should complete its wetlands inventory, providing additional resources as needed for this important task.
- The state can improve its compliance and enforcement efforts, including enhancing WDNR resources to educate and inform landowners and local governments about wetland presence, encouraging disclosure requirements on wetlands in local zoning permits and real estate transactions, providing uniform citation authority for conservation wardens, and legislative provision of additional resources, including for compliance monitoring and enforcement.
- As in other states, efforts to track and report exempt and illegal activities would help ensure a more accurate picture of wetlands trends, as would periodic surveys of wetland extent.
- The state should consider statutory or rule changes indicating that mitigation be required as part of any wetland permit issued, to ensure that the otherwise relatively strong program is utilized more often; the mitigation program itself could be strengthened by prioritizing mitigation in the smaller of the compensation search area or the 12-digit HUC watershed of the impact location, as well as ensuring adequate resources for monitoring.
- The state should build on work in identifying potentially restorable/priority wetlands for restoration, in particular in the Great Lakes watershed, and incorporate an ongoing process into implementation plans for the draft Great Lakes Strategy.
- The state should make any statutory and rule changes necessary to ensure opportunity for public comment on applications for isolated wetland permits, as well as simplify the process for obtaining a public hearing.



# Summary and Recommendations

The importance of wetlands protection and restoration has become increasingly recognized by governments, industry, environmental and conservation groups and the general public in recent years, and myriad federal, state, and local policies have been adopted to address threats to wetlands and promote restoration. In evaluating wetland programs in the four Great Lakes states assessed here, we identified strengths and weaknesses that varied across the states, with commonalities on certain issues, and different policies or practices on others.

Assessing the effectiveness of these programs is challenging, given both the complexity of the programs themselves and the generally incomplete data on wetlands impacts and overall health. Rather than attempting to rate the states on each of the program areas we considered, Table 1 provides a summary of some key aspects of the program categories (Types of criteria we considered for each program area are summarized in the table in Appendix I).

The table is intended to identify key provisions in statutes or rules, as well as key program components that we consider to be important in an effective program, rather than provide a comprehensive picture of all aspects of the wetland programs. More details on each category are provided in the state assessment sections. In addition, the state assessment sections provide impressions of interviewees, including on aspects that may be less readily quantified (e.g., actual practice in following

the avoid and minimize components of the sequencing approach in specific situations). Both the program elements (mostly “on paper”) identified in Table 1 and the additional impressions in the state summaries are important in understanding wetland program implementation effectiveness within each state. Based on consideration of programs on paper and as well as responses to interviews, a summary assessment by component and our recommendations for addressing limitations in the wetlands programs are as follows.

## Condition Assessment

In addition to identifying the presence of wetlands in a given area (see Wetlands Inventory discussion below), it is equally important for a number of reasons to characterize the health of those wetlands. As discussed in the state sections, and summarized in Table 1, each state follows the national three-level approach to wetland health assessment, and each state has had some development of tools at all three levels. However, Ohio appears to be most advanced in this process (and likely has one of the stronger assessment programs nationally), with extensive development of level 2 and 3 tools, including several indices of biotic integrity applied in varying areas. In addition, the state has formally adopted the assessment process into its regulatory program, whereby the category of a wetland



Gary Muehlenhardt— U.S. Fish and Wildlife Service

determines the application review process (including mitigation requirements). One caveat to this is that while categorization can have helpful implications for both regulatory and incentive programs, there is an attendant risk of leaving too little protection for wetlands categorized as lower quality (see discussion below). Many of these wetlands may be smaller and/or isolated, and in some cases located in areas (e.g. urban fringes and some agricultural areas) of significant historic wetland loss. It is important that regulatory and incentive programs are organized in a way that can help protect and/or restore some of these wetlands as healthier buffers in otherwise disturbed landscapes. Concerning coastal wetlands, the recently developed Great Lakes Coastal Wetlands Consortium Monitoring Plan offers a solid approach for monitoring the quality of coastal wetlands. Finally, USEPA is coordinating the first ever national survey of wetland quality, the National Wetland Condition Assessment, that will use a probability-based sample design to more accurately assess the health of the nation's wetlands.<sup>521</sup>

***Recommendation 1*** All states should follow the lead of Ohio in advancing development of their assessment tools and in applying them in their regulatory and voluntary/incentive programs; however, in so doing, states should ensure that lower quality wetlands (in particular in areas of significant historic impact) receive adequate protection.

***Recommendation 2*** States should consider partnering with other agencies or otherwise explore opportunities to implement monitoring protocols developed through the

Great Lakes Coastal Wetlands Consortium Monitoring Plan for their coastal wetlands; in addition, all states should play an active role in the USEPA National Wetland Condition Assessment underway.

## Sequencing/Permit Requirements

In all four states, some type of requirement on considering alternatives to the proposed activity is included in statute or rule (as noted in Table 1). However, complete sequencing requirements do not apply in all cases in all states, and the large majority of permit applications are approved (which is likely the case in all states in the country). At the same time, as noted in this report and elsewhere, agencies generally work with applicants to modify the requests, leading either to a modified application (and thus reduced wetland impacts as compared to those that would otherwise follow from the original request) or withdrawal of the application. There is evidence for an increasing tendency for applicants to be considering ways of avoiding or minimizing wetland impacts in the project development stage, and most states have formal provisions encouraging preapplication discussions with agency staff. Nevertheless, smaller/isolated wetlands in particular are more likely to not receive full sequencing consideration. An additional issue of concern (not of focus in this study) is impacts of general permits; interviews with some agency staff and NGO representatives indicated that this is a problem area that is not receiving adequate attention. Finally, while agencies sometimes highlight improvements in permit application process (e.g., processing times), the central goal of the programs

should be resource protection, and reduced regulatory burden (e.g. decreased processing times) should not come at the expense of thorough application review and decisions sufficient to protect our wetlands resources.

**Recommendation 3** In implementation, there is an ongoing need to emphasize the avoid component of the avoid → minimize → mitigate sequence, in particular for smaller/isolated wetlands, and in some cases, strengthening of statutory or rule language could assist in this effort.

**Recommendation 4** States must ensure they have adequate staffing to ensure that permit applications are thoroughly considered within statutory time frames; in addition, where necessary, there may be a need to revisit statutory time frames that might favor more rapid application reviews at the expense of resource protection.

**Recommendation 5** An assessment/review of the use and impacts of general permits is needed, both at the federal and state levels, to aid in helping inform changes that might be incorporated into subsequent rounds of promulgation of general permits.

## Wetlands Inventory and Permit Tracking

Accurate and comprehensive inventories are obviously important with regard to wetlands protection and restoration, including in tracking impacts of permitted projects, identifying restoration opportunities, and potentially tracking the overall health of wetlands (as discussed above). Inventories for states

assessed here are in various stages of completion, with Wisconsin's inventory still under development (following resource challenges for a number of years) and an updated inventories for Ohio scheduled to be finished in summer 2009. (The development of potentially restorable wetland inventories is discussed below in the Restoration section.) All of the states do some type of reporting on permitted wetland activities, which includes tracking of activities under both state and federal programs; both Ohio and Wisconsin provide publicly accessible reports annually. Though lacking a reporting requirement under statute, Minnesota has provided two in-depth biennial reports in recent years; Michigan reports to USEPA on its 404 program annually. However, none of the states does a comprehensive job of tracking exempt or illegal activities, which is necessary to have a fuller picture of the quantity and quality of wetlands in the region. Independent assessments of wetland extent have also been done, such as the USFWS sampling study of the highly impacted Prairie Pothole Region of Minnesota, which estimated a decline in wetland extent of 4.3 percent in the region since 1980.<sup>522</sup>

**Recommendation 6** All states should make all efforts to complete reasonably current inventories in the near future. In addition, the states should periodically do an independent assessment of wetland extent, similar to that done by USFWS in Minnesota, which will help provide a more complete picture of wetlands, including in relation to exempt and illegal activities.

**Recommendation 7** All states should modify statutes or rules (and/or provide additional resources) as needed in order to ensure a better job of tracking and reporting on all wetland activities (i.e., including both unregulated and unauthorized activities), and maintain regular reporting (e.g. annual or biannual), including incorporating information on wetland quality as Wisconsin has begun doing.

### Isolated Wetlands

Protection of isolated wetlands has become more challenging since the Supreme Court *SWANCC* decision in 2001, and state programs have differing programs in place to address threats to these numerous wetlands (also, see discussion below in federal section). In Michigan (which was not as affected by the decision given that it runs its own 404 program), while noncontiguous wetlands less than 5 acres are not formally covered according to statute, the state considers the occurrence of noncontiguous wetlands to be rare, and the MDEQ can designate those wetlands not defined as contiguous to be critical resources (and thus require protection) if appropriate. In Minnesota, while the WCA ostensibly covers isolated wetlands, exemptions cover activities that often occur in such wetlands, so there are likely a number of isolated wetlands not receiving protection through the statute. In Ohio, one limitation of the categorization process is that truly isolated wetlands are typically categorized as lower priority, and consequently receive less protection. Wisconsin's general permit for non-jurisdictional wetlands generally mirrors federal exemptions, and the state program limits alternatives analysis requirements in two categories of wetlands

that may often include isolated wetlands; however, state rule explicitly references cumulative impacts.

**Recommendation 8** All states should conduct an assessment of gaps in their coverage of isolated wetlands (as Minnesota's Board of Water and Soil Resources did in 2003), examining both state programs covering non-jurisdictional (or in Michigan's case, non-coastal) wetlands and certification of federal permits.

**Recommendation 9** Depending on the results of these assessments (and any changes in federal law concerning Clean Water Act jurisdiction), states should adopt statutory or rule changes as necessary to ensure adequate protection of isolated wetlands.

### Protection from Draining

Though large-scale drainage activities in the U.S. (in particular for agricultural) were more common historically (including through the middle of the 20<sup>th</sup> Century), drainage is still a cause of wetland loss, and the four states considered here differ widely in their protection of wetlands from drainage activities. In Ohio, there is currently no coverage through the Isolated Wetlands Law for drainage, although some coverage exists if drainage is associated with a fill project. Similarly, in Wisconsin, outside of shoreland areas, there is no regulation of drainage activities that are not accompanied by filling. In both Ohio and Wisconsin, excavation is not explicitly covered in statute. In contrast, Minnesota's Public Waters Wetland Permit

program prohibits permanent draining of non-mining wetlands outright, and the WCA specifically references regulation of draining, though there are exemptions. Michigan's Wetlands Protection Act specifically references wetland drainage as an activity requiring a permit, although USEPA's Section 404 program review found several exemptions (see further discussion below) that seem to indicate less protection than the federal program.

**Recommendation 10** Statutory and/or rule changes are needed in both Ohio and Wisconsin to ensure adequate wetland protection from drainage and excavation activities.

**Recommendation 11** Michigan must complete statutory and rule changes related to drainage activity exemptions as recommended in USEPA's program review, and Minnesota's draft rules could be strengthened through revision to drainage exemptions.

## Exemptions

In general, the four state programs have exemptions that relatively closely track federal exemptions, and respondents in this study identified issues of concern in each of the states. In Michigan, respondents highlighted agricultural and forestry exemptions as a priority, and the EPA review identified other exemptions in the Section 404 program that are not consistent with federal rules; the state has committed to addressing these. Minnesota exemptions of concern include activities involving isolated wetlands, forestry activities and *de minimis* provisions (in particular in northeastern Minnesota), and the special

allowance given to mining activities in the northern part of the state. In Ohio and Wisconsin, exemptions generally parallel federal exemptions; unlike the two other states assessed, there are generally not *de minimis* exemptions in Ohio and Wisconsin. As in Minnesota and Michigan, there is some concern over exemptions for timber harvesting in Wisconsin.

One additional pressure related to common exemptions is the increasing movement towards growing crops for biofuels, which could renew pressure on many wetlands in some agricultural and forested areas. Ethanol production increased over five-fold in the U.S. from 2001 to 2008, and Minnesota, Ohio, Wisconsin and Michigan ranked 4<sup>th</sup>, 7<sup>th</sup>, 9<sup>th</sup>, and 13<sup>th</sup> nationally in capacity, respectively, as of 2008.<sup>523</sup> Some of the more recent increase in production (the large majority of which is from corn) came from formerly set aside land, and in addition, the 2008 Farm Act reduced the cap on acreage covered through the Conservation Reserve Program, with water quantity and quality implications for areas previously set aside in ethanol-producing states.<sup>524</sup> While there is clearly a need to increase development of renewable energy and decrease use of fossil fuels to mitigate climate change, it is important that these efforts meet greenhouse gas reduction goals (in particular considering the full life cycle of the process) while at the same time do not result in significant steps backward concerning land and water (including wetlands) protection related to biofuel feedstock production.

**Recommendation 12** All states should re-examine agricultural and forestry exemptions, in particular in light

of potential increased pressure on associated wetlands with increasing biofuel production.

**Recommendation 13** All states should re-examine *de minimis* exemptions, in particular in both highly impacted areas of the state (with relatively few remaining wetlands) and more pristine areas where some wetlands may be particularly important due to rarity or other characteristics.



Michigan Department of Environmental Quality

## Enforcement

Enforcement authorities and approaches vary between the four states. For example, in Michigan, MDEQ staff can issue compliance orders in case of violations, and refer cases to the state's Attorney General for civil action. Based on the final USEPA program review, MDEQ will revise its MOA with USEPA to clarify public involvement opportunities in

enforcement cases. In Minnesota, enforcement authority rests largely with the MNDNR, although the Board of Water and Soil Resources can issue administrative penalty orders in cases of violations, with local government units involved in monitoring compliance. In Wisconsin, the lack of citation power vested in the WDNR for non-jurisdictional wetlands and the overall program structure can mean less stringent penalties for violations and a less transparent process in

practice, although the state has been increasing attention to its compliance and enforcement program in the past few years. On reporting of enforcement actions, Michigan's 2007 report to USEPA summarized enforcement actions, and an earlier Minnesota report discussed general enforcement issues.

**Recommendation 14** All states should allow citizen intervention in enforcement actions, publish (and allow comment on) proposed enforcement settlements filed in state court, and ensure they have adequate staff to respond to all citizen complaints.

**Recommendation 15** All states should adopt provisions that prohibit pursuit of alternative administrative remedies by violators until enforcement actions are resolved; in addition, states should ensure at least an overview of wetland enforcement actions is provided in their regular wetland activity reports.

**Recommendation 16** All states could enhance compliance prospects through enhanced resources to educate and inform landowners and local governments (as appropriate) about wetland presence and encourage disclosure requirements on wetlands in local zoning permits and real estate transactions.

## Mitigation

All of the states assessed follow a statutory sequencing approach to wetland impacts (avoid, minimize, mitigate), and have requirements on acceptable mitigation measures, but the

approaches still vary. All of the states have a mitigation siting priority scheme, and generally reference consideration of functions and values. Monitoring is also generally required (though not in Michigan, where a mitigation plan and monitoring can be requested). In Michigan, while mitigation is not required for small projects under some general permits, mitigation ratios for larger projects are relatively large (e.g., 5:1 for rare wetland types). In Minnesota, an issue in the northeastern portion of the state is the tendency for mitigation to occur outside the area; increased efforts at finding alternative approaches that support restoration or enhancement within the region would be useful. Ohio conducted an assessment of mitigation projects in the Cuyahoga River Watershed and identified challenges related to the overall quality of mitigated wetlands (due to factors including inappropriate site selection). The newer mitigation program in Wisconsin has several positive characteristics, including a general avoidance of wetland creation projects, requirements regarding buffers and upland areas, and requirements for a compensation site plan, monitoring and financial guarantees; however, mitigation itself is not required, and in general is not a component of most permits issued.

One general issue identified earlier by Minnesota Center for Environmental Advocacy is for some permit applicants to view the process too much in dollar terms – i.e., if the costs of mitigation are reasonable, there will be greater incentive to pursue a permit to degrade or destroy a wetland while mitigating elsewhere in lieu of more aggressive efforts to pursue avoidance and minimization measures. While this type

of approach is obviously difficult to document, it is worth examining whether state programs are sufficiently strict in adherence to the sequencing approach (and not too readily facilitating a jump to mitigation) in permit decisions.

***Recommendation 17*** All states should conduct periodic reviews of their mitigation programs, in particular assessing the location, types, and overall quality of mitigated wetlands (as was recently done in Ohio), and assess whether in fact no net loss in wetland function is occurring through the mitigation programs.

***Recommendation 18*** Even before completion of such reviews, states should consider changes that could strengthen the programs, such as identifying reference wetlands as appropriate, establishing a priority for mitigation on-site or within the same subwatershed (e.g. at the 12-digit HUC code level<sup>525</sup>), requirements for buffers and associated upland areas, monitoring requirements and performance standards as well as financial assurances, and increased fees and mitigation ratios, as necessary.

## Restoration

Wetland restoration is gaining increasing prominence in the region, including as states ramp up efforts at addressing restoration of the Great Lakes more broadly. All four states have engaged in restoration efforts through federal programs, and of the states have recently developed or are developing (Wisconsin) major Great Lakes or statewide initiatives that include wetland restoration components. Other state-initiated

efforts are at various levels of development. Michigan had established wetland restoration goals through the Wetland Conservation Plan in the mid-1990s, has pursued various projects (including through a state working group and various partnerships) in more recent years, and has investigated ways to simplify requirements for restoration projects. A recent collaborative project in Wisconsin resulted in a restoration handbook for landowners, with practical tools for restoration projects. Ohio has promoted restoration on private lands, and a recently released strategic plan from the Western Lake Erie Basin Partnership includes ambitious restoration goals for the basin. Minnesota has perhaps one of the oldest and strongest restoration programs among the four states (and possibly in the U.S.), with the Reinvest in Minnesota Program consisting of several components to promote restoration; a recent draft statewide restoration strategy recognizes the importance of prioritization, and a USFWS Restorable Wetlands Inventory (still in development) will assist in this effort. In addition, there is a clear need to consider potential climate change impacts in the region and implications for wetlands management.

**Recommendation 19** All states should examine whether statutes and/or regulations could be revised to facilitate the pursuit of projects undertaken for purely restoration/ecological purposes.

**Recommendation 20** Wisconsin should finalize its Great Lakes strategy, ensuring that ambitious restoration goals (e.g., 200,000 acres of wetlands and associated uplands) remain, and Ohio should consider development of a

strategy similar to the Western Lake Erie Basin Partnership with wetland goals for the rest of the state, including the Central and Eastern Basins of Lake Erie.

**Recommendation 21** All states should expand efforts (including similar to that in Minnesota for the Prairie Pothole Region) in developing a restorable wetlands inventory, as well as developing a scheme to aid in prioritization regarding restoration activities (examining outcomes such as water quality improvements, removal of invasive vegetation, and critical habitat gains).

**Recommendation 22** States and partners should ensure that wetlands programs (both programs for permitting degradation/alteration as well as purely restoration programs) consider the potential implications of climate change in the region, including in broader restoration planning efforts.

## Public Notice and Participation

Opportunities for public input in regulatory decisions involving wetlands differ somewhat between the four states assessed here. In Minnesota, while the permit applications under the Wetland Conservation Act must be sent to certain public officials, there are no formal public notice requirements in the statute, and an online system for tracking permits is only accessible to agency staff. In Wisconsin, draft water quality certifications require general public notice, but the only opportunity for a public hearing is through a contested case, which members of the general public often do not have the

## Wetlands and Climate Change Mitigation

In addition to playing a role in adaptation (e.g., through helping to moderate water flows during both high and low flow periods), wetlands can potentially play a role in mitigation of climate change. The role of wetlands and greenhouse gas cycling is complex – for example, while wetlands take up atmospheric carbon dioxide through primary production of plants, they also release methane (a potent greenhouse gas), and while the latter process varies significantly, depending on factors such as wetland type, location (e.g. boreal, temperate), and season, some model projections show substantial increased wetland methane emissions with increasing CO<sub>2</sub>.<sup>526</sup> On the other hand, some research has shown that created wetlands can in some cases show a net carbon benefit (considering both CO<sub>2</sub> and methane).<sup>527</sup> Recent research at the Schiermeier Olentangy River Wetland Research Park in Ohio has included examining

affects of water level fluctuations on CO<sub>2</sub> and methane fluxes in wetland mesocosms that simulate newly created and established wetlands. The researchers reported that wetland mesocosms with hydric soils produced the largest methane fluxes to the atmosphere (regardless of hydrology), but intermittent inundation of these same hydric soils decreased methane emissions. Implications of the research included that approaches to encourage/manage fluctuating water levels can help minimize methane emissions from created or restored wetlands.<sup>528</sup>

While questions remain on the issue of wetlands and climate change mitigation, the need for increased protection of wetlands globally in the face of a changing climate is clear, as was recently affirmed in the Cuiabá Declaration on Wetlands.<sup>529</sup>

resources to pursue. Michigan publishes notices in a regular state publication, and maintains a Web-based database of permit applications. In Ohio, public notice of wetland permit applications is provided on the OEPA Web site and by publication in local newspapers, and in addition through mailed notices to those who have requested them.

**Recommendation 23** All states should implement public notice systems similar to those in Michigan and Ohio, involving both notifying through newspapers, state

publications, and on-line systems. In addition, the notices should indicate the criteria used in permit decisions.

**Recommendation 24** Where needed (e.g., Minnesota and Wisconsin), laws and/or rules should be changed to facilitate the holding of public hearings on applications, when there is sufficient public interest.

## The Federal Government and Federal/State Partnerships

One additional component that it is important to consider in state wetlands program efforts involves the federal government, the broad federal resource protection framework (in particular the Clean Water Act in this case) and federal/state partnerships. While this report has focused on state programs, these programs are either directly tied to federal programs (e.g., state certification of U.S. Army Corps of Engineers permits under Section 401 of the Clean Water Act) or may derive in some way from them (e.g., exemptions in state statutes that parallel federal exemptions). This is particularly important on the jurisdictional issue concerning isolated wetlands. Given the uncertainty that has accompanied wetlands policy for isolated wetlands since the 2001 Supreme Court SWANCC decision, there is clearly a need for the U.S. Congress to establish in statute a clear and unambiguous position indicating that isolated wetlands do in fact need protection under the Clean Water Act,<sup>530</sup> and legislation was introduced in April 2009 to accomplish this goal.<sup>531</sup> This action would both promote protection of these wetlands in federal programs, as well as augment state efforts.

Michigan is the one state assessed here (and with New Jersey, one of only two states nationally) that has been administering its own Section 404 program, though the state recently announced a decision to potentially return the program to federal administration, due largely to budget constraints. Such a move would end 25 years of program implementation at the state level, including the significant experience in addressing

inland waters wetlands that the state has accumulated over those years. We believe a better solution would be federal adoption of a clear legislative position concerning Clean Water Act application to all waters of the U.S., revision of state law to be consistent with new federal jurisdiction, and state identification of resources to continue implementation of the 404 program, given the important ecosystem services and other values provided by the state's wetlands.

More generally, a strong federal Clean Water Act is a key component of the framework for effective federal/state partnerships across the region and country. In addition to the benefits to wetland protection from a strong federal regulatory program, there are a number of voluntary/incentive programs important in wetland protection and restoration, both through the Clean Water Act (e.g., nonpoint source pollution protection grants), and in particular through other federal programs, including the Wetlands Reserve Program, the Conservation Reserve Program, the Wildlife Habitat Incentive Program, and the binational North American Waterfowl Management Plan. In addition to ensuring the presence of a strong federal regulatory framework, it is essential that these incentive programs be funded at sufficient levels to promote protection and restoration of wetlands. This is particularly important in the areas where regulatory programs may have gaps, such as exemptions for agricultural activities; given concerns about increased cultivation of certain crops for biofuel production, it is important that progress in lessening impacts to wetlands in agricultural and other areas not be stopped or even reversed.

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All of the states assessed in this study have developed wetland or broader Great Lakes restoration strategies with promising goals and frameworks (including working with diverse partners), and it is essential that these initiatives be coupled with adequate resources in order to ensure improved wetlands protection and the ramped up efforts needed to restore the breadth and health of our region's wetlands.

***Recommendation 25*** The U.S. Congress should formally restore Clean Water Act protections for isolated wetlands and other waters left unprotected by Supreme Court decisions over the past decade.

***Recommendation 26*** Michigan should commit to continue administration of the Section 404 wetlands program, and ensure it has the resources necessary to run this important program.

***Recommendation 27*** Both the U.S. Congress and state legislatures should ensure that adequate funds are provided for implementation of all regulatory and voluntary wetland protection and restoration programs.



Huron River Watershed Council

**Table 1**  
**Summary of Key Components of State Wetland Programs<sup>a</sup>**

<b>Criterion</b>	<b>Michigan</b>	<b>Minnesota</b>	<b>Ohio</b>	<b>Wisconsin</b>
<b>Key Statutes/ Programs</b>	<ul style="list-style-type: none"> <li>Wetlands Protection Act (WPA)</li> <li>State administers Clean Water Act (CWA) section 404 Program<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>Public Waters Work Program</li> <li>Wetland Conservation Act (WCA)</li> <li>CWA section 401 certifications (for certain wetland activities)</li> </ul>	<ul style="list-style-type: none"> <li>Isolated Wetlands Law (IWL)</li> <li>CWA section 401 certifications</li> </ul>	<ul style="list-style-type: none"> <li>Navigable Waters Protection Act</li> <li>WI Act 6 (water quality certifications for non-federal wetlands)</li> <li>CWA section 401 certifications</li> <li>Shoreland Management Program</li> </ul>
<b>Condition Assessment</b>	<ul style="list-style-type: none"> <li>Follows 3-level approach</li> <li>Some development of level 1,2, 3 tools</li> <li>Some application of assessment results in permit decisions</li> </ul>	<ul style="list-style-type: none"> <li>Follows 3-level approach</li> <li>Some development of level 1,2,3 tools</li> <li>Some application of assessment results in management by local governments, and preliminary efforts at categorization have been pursued</li> </ul>	<ul style="list-style-type: none"> <li>Follows 3-level approach</li> <li>Extensive development of level 2, 3 tools</li> <li>Categorization of waters (and wetlands) in part through assessment tool</li> <li>Categorization formally incorporated into regulatory program</li> </ul>	<ul style="list-style-type: none"> <li>Follows 3-level approach</li> <li>Some development of level 1,2, 3 tools</li> <li>Some application of assessment results in functional value and impact determinations</li> </ul>
<b>Sequencing/Permit Requirements</b>	<ul style="list-style-type: none"> <li>Permitting rules require demonstration that a feasible and prudent alternative does not exist</li> <li>Some details on sequencing principles</li> <li>No requirement that effects of wetland-dependent activity be minimized</li> <li>Preapplication meeting provision in statute repealed</li> <li>Statute allows 90 days to act on permit application, after which permit is automatically issued (unless hearing is held)</li> </ul>	<ul style="list-style-type: none"> <li>Rules require demonstration of impact avoidance (including alternatives analysis) and minimization</li> <li>Details on sequencing principles</li> <li>Some flexibility in several scenarios</li> <li>Sequencing order not required for wetlands on cultivated fields, assuming replacement plan</li> <li>Preapplication meeting encouraged</li> <li>Timing law requires decision within 60 days</li> </ul>	<ul style="list-style-type: none"> <li>Rules require analysis of alternatives</li> <li>More stringent IWL requirements for level 2 and 3 review (i.e., for some Category 2 and all Category 3 wetlands)</li> <li>Less stringent requirements for level 1 review (majority of applications) - i.e., no requirements on avoidance, minimization</li> <li>Preapplication discussions occur</li> <li>IWL requires decision within 90 or 180 days, for permit involving level 2 or 3 review, respectively</li> </ul>	<ul style="list-style-type: none"> <li>Permitting rules include requirement demonstrating lack of alternatives</li> <li>But several scenarios (including smaller wetlands) limit scope of alternatives analysis</li> <li>Preapplication meeting can be requested by applicant</li> <li>Statute allows 120 days to act on permit application, then provides alternative action to granting permit automatically</li> </ul>
<b>Inventory and Permit Tracking</b>	<ul style="list-style-type: none"> <li>County-by-county information on general wetlands locations</li> <li>Joint project (with DU) to fill inventory gaps to be completed in 2009</li> <li>Online database (publicly accessible) to track permitting activity</li> <li>Annual reporting to U.S. EPA on authorized activities</li> </ul>	<ul style="list-style-type: none"> <li>General NWI information on wetlands locations, but no comprehensive inventory of wetlands regulated under WCA</li> <li>New mapping strategy in development</li> <li>eLINK database for tracking permits (not publicly accessible)</li> <li>Biennial reporting on authorized activities</li> </ul>	<ul style="list-style-type: none"> <li>NWI information on general wetlands locations</li> <li>Joint project (with DU) to fill inventory gaps to be completed in 2009</li> <li>Online notices of proposed permits</li> <li>Annual reporting on authorized activities</li> </ul>	<ul style="list-style-type: none"> <li>State in process of updating inventory (funding/staffing limitations have precluded more regular updates)</li> <li>Online permit query system being redesigned</li> <li>Annual reporting on authorized activities, including mapping of activities</li> </ul>

*Table 1: Summary of Key Components of State Wetland Programs*

**Table 1 cont.**  
**Summary of Key Components of State Wetland Programs**

<b>Criterion</b>	<b>Michigan</b>	<b>Minnesota</b>	<b>Ohio</b>	<b>Wisconsin</b>
<b>Isolated Wetlands</b>	<ul style="list-style-type: none"> <li>• “Noncontiguous” wetlands &lt; 5 acres not covered by WPA (but based on state protocol, most “isolated” wetland acreage is covered)</li> <li>• Several exemptions relevant to isolated wetlands (see below)</li> <li>• Relatively full review of applications through general permits</li> <li>• Cumulative effects nominally considered before issuance of general permits</li> </ul>	<ul style="list-style-type: none"> <li>• WCA applies to all wetlands not identified as “public water wetlands”</li> <li>• Several exemptions relevant to isolated wetlands (e.g. certain agricultural and forestry activities, de minimis exemptions)</li> <li>• Rules reference wetland values, but not cumulative impacts</li> </ul>	<ul style="list-style-type: none"> <li>• IWL covers all non-federal wetlands (no minimum acreage)</li> <li>• Small isolated wetlands mostly covered under general permit with less rigorous review</li> <li>• Several exemptions relevant to isolated wetlands (see below)</li> </ul>	<ul style="list-style-type: none"> <li>• WI Act 6 (passed in 2001), requires certifications for non-federal wetland activities (no minimum acreage)</li> <li>• New general permit structured similar to federal regional permit</li> <li>• Several exemptions relevant to isolated wetlands (see below)</li> <li>• Rules reference cumulative impacts</li> </ul>
<b>Protection from Drainage/Excavation</b>	<ul style="list-style-type: none"> <li>• Specifically referenced (along with excavation) in WPA</li> <li>• Relatively broad exemptions for drainage activities</li> </ul>	<ul style="list-style-type: none"> <li>• Specifically referenced in WCA (along with excavation, with some provisos for certain wetland types)</li> <li>• A number of exemptions for drainage activities</li> </ul>	<ul style="list-style-type: none"> <li>• Neither draining nor excavation covered under IWL</li> </ul>	<ul style="list-style-type: none"> <li>• Neither draining nor excavation covered in WI Act 6</li> <li>• Explicitly covered in Shoreland Management Program (with some limited exemptions)</li> </ul>
<b>Exemptions</b>	<ul style="list-style-type: none"> <li>• Includes activities related to agriculture, drainage, and mining and utility maintenance</li> <li>• Some (related to agriculture, draining) broader than federal standards</li> <li>• Some (including mining tailing basins) found by USEPA to have no federal equivalent</li> </ul>	<ul style="list-style-type: none"> <li>• 10 activities specified in WCA, including related to agriculture, drainage, public utilities/public works, forestry, de minimis</li> <li>• Agriculture exemptions included for type 1 wetlands of any type, and type 2 or 6 wetlands less than 2 acres</li> </ul>	<ul style="list-style-type: none"> <li>• Parallel federal exemptions (including on drainage, as noted above), for both 401 program and IWL</li> <li>• No minimum acreage limitation (apart from wetlands created via mining)</li> <li>• For IWL, also includes exemptions for maintenance of existing structures</li> </ul>	<ul style="list-style-type: none"> <li>• For certifications (including through WI Act 6), exemptions parallel federal exemptions (including on drainage, as noted above)</li> <li>• Artificial wetlands (under certain provisos)</li> </ul>
<b>Enforcement</b>	<ul style="list-style-type: none"> <li>• Handled by MDEQ field staff, with new unit supported through Pilot Enforcement Project</li> <li>• Questions raised in U.S. EPA program review (including on public comment on enforcement actions and citizen intervention opportunities), which state has committed to address</li> <li>• Most recent 404 report includes discussion on enforcement progress</li> </ul>	<ul style="list-style-type: none"> <li>• Enforcement done through both MNDNR Enforcement Division (primary authority) and local government unit peace officers (under WCA)</li> <li>• Additional Administrative Penalty Order Plan recently adopted by BWSR</li> <li>• 2001-03 wetlands report (but not 2004-05 report) discusses enforcement trends under WCA</li> </ul>	<ul style="list-style-type: none"> <li>• Administrative or judicial process can be pursued, typically deferring to Corps for jurisdictional wetlands</li> <li>• No apparent mechanism for citizen complaints over alleged illegal activities</li> <li>• No reference to enforcement actions in regular wetland reports (although all surface water enforcement actions now posted online)</li> </ul>	<ul style="list-style-type: none"> <li>• Some statutory/rule limitations on state enforcement actions (e.g. no requirement to inspect sites after permit issuance; WDNR agents cannot issue citations in isolated wetlands)</li> <li>• Multi-step administrative process to resolve violations</li> <li>• Compliance monitoring ramped up in recent years</li> <li>• No reference to enforcement actions in regular wetland reports</li> </ul>

**Table 1 cont.**  
**Summary of Key Components of State Wetland Programs**

<b>Criterion</b>	<b>Michigan</b>	<b>Minnesota</b>	<b>Ohio</b>	<b>Wisconsin</b>
<b>Mitigation</b>	<ul style="list-style-type: none"> <li>• Required under rules, but may be waived if impact &lt; 1/3 acre (&amp; no reasonable mitigation opportunity exists) or if restoration project</li> <li>• Mitigation siting priority scheme</li> <li>• In-kind preference</li> <li>• Increased ratios for impacts to higher quality wetlands</li> <li>• Mitigation plan (and monitoring) may be requested</li> <li>• May require financial assurances</li> </ul>	<ul style="list-style-type: none"> <li>• Required under WCA</li> <li>• Mitigation siting priority scheme (and reference to “minor watersheds”)</li> <li>• Wetland values must be considered in replacement; ratio of 2.0 for certain non-agricultural land)</li> <li>• Banking program has own siting scheme</li> <li>• Monitoring and annual reporting required</li> <li>• Replacement must be completed before proposed activity (or bank letter of credit or other security must be provided)</li> </ul>	<ul style="list-style-type: none"> <li>• Required under certification and IWL rules</li> <li>• Mitigation siting priority scheme</li> <li>• In-kind preference</li> <li>• Increased ratios for impacts to higher quality wetlands</li> <li>• Monitoring and annual reporting required</li> <li>• If preservation option chosen, purchase and transfer of deed required before wetland fill</li> </ul>	<ul style="list-style-type: none"> <li>• Not required as part of permit (&lt; 5 percent of permits have mitigation component)</li> <li>• Mitigation siting priority scheme (including “compensation search area”)</li> <li>• Wetland functions and values must be considered in replacement</li> <li>• Compensation site plan required</li> <li>• Monitoring required (and reporting for bank sites)</li> <li>• May require financial assurances</li> </ul>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>• Restoration covered under general permit</li> <li>• Mitigation may be waived</li> <li>• Great Lakes restoration strategy includes wetlands goals</li> <li>• Landowners guide produced</li> </ul>	<ul style="list-style-type: none"> <li>• Under WCA, restoration generally does not require replacement plan</li> <li>• Restorable wetland inventory (USFWS) in progress in prairie pothole region</li> <li>• Wetland restoration strategy released in 2009</li> </ul>	<ul style="list-style-type: none"> <li>• Limited provisions to simplify permitting for restoration (e.g. conditions on Nationwide Permit for restoration)</li> <li>• State recently identified restorable wetland habitat in Cuyahoga County Watershed</li> <li>• Active outreach program with private landholders</li> </ul>	<ul style="list-style-type: none"> <li>• Restoration covered under separate rule, with general permit coverage under certain conditions</li> <li>• Qualitative goals in Action Plan; Great Lakes restoration report in development</li> <li>• As part of wetland assessment program, potentially restorable wetland areas have been identified in several watersheds</li> <li>• Handbook and toolkit developed with partnerships</li> </ul>
<b>Public Notice/ Participation</b>	<ul style="list-style-type: none"> <li>• Advance notice of applications to many interested parties, including via Web site</li> <li>• 21 days following transmittal date allowed for comment or hearing request</li> <li>• Hearing may be requested by public, and may also be held based on state decision</li> </ul>	<ul style="list-style-type: none"> <li>• Under WCA, public notice only to individuals requesting</li> <li>• Minimum public comment period is 15 days</li> <li>• Appeals of decisions allowed via two routes</li> </ul>	<ul style="list-style-type: none"> <li>• Notification of applications on Web site, local newspapers (and notification of those requesting)</li> <li>• Maximum of 20 days for comment and hearing request</li> <li>• Hearing required for Category 3 applications, and held for Category 2 with public interest</li> </ul>	<ul style="list-style-type: none"> <li>• Under Navigable Waters act, 30-day comment period, and hearing may be requested</li> <li>• For isolated wetlands, public notice only after certification decision, and contested case hearing upon request</li> </ul>

**Notes:**

- a. This table focuses on key components of the state wetlands programs, either in statute, rules, or program practice, based on criteria indicated in the methodology section in Appendix I. The table consists of general summary statement of the various program elements, and numerous details and caveats are not included. See discussion in individual state sections and this Summary section for further details and analysis.
- b. As noted in text, Michigan has proposed (spring 2009) to return Section 404 authority to the federal government, although the process is not final.

*Table 1: Summary of Key Components of State Wetland Programs*

## Appendix I

### Methodology for Assessment of State Wetland Programs

This study utilized two principal means of assessing the strengths of the wetlands programs in the four states. First, National Wildlife Federation (NWF) legal staff reviewed the statutes and regulations that pertain to wetland protection in each state, and prepared a legal assessment based on the language of these laws and rules. Second, we prepared interview questions aimed at attempting to determine how the laws and rules work in practice, and how well wetlands are being protected “on the ground.” NWF staff conducted interviews in 2006 with experienced wetland biologists, permitting managers, policy specialists, and attorneys from state regulatory agencies and non-governmental organizations. The interviews covered a number of areas, but focused on several central wetland topics, including agency jurisdiction, types of protection, unprotected wetlands (e.g., exempted activities, certain isolated wetlands), and mitigation. We also asked participants for suggestions for improving wetland protection in their state.

We also collected records of wetland impacts as were readily available from regulatory agencies, and conducted additional research on other components of wetlands programs, such as condition assessments and restoration programs (including potentially restorable wetlands).

In the end, we had 10 program elements of focus: condition assessment, sequencing and permit requirements, inventory and permit tracking, isolated wetlands, protection from drainage and excavation, exemptions, enforcement, mitigation, restoration, and public notice and participation. For a qualitative assessment across the four state programs, we identified several criteria within each program element that we believed would be important in a strong program – those criteria are provided in the table below, and examples of their implementation in the state programs are provided in Table 1 in the Summary and Recommendations section. In addition, in a number of cases, respondents to interviews suggested additional strengths of weaknesses that they believed existed in their state programs, and those perspectives are provided in the individual state summary sections, as well as in some cases in the Summary and Recommendations section.

**Appendix I**  
**Program Elements and Criteria Considered in the Qualitative Assessment of the State Programs**

<b>Program Element</b>	<b>Criteria Considered</b>	<b>Program Element</b>	<b>Criteria Considered</b>
<b>Condition Assessment</b>	<ul style="list-style-type: none"> <li>• State follows U.S. EPA-recommended 3-level approach</li> <li>• Moderate/extensive development of tools for at least two levels</li> <li>• Use wetland categorization process</li> <li>• Application of results in regulatory program</li> </ul>	<b>Exemptions</b>	<ul style="list-style-type: none"> <li>• No additional exemptions beyond federal</li> <li>• Fewer exemptions than federal</li> </ul>
<b>Sequencing/ Permit Requirements</b>	<ul style="list-style-type: none"> <li>• Clear sequencing requirement in statutory/regulatory language</li> <li>• Details on sequencing approach in rules</li> <li>• No limitations on alternative assessment (e.g., for smaller wetlands, or for wetland-dependent activities)</li> <li>• Preapplication meeting described in rules</li> </ul>	<b>Enforcement</b>	<ul style="list-style-type: none"> <li>• Adequate authority for state to easily pursue enforcement actions</li> <li>• Adequate opportunity for citizen input in actions</li> <li>• Tracking and reporting on enforcement actions</li> </ul>
<b>Inventory and Permit Tracking</b>	<ul style="list-style-type: none"> <li>• Complete inventory in place or nearly finished</li> <li>• Publicly available database (e.g. online) to track permit activities</li> <li>• Regular reporting on permitted activities</li> <li>• Tracking and reporting of all wetlands activities</li> </ul>	<b>Mitigation</b>	<ul style="list-style-type: none"> <li>• Required under statute for permit issuance</li> <li>• In-kind mitigation/functions/values must be considered</li> <li>• Replacement siting priority scheme, and reference to subwatersheds</li> <li>• Increased ratio for impacts to higher quality wetlands</li> <li>• Mitigation monitoring required or encouraged</li> <li>• Financial assurances required or encouraged</li> </ul>
<b>Isolated Wetlands</b>	<ul style="list-style-type: none"> <li>• All isolated, non-federal wetlands covered by statute</li> <li>• Limited exemptions of types of activities typical in isolated wetlands</li> <li>• More thorough review of general permits</li> <li>• Cumulative effects required to be considered in issuance of individual and general permits</li> </ul>	<b>Restoration</b>	<ul style="list-style-type: none"> <li>• Separate state rules for restoration efforts</li> <li>• Efforts to simplify restoration permitting</li> <li>• Restoration goals and strategy</li> <li>• Efforts at Prioritization/potentially restorable wetlands</li> </ul>
<b>Protection from Drainage/ Excavation</b>	<ul style="list-style-type: none"> <li>• Explicitly covered in statute/rules</li> <li>• Limited exemptions</li> <li>• Excavation covered in statute/rules</li> </ul>	<b>Public Notice/ Participation</b>	<ul style="list-style-type: none"> <li>• Broad-based, advance notice of permit applications either required or practiced by agency</li> <li>• Hearings required or held upon public request</li> </ul>

## Appendix II

### Selected Resources Pertaining to Wetland Protection and Restoration in the Great Lakes Region

#### Federal/Regional

Great Lakes Coastal Wetlands Consortium  
<http://www.glc.org/wetlands/>

Great Lakes Regional Collaboration, Habitat/  
Wetlands Initiative  
<http://glrc.us/initiatives/wetlands/index.html>

U.S. Army Corps of Engineers, Regulatory  
(Permits)  
[http://www.usace.army.mil/CECW/Pages/cecwo\\_reg.aspx](http://www.usace.army.mil/CECW/Pages/cecwo_reg.aspx)

U.S. Department of Agriculture, National  
Agriculture Library, Water Quality - Wetlands  
<http://www.nal.usda.gov/wqic/wetl.shtml>

U.S. Environmental Protection Agency,  
Wetlands  
<http://www.epa.gov/owow/wetlands/>

U.S. Fish and Wildlife Service, Coastal  
Program - Great Lakes  
<http://www.fws.gov/midwest/greatlakes/glcoastal.htm>

U.S. Fish and Wildlife Service, National  
Wetlands Inventory  
<http://www.fws.gov/wetlands/>

U.S. Geological Survey, National Wetlands  
Research Center  
<http://www.nwrc.usgs.gov/>

#### State Wetlands Programs

Association of State Wetlands Managers, Inc.  
<http://www.aswm.org/>

Illinois Department of Natural Resources,  
Wetlands Program  
<http://www.dnr.state.il.us/wetlands/>

Indiana Department of Environmental  
Management, Wetlands  
<http://www.in.gov/idem/4138.htm>

Michigan Department of Environmental  
Quality, Wetlands Protection  
[http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687---,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687---,00.html)

Minnesota Board of Water and Soil  
Resources, Wetlands  
<http://www.bwsr.state.mn.us/wetlands/index.html>

Minnesota Department of Natural Resources,  
Wetlands  
<http://www.dnr.state.mn.us/wetlands/index.html>

New York Department of Environmental  
Conservation, Freshwater Wetlands Program  
<http://www.dec.ny.gov/lands/4937.html>

Ohio Environmental Protection Agency,  
Section 401 Water Quality Certification/  
Isolated Wetland Permit/Wetland Ecology  
Section

<http://www.epa.state.oh.us/dsw/401/index.html>

Pennsylvania Department of Environmental  
Protection, Waterways, Wetlands, and Erosion  
Control  
<http://www.dep.state.pa.us/dep/deputate/watermgmt/wc/subjects/wwec/general/wetlands/wetlands.htm>

Wisconsin Department of Natural Resources,  
Wisconsin Wetlands  
<http://dnr.wi.gov/wetlands/>

#### Nongovernmental Organizations

Ducks Unlimited - U.S. Great Lakes System  
<http://www.ducks.org/conservation/initiative12.aspx>

Environmental Law Institute  
<http://www.eli.org/>

Michigan Environmental Council  
<http://www.environmentalcouncil.org/>

Midwest Environmental Advocates  
<http://www.midwestadvocates.org/>

Minnesota Center for Environmental  
Advocacy  
<http://www.mncenter.org/>

National Wildlife Federation, Great Lakes  
Regional Center  
<http://www.nwf.org/greatlakes/>

Ohio Environmental Council  
<http://www.theoec.org/>

Sugarloaf: The North Shore Stewardship  
Association  
<http://www.sugarloafnorthshore.org/>

The Nature Conservancy  
<http://www.nature.org/wherework/northamerica/greatlakes/>

Tip of the Mitt Watershed Council  
<http://www.watershedcouncil.org/>

Wisconsin Wetlands Association  
<http://www.wisconsinwetlands.org/>

#### NWF Affiliates

League of Ohio Sportsmen  
<http://www.leagueofohiosportsmen.org/>

Michigan United Conservation Clubs  
<http://www.mucc.org/>

Minnesota Conservation Federation  
<http://www.mncf.org/main/>

Wisconsin Wildlife Federation  
<http://www.wiwf.org/>

## **Appendix II cont.**

### **Selected Resources Pertaining to Wetland Protection and Restoration in the Great Lakes Region**

#### **Professional Societies**

American Society for Photogrammetry & Remote Sensing  
<http://www.asprs.org/>

Society for Conservation Biology  
<http://www.conbio.org/>

Society for Ecological Restoration International  
<http://www.ser.org/>

Society of Wetland Scientists  
<http://www.sws.org/>

#### **Technical Journals and Newsletters**

*generally require subscription*

Association of State Wetland Managers - News of Interest  
<http://www.aswm.org/>

National Wetlands Newsletter (published by Environmental Law Institute)  
<http://www.wetlandsnewsletter.org/index.cfm>

RESTORE Weekly E-Bulletin, Society for Ecological Restoration International  
[https://www.ser.org/content/restoration\\_network.asp](https://www.ser.org/content/restoration_network.asp)

Restoration Ecology (published on behalf of the Society for Ecological Restoration International)  
<http://www.wiley.com/bw/journal.asp?ref=1061-2971>

Society of Wetland Scientists Bulletin  
<http://www.bioone.org/loi/wtbl>

Wetlands (published by Society of Wetland Scientists)  
<http://www.sws.org/wetlands/index.mqi>

Wetlands Ecology and Management (Published by Springer - Netherlands)  
<http://www.springer.com/life+sci/ecology/journal/11273>

#### **Wetland Program Assessments/Summaries**

Association of State Wetland Managers, State wetland programs. Available from: <http://www.aswm.org/swp/statemainpage9.htm>

Environmental Law Institute. 2008. State wetland programs: Status, trends and model approaches. Available from: [http://www.eli.org/Program\\_Areas/state\\_wetlands.cfm](http://www.eli.org/Program_Areas/state_wetlands.cfm)

Environmental Law Institute. 2005. State wetland program evaluation: Phases I-IV. 2005-2007. Available from: [http://www.elistore.org/topics\\_list.asp?topic=Wetlands](http://www.elistore.org/topics_list.asp?topic=Wetlands)

Great Lakes Aquatic Habitat Network & Fund. 2004. Wetland protection summary in the Great Lakes Basin: C.P.R. for wetlands: Conserve, protect, and restore. Available from: <http://glhabitat.org/wetlandprotectsummary.pdf>

Minnesota Center for Environmental Advocacy. 2006. Minnesota wetlands protection report, 2006. Available from: <http://www.mncenter.org/Research/tabid/60/Default.aspx>

National Research Council. 2001. Compensating for wetland losses under the Clean Water Act. National Academy Press, Washington, DC. Available from: [http://www.nap.edu/catalog.php?record\\_id=10134](http://www.nap.edu/catalog.php?record_id=10134)

Sierra Club. 2006. Minnesota's wetlands legacy: Is Minnesota doing enough to protect its remaining wetlands? March 2006.

#### **Citizen/Landowners/Local Government Wetlands Guides**

Cwikel, W., Michigan wetlands—Yours to protect: A citizen's guide to wetlands protection (3rd Edition) 2003. Tip of the Mitt Watershed Council, Petoskey, MI 49770. Available from: <http://www.watershedcouncil.org/water%20resources/wetlands/wetland-resources/>

Ducks Unlimited. 2005. Wetlands habitat management: A guide for landowners. Updated March 3, 2005. Available from: [http://www.ducks.org/media/Conservation/GLARO\\_documents/library/landowner/Landowner\\_Guide.pdf](http://www.ducks.org/media/Conservation/GLARO_documents/library/landowner/Landowner_Guide.pdf)

Interagency Workgroup on Wetland Restoration. 2003. An introduction and user's guide to wetland restoration, creation, and enhancement. National Oceanic and Atmospheric Administration, Environmental Protection Agency, Army Corps of Engineers, Fish and Wildlife Service, and Natural Resources Conservation Service. Available from: <http://www.epa.gov/owow/wetlands/pdf/restdocfinal.pdf>

Kusler, J. 2006. Common legal questions: Landowner liability for draining or filling wetlands. Association of State Wetland Managers, in cooperation with the International Institute for Wetland Science and Public Policy. Available from: [http://www.aswm.org/propub/4\\_liability\\_6\\_26\\_06.pdf](http://www.aswm.org/propub/4_liability_6_26_06.pdf)

Sargent, M.S. and K.S. Carter. 1999. Managing Michigan's wildlife: A landowner's guide. Michigan Department of Natural Resources. Available from: [http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners\\_Guide/index.htm](http://www.michigandnr.com/publications/pdfs/huntingwildlifehabitat/Landowners_Guide/index.htm)

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***Appendix II cont.***

***Selected Resources Pertaining to Wetland Protection and Restoration in the Great Lakes Region***

Thomassey, G. 2007. Protecting Michigan's wetlands: A guide for local governments, Tip of the Mitt Watershed Council.

Available from: [http://www.watershedcouncil.org/resources%20and%20publications/files/Wetland\\_eBookFINAL.pdf](http://www.watershedcouncil.org/resources%20and%20publications/files/Wetland_eBookFINAL.pdf)

Thompsin, A.L., and C.S. Luthin. 2004. Wetland restoration handbook for Wisconsin landowners, WDNR and Wisconsin Wetlands Association. Available from: <http://dnr.wi.gov/wetlands/handbook.html>

Tip of the Mitt Watershed Council. 1998. Living with Michigan wetlands: A landowner's guide (Third printing, revised and updated). Available from:

<http://www.watershedcouncil.org/resources%20and%20publications/files/Living%20With%20MI%20Wetlands.pdf>

## **Books**

Batzer, D. P. and R. R. Sharitz. 2007. Ecology of Freshwater and Estuarine Wetlands. University of California Press, Berkeley, CA.

Lewis, W.M. 2001. Wetlands explained: Wetland science, policy, and politics in America. Oxford University Press, New York, NY.

Mitsch, W.J. and J.G. Gosselink. 2007. Wetlands, 4<sup>th</sup> Edition. John Wiley & Sons Inc., Hoboken, NJ.

Spray, S.L., and McGlothlin, K.L. (Eds.) 2004. Wetlands. Rowman & Littlefield Publishers, Lanham, MD.

## **General Resources/Links**

Association of State Wetland Managers, Wetland Related Resource Links

<http://aswm.org/links/index.htm>

Wisconsin's Water Library (service of University of Wisconsin Water Resources and Sea Grant Institutes)

<http://aqua.wisc.edu/waterlibrary/>

Wisconsin Wetlands Association, Resources and Links

<http://www.wisconsinwetlands.org/links.htm>

- <sup>1</sup>Mitsch, W.J. and J.G. Gosselink. 2007. *Wetlands*, 4<sup>th</sup> Edition. John Wiley & Sons Inc., Hoboken, NJ.
- <sup>2</sup>*Id.*
- <sup>3</sup>GLRC (Great Lakes Regional Collaboration). Great Lakes Regional Collaboration strategy to restore and protect the Great Lakes. 2005. Available from: <http://www.glrc.us/strategy.html>
- <sup>4</sup>USDA (U.S. Department of Agriculture) data, cited in Zucker, L.A. and L.C. Brown, Eds. 1998. *Agricultural drainage: Water quality impacts and subsurface drainage studies in the Midwest*. Ohio State University Extension Bulletin 871, Ohio State University, Columbus, OH. Cited in Mitsch and Gosselink, 2007, *supra* note 1.
- <sup>5</sup>Mitsch and Gosselink, 2007, *supra* note 1.
- <sup>6</sup>Uzarski, D.G., T.M. Burton, J.C. Brazner, J.J.H. Ciborowski. 2008. Fish community indicators, *In* Great Lakes coastal wetlands monitoring plan, Burton, T.M., J.C. Brazner, J.J.H. Ciborowski, G.P. Grabas, J. Hummer, J. Schneider, D.B. Uzarski, Eds. Great Lakes Coastal Wetlands Consortium. Available from: <http://www.glc.org/wetlands/final-report.html>
- <sup>7</sup>Stedman, S. and T.E. Dahl. 2008. Status and trends of wetlands in the coastal watersheds of the Eastern United States 1998 to 2004. National Oceanic and Atmospheric Administration, National Marine Fisheries Service and U.S. Department of the Interior, Fish and Wildlife Service, 32 pp., Available from: <http://www.fws.gov/wetlands/StatusAndTrends/index.html>
- <sup>8</sup>*Id.*
- <sup>9</sup>Wolter, P.T., C.A. Johnston, G.J. Niemi. 2006. Land use land cover change in the U.S. Great Lakes Basin 1992 to 2001. *Journal of Great Lakes Research* 32:607-628.
- <sup>10</sup>See Johnson, L., K. Hayhoe, G. Kling, J. Magnuson, B. Shuter. 2003. Wetland ecosystems (technical appendix). *In* Kling, G.W., K. Hayhoe, L.B. Johnson, J.J. Magnuson, S. Polasky, S.K. Robinson, B.J. Shuter, M.M. Wander, D.J. Wuebbles, D.R. Zak, R.L. Lindroth, S.C. Moser, and M.L. Wilson. 2003. *Confronting climate change in the Great Lakes Region: Impacts on our communities and ecosystems*. Union of Concerned Scientists, Cambridge, Massachusetts, and Ecological Society of America, Washington, D.C. Available from: <http://www.ucsusa.org/greatlakes/glchallenge-report.html>
- <sup>11</sup>*Solid Waste Agency of Northern Cook County v. U.S. Army Corp of Engineers*, 531 U. S. 159 (2001) (hereinafter *SWANCC*); *Rapanos v. United States*, 547 U.S. 715 (2006) (hereinafter *Rapanos*).
- <sup>12</sup>GLRC. 2005. *supra* note 3. Also see GLRC. 2008. Great Lakes Regional Collaboration Habitat/Wetlands Initiative: A progress report and call to action. Available from: <http://www.glrc.us/documents/CallToAction06-19-2008.pdf>
- <sup>13</sup>GLAHNF (Great Lakes Aquatic Habitat Network & Fund). 2004. Wetland protection summary in the Great Lakes Basin: C.P.R. for wetlands: Conserve, protect, and restore. Available from: <http://glhabitat.org/wetlandprotectsummary.pdf>
- <sup>14</sup>Association of State Wetland Managers, State Wetland Programs, Available from: <http://www.aswm.org/swp/statemainpage9.htm>
- <sup>15</sup>ELI (Environmental Law Institute). 2008. State wetland programs: Status, trends and model approaches. Available from: [http://www.eli.org/Program\\_Areas/state\\_wetlands.cfm](http://www.eli.org/Program_Areas/state_wetlands.cfm)
- <sup>16</sup>33 United States Code (U.S.C.) §§ 1311, 1313, 1341, 1342, 1344.
- <sup>17</sup>33 U.S.C. § 1341.
- <sup>18</sup>See 33 U.S.C. § 1344(h); *Huggett v. Dept. of Natural Resources*, 232 Mich. App. 188, 195, 590 N.W.2d 747 (1998), *aff'd on other grounds*, 464 Mich. 711, 629 N.W.2d 915 (2001). Also, see discussion on the current status of the state program in the Michigan section of this report.
- <sup>19</sup>See 33 U.S.C. § 1362 (7) (“ ‘navigable waters’ means the waters of the United States”).
- <sup>20</sup>See 40 Code of Federal Regulations (C.F.R.) § 230.3(s); 33 C.F.R. 328.3 (a).
- <sup>21</sup>Dahl, T.E. 2006. Status and trends of wetlands in the conterminous United States 1998 to 2004. U.S. Department of the Interior; Fish and Wildlife Service, Washington, D.C. 112 pp., at 69. Available from: <http://www.fws.gov/wetlands/StatusAndTrends/index.html>
- <sup>22</sup>See *SWANCC*, 531 U.S. (*supra* note 11) at 172 (questioning whether the Clean Water Act’s reference to “navigable waters” contemplates jurisdiction over geographically “isolated” wetlands based on migratory bird habitat grounds alone); *Rapanos v. United States*, 547 U.S. (*supra* note 11) at 716 (questioning whether the Clean Water Act’s reference to “navigable waters” contemplates jurisdiction over wetlands adjacent to non-navigable tributaries of navigable waters). *In Rapanos*, the Court issued a fractured decision with no majority opinion and three different tests for determining the scope of federal jurisdiction over wetlands. The confusion over which test controls, and the added confusion of the 2007 *Rapanos* guidance, has left the state of CWA jurisdiction in disarray.
- <sup>23</sup>See USEPA (U.S. Environmental Protection Agency) and USACE (U.S. Army Corps of Engineers). 2003. Legal Memorandum discussing Clean Water Act jurisdiction in light of *SWANCC*. 68 Fed. Reg. 1995 (January 2003); U.S. EPA and USACE. 2007, 2008. *Clean Water Act Jurisdiction following the U.S. Supreme Court’s Decision in Rapanos v. United States and Carabell v. United States* (issued June 6, 2007; revised December 2, 2008); *see also*, Murphy, J. and S. Johnson. 2007. Significant flaws: Why the *Rapanos* guidance misinterprets the law, fails to protect waters, and provides little certainty. *Southeastern Environmental Law Journal* 15(2):121.
- <sup>24</sup>See MDEQ (Michigan Department of Environmental Quality). 2003. Comments on the advanced notice of proposed rulemaking on definition of waters of the United States, April 16, 2003 (available from: <http://www.regulations.gov>, Docket ID Number OW-2002-0050, <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&o=0900064800af5b2>
- <sup>25</sup>See 33 C.F.R. 323.2; 40 C.F.R. 232.2 (definition of discharge of dredged material) *as amended* 73 Fed. Reg. 79641 (December 30, 2008).
- <sup>26</sup>33 U.S.C. § 1344(f)(1).
- <sup>27</sup>33 U.S.C. § 1344(f)(2).
- <sup>28</sup>C.F.R. Part 230 (“404(b)(1) Guidelines”).
- <sup>29</sup>40 C.F.R. § 230.1(c).
- <sup>30</sup>40 C.F.R. §§ 230.10(a)-(d).
- <sup>31</sup>42 U.S.C. § 4321 et seq.
- <sup>32</sup>See 42 U.S.C. § 4332(2)(C)); 40 C.F.R. Part 1508.
- <sup>33</sup>*Id.*
- <sup>34</sup>Endangered Species Act, 16 U.S.C. § 1536(a)(2).
- <sup>35</sup>33 U.S.C. § 1344(e). The Clean Water Act only allows issuance of general permits for activities that are similar in nature and that will result in only minimal individual and cumulative adverse environmental impacts.
- <sup>36</sup>See USACE. 2007. Nationwide permit information. Available from: [http://www.usace.army.mil/CECW/News/cecw/reg/nwp/nwp2007\\_gen\\_conditions\\_def.pdf](http://www.usace.army.mil/CECW/News/cecw/reg/nwp/nwp2007_gen_conditions_def.pdf)
- <sup>37</sup>See, e.g., USACE. 2007. Regional general permit, GP-001-MN. Available from: <http://www.mvp.usace.army.mil/docs/regulatory/special%20notices/2007001408PN.pdf>. Also USACE. 2004. General permit, GP-001-WI. Available from: <http://www.mvp.usace.army.mil/docs/regulatory/gp01wi.pdf>
- <sup>38</sup>40 C.F.R. § 230.10(a); *see also* 40 C.F.R. § 230.5 & § 230.1(c), (d); 33 C.F.R. § 320.4(a); USEPA and USACE. 1990. Memorandum of Agreement between The Environmental Protection Agency and The Department of the Army concerning the determination of mitigation under the Clean Water Act Section 404(b)(1) Guidelines, Feb. 6, 1990 (hereinafter USEPA and USACE, 1990, MOA) at II. C. Available from: <http://www.swf.usace.army.mil/pubdata/environ/regulatory/>

[permitting/mitigation/epa%20memorandum%20of%20agreement.pdf](#)

<sup>39</sup>*Id.*

<sup>40</sup>For example, in Michigan, for the Section 404 permit actions overall in FY07 (of which approximately one-third were for wetlands impacts), 73% were issued, 15% were issued after modification, 5% were issued after-the-fact, 3% were denied, and 4% were closed. See MDEQ, 2008. Land and Water Management Division, Section 404 program annual report, FY 2007.

<sup>41</sup>USEPA and USACE, 1990, MOA. *supra* note 38, at 2.

<sup>42</sup>See for example U.S. NRC (U.S. National Research Council). 2001. Compensating for wetland losses under the Clean Water Act; Turner, R.E., A.M. Redmond and J.B. Zedler. 2001. Count it by acre or function: Mitigation adds up to net loss of wetlands, National Wetlands Newsletter 23(6):5-6, 14-16; Zedler, J.B. 2004. Compensating for wetland losses in the United States. Ibis 146(Suppl. 1):92-100; Brooks, R.P., D.H. Wardrop, C.A. Cole, D.A. Campbell. 2005. Are we purveyors of wetland homogeneity? A model of degradation and restoration to improve wetland mitigation performance. Ecological Engineering 24:331-340; Bies, L. 2006. Wetlands management in the United States. Wildlife Society Bulletin 34(3):894-896; Matthews, J.W. and A.G. Endress. 2008. Performance criteria, compliance success, and vegetation development in compensatory mitigation wetlands. Environmental Management 41:130-141; Bendor, T. 2009. A dynamic

analysis of the wetland mitigation process and its effects on no net loss policy. Landscape and Urban Planning 89:17-27.

<sup>43</sup>Zedler, 2004, *supra* note 42.

<sup>44</sup>Kettlewell C.I., V. Bouchard, D. Porej, M. Micacchion, J.J. Mack, D. White, L. Fay. 2008. An assessment of wetland impacts and compensatory mitigation in the Cuyahoga River Watershed, Ohio, USA. Wetlands 28:57-67.

<sup>45</sup>*Id.*

<sup>46</sup>USEPA and USACE, 1990, MOA. *supra* note 38 at II. ("Simple purchase or 'preservation' of existing wetlands resources may in only exceptional circumstances be accepted as compensatory mitigation.")

<sup>47</sup>See e.g. U.S. GAO (U.S. Government Accountability Office). 2005. Wetlands protection: Corps of Engineers does not have an effective oversight approach to ensure that compensatory mitigation is occurring (Sept. 2005), GAO-05-898. Available from: <http://www.gao.gov/new.items/d05898.pdf>.

<sup>48</sup>Matthews and Endress, 2008, *supra* note 42.

<sup>49</sup>See e.g., Mack, J.J. 2006. Developing a wetland IBI with statewide application after multiple testing iterations. Ecological Indicators 7(4):864-881.

<sup>50</sup>Written comments from OEPA (Ohio Environmental Protection Agency), Feb. 5, 2009.

<sup>51</sup>See 33 C.F.R. Part 325 and 332; 40 C.F.R. Part 230, 73 Fed. Reg. 19594 (Apr. 10, 2008).

<sup>52</sup>33 C.F.R. § 332.1(c); 40 C.F.R. § 230.91(c).

<sup>53</sup>33 C.F.R. § 332.3 (c); 40 C.F.R. § 230.93 (c).

<sup>54</sup>See 33 C.F.R. § 332.7; 40 C.F.R. § 230.97.

<sup>55</sup>33 C.F.R. § 332.4(c)(1) and (9); 40 C.F.R. § 230.94(c)(1) and (9); 33

C.F.R. § 332.5(b); 40 C.F.R. § 230.95(b) (such standards must be "objective and verifiable," and "based on the best available science that can be measured on assessed in a practicable manner").

<sup>56</sup>33 C.F.R. § 332.3(k); 40 C.F.R. § 230.93(k). 33 C.F.R. § 332.4(b); 40 C.F.R. § 230.94(b); 33 C.F.R. § 332.6(c); 40 C.F.R. § 230.96(c).

<sup>57</sup>33 C.F.R. § 332.4(b); 40 C.F.R. § 230.94(b).

<sup>58</sup>33 C.F.R. § 332.6(c); 40 C.F.R. § 230.96(c)

<sup>59</sup>See GAO, 2005; compare 73 Fed. Reg. 19609 ("[t]his rule will not place a large incremental burden on Corps staff;" and "[t]he Corps already conducts compliance inspections on compensatory mitigation projects... as its resources allow and will continue to do so").

<sup>60</sup>See, e.g., 33 C.F.R. § 332.3(e)(3); 40 C.F.R. § 230.93(e)(3) ("for difficult-to-replace resources (e.g. bogs, fens, springs, streams, Atlantic white cedar swamps) if further avoidance and minimization is not practicable, the required compensation should be provided, if practicable, through in-kind rehabilitation, enhancement, or preservation since there is greater certainty that these methods of compensation will successfully offset permitted impacts.")

<sup>61</sup>See, e.g., 73 Fed. Reg. at 19596 citing Bernhardt, E.S., M.A. Palmer, J.D. Allan, G. Alexander, K. Barnas, S. Brooks, J. Carr, S. Clayton, C. Dahm, J. Follstad-Shah, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, R. Jenkinson, S. Katz, G.M. Kondolf, P.S. Lake, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano, B. Powell, and E.

Sudduth. 2005. Synthesizing U.S. river restoration efforts. Science 308: 636-637; *see also*, M.A. Palmer, Expert Report, *Ohio Valley Env. Coalition v. U.S. Army Corps of Engineers*, Civ. No. 3:05-0784 at 10 ("The very concept of creating a stream that has comparable levels of ecological functioning to natural channels remains untested and is scientifically implausible").

<sup>62</sup>33 C.F.R. § 332.3(b)(2); 40 C.F.R. § 230.93(b)(2). The available science shows that mitigation banking is often unsuccessful. A recent Ohio study of mitigation banks found that for completed bank areas assessed,

approximately 25 percent of the area was not wetland at all, but shallow, unvegetated pond; another 25 percent was poor quality wetland; 58 percent was fair quality wetland; and only 18 percent was high quality wetland. Mack, J.J. and M. Micacchion. 2006. An ecological assessment of Ohio mitigation banks: Vegetation, amphibians, hydrology, and soils. Ohio EPA Technical Report WET/2006-1. Ohio Environmental Protection Agency, Division of Surface Water, Wetland Ecology Group, Columbus, Ohio. Available from: [http://www.epa.state.oh.us/dsw/wetlands/Bank\\_Report\\_Ohio\\_Final.pdf](http://www.epa.state.oh.us/dsw/wetlands/Bank_Report_Ohio_Final.pdf); *see also* Ruhl and Salzman, 2001, The effects of wetland mitigation on people, 28(2) *National Wetlands Newsletter*, 28 (2).

<sup>63</sup>See 33 C.F.R. § 332.3(c); 40 C.F.R. § 230.93(c); *see also* 73 Fed. Reg. 19631. The rule simply requires that "district engineers must use a watershed approach... to the extent appropriate and

practicable." Where a plan is not available, the district engineer is allowed to base the watershed approach "on information provided by the project sponsor [the applicant] or available from other sources."

<sup>64</sup>Compare USEPA and USACE, 1990, MOA *supra* note 38 at II with 33 C.F.R. § 332.3(h); 40 C.F.R. § 230.93(h).

<sup>65</sup>See, e.g., 33 C.F.R. § 332.3(f); 40 C.F.R. § 230.93(f) ("the amount of required mitigation must be, *to the extent practicable*, sufficient to replace lost aquatic functions;" 33 C.F.R. § 332.7(a)(1) and (2); 40 C.F.R. § 230.97(a)(1) and (2) ("the overall compensatory mitigation project must be provided long-term protection... *as appropriate*" and "long-term protection of the compensatory mitigation site must, *to the extent appropriate and practicable*, prohibit incompatible uses....") (emphasis added).

<sup>66</sup>33 C.F.R. § 332.3(f)(1); 40 C.F.R. § 230.93(f)(1); *see also* 33 C.F.R. § 332.3(f)(2); 40 C.F.R. § 230.93(f)(2) (dictating higher ratios in some cases).

<sup>67</sup>USGS (U.S. Geological Survey). 1996. National water summary on wetland resources, Michigan wetland resources, Water supply paper 2425, pp. 231-236. Available from: <http://pubs.er.usgs.gov/usgspubs/wsp/wsp2425>; *also see* ASWM (Association of State Wetlands Managers). State wetland programs, Michigan. Available from: <http://aswm.org/swp/michigan9.htm>

<sup>68</sup>*Id.*

<sup>69</sup>See MCL (Michigan Compiled Laws) section 324.30301 *et seq.*

<sup>70</sup>MCL § 324.30307 - § 324.30310.

<sup>71</sup>MCL § 324.30101 *et seq.*

- <sup>72</sup>MCL § 324.32501 et seq.
- <sup>73</sup>MCL § 324.30305(1).
- <sup>74</sup>MCL § 324.30304.
- <sup>75</sup>See MCL § 324.30301(p).
- <sup>76</sup>See MAC (Michigan Administrative Code) r. 281.921(b).
- <sup>77</sup>*Id.* In making this determination, MDEQ (Michigan Department of Environmental Quality) must find that the wetland meets one or more of the following characteristics: 1) supports state or federal endangered or threatened plants, fish, or wildlife; 2) represents what the state has identified as a rare or unique ecosystem; 3) supports plants or animals of an identified regional importance; or 4) provides groundwater recharge documented by a public agency. See MAC r. 281.924(4).
- <sup>78</sup>See MDEQ. 2003. *supra* note 24.
- <sup>79</sup>Written comments from MDEQ, Feb. 10, 2009.
- <sup>80</sup>Though protection of areas deemed “essential” under MAC 281.924 (4) has rarely been used, according to written comments from MDEQ, Feb. 10, 2009.
- <sup>81</sup>As noted in the federal overview in the Introduction, there are ongoing uncertainties about jurisdiction at the federal level in light of U.S. Supreme Court decisions and USEPA guidance over the past decade.
- <sup>82</sup>MDEQ, Local wetland regulations. Available from: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687-24312--00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687-24312--00.html)
- <sup>83</sup>MDEQ, Communities with wetland ordinances, Revised April 9, 2008. Available from: [http://www.michigan.gov/documents/deq/lwm-wetlands-localwetlandordinances\\_261729\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-wetlands-localwetlandordinances_261729_7.pdf)
- <sup>84</sup>See MDEQ, State and federal wetland regulations. Available from: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687-10801--00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10801--00.html)
- <sup>85</sup>MCL § 324.32301 et seq.
- <sup>86</sup>*Id.*
- <sup>87</sup>See MAC r. 281.23(6).
- <sup>88</sup>MCL § 324.1701 et seq.
- <sup>89</sup>MCL § 324.1701.
- <sup>90</sup>USEPA, Application of elements of a state monitoring and assessment program for wetlands, April 2006. Wetlands Division, Office of Wetlands, Oceans and Watersheds. Available from: [http://www.epa.gov/owow/wetlands/pdf/Wetland\\_Elements\\_Final.pdf](http://www.epa.gov/owow/wetlands/pdf/Wetland_Elements_Final.pdf)
- <sup>91</sup>See undated presentation, Michigan’s wetland monitoring toolbox. Available from: [http://www.epa.gov/wetlands/survey/pdf/Michigan\\_Wetland\\_Monitoring\\_Toolbox.pdf](http://www.epa.gov/wetlands/survey/pdf/Michigan_Wetland_Monitoring_Toolbox.pdf)
- <sup>92</sup>MCL § 324.30306(1)(f).
- <sup>93</sup>MCL § 324.30311(1).
- <sup>94</sup>MCL § 324.30311; The Corps employs a similarly flexible public interest analysis in deciding whether to grant or deny a permit. This involves an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. See 33 CFR § 320.4.
- <sup>95</sup>MCL § 324.30311(4); MAC 281.922a (1).
- <sup>96</sup>MCL § 324.30302(1)(b).
- <sup>97</sup>MCL § 324.30311(4).
- <sup>98</sup>MAC r. 281.922a(6).
- <sup>99</sup>See MCL § 324.30312(2).
- <sup>100</sup>MDEQ. 2007. General permit categories for minor activities in wetlands in the state of Michigan. June 13, 2007. Available from: [http://www.michigan.gov/documents/deq/lwm-wetlands-GPminoractivities\\_262067\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-wetlands-GPminoractivities_262067_7.pdf)
- <sup>101</sup>See USEPA. 2008. Results of the U.S. Environmental Protection Agency Region 5 review of Michigan Department of Environmental Quality’s Section 404 Program, May 2008, at 57-58. Available from: [http://www.epa.gov/region5/water/wshednps/pdf/final\\_mich\\_prog\\_review\\_5\\_13\\_08.pdf](http://www.epa.gov/region5/water/wshednps/pdf/final_mich_prog_review_5_13_08.pdf)
- <sup>102</sup>See MCL § 324.30312(1).
- <sup>103</sup>See MAC r. 281.923. As noted in subsequent discussion, MDEQ may choose to issue public notice for a general permit application if it determines that the project warrants public review and comment.
- <sup>104</sup>See USACE. 2007. General conditions that apply to Corps permits. Available from: [http://www.usace.army.mil/CECW/Documents/cecwo/reg/nwp/nwp2007\\_gen\\_conditions\\_def.pdf](http://www.usace.army.mil/CECW/Documents/cecwo/reg/nwp/nwp2007_gen_conditions_def.pdf); and MDEQ, 2007, *supra* note 100. The 23 categories include the category “Temporary general permit for specified minor activities authorized by the U.S. Army Corps of Engineers in inland lakes and streams in Michigan”, issued on July 28, 2008. Available from: [http://michigan.gov/documents/deq/deq-lwm-water-wetlands-TempGPPN\\_232790\\_7.pdf](http://michigan.gov/documents/deq/deq-lwm-water-wetlands-TempGPPN_232790_7.pdf)
- <sup>105</sup>General conditions that apply to USACE permits is indicated in USACE. 2007. *supra* note 104.
- <sup>106</sup>MDEQ and USACE. 2006. Joint permit application training manual, Chapter 3: Specialized reviews, Available from: [http://www.michigan.gov/deq/0,1607,7-135-3307\\_29692\\_24403-76158--00.html](http://www.michigan.gov/deq/0,1607,7-135-3307_29692_24403-76158--00.html)
- <sup>107</sup>MDEQ. 2006. Report on the impacts of beach maintenance and removal of vegetation under Act 14 of 2003, March 2006. Available from: [http://www.michigan.gov/documents/deq/lwm-wetlands-beachmaintevegremovalreport\\_261740\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-wetlands-beachmaintevegremovalreport_261740_7.pdf)
- <sup>108</sup>MDEQ. 2007. General permit category for limited Great Lakes shoreline management activities, Aug. 1, 2007, Available from: [http://www.michigan.gov/documents/deq/lwm-water-wetlands-SMGP\\_262077\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-water-wetlands-SMGP_262077_7.pdf)
- <sup>109</sup>See MDEQ, Great Lakes shoreline management permit requirements, Available from: <http://www.deq.state.mi.us/documents/deq-lwm-wetlands-shoremgmtGPSpreadsheet.pdf>
- <sup>110</sup>ELI (Environmental Law Institute). 2008. State wetland programs: Status, trends and model approaches, Appendix: State Profiles (Michigan). Available from: [http://www.eli.org/Program\\_Areas/state\\_wetlands.cfm](http://www.eli.org/Program_Areas/state_wetlands.cfm)
- <sup>111</sup>See MCL § 324.30306(5); also, written comments from MDEQ, Feb. 10, 2009.
- <sup>112</sup>MDEQ. 2008. Land and Water Management Division, Section 404 program annual report, FY 2007.
- <sup>113</sup>See MCL § 324.1301(f)(viii); MCL § 324.1307.
- <sup>114</sup>See MCL § 324.30307(3).
- <sup>115</sup>Written comments from MDEQ, Feb. 10, 2009.
- <sup>116</sup>See Wetlands Inventory and Permit Tracking section.
- <sup>117</sup>Written comments from MDEQ, Feb. 10, 2009.
- <sup>118</sup>See MAC r. 281.923.
- <sup>119</sup>*Id.*
- <sup>120</sup>See MCL §§ 324.30307(1), (3).
- <sup>121</sup>See USEPA. 2008. *supra* note 101; also, written comments from MDEQ, Feb. 10, 2009.
- <sup>122</sup>USEPA. 2008. *supra* note 101, at 95.
- <sup>123</sup>*Id.*
- <sup>124</sup>See USEPA. 2008. *supra* note 101, at 98-99.
- <sup>125</sup>See USEPA. 2008. *supra* note 101, at 57-58, 99-101, 103.
- <sup>126</sup>MDEQ has agreed to revise the 1983 Memorandum of Agreement, clarifying public notice requirements as well as comment and citizen intervention opportunities for proposed enforcement settlements. See USEPA. 2008. *supra* note 101, at 101.
- <sup>127</sup>MDEQ. 2008, *supra* note 112.
- <sup>128</sup>See USEPA. 2008. *supra* note 101, at 101.
- <sup>129</sup>See USEPA. 2008. *supra* note 101, at 98-101.
- <sup>130</sup>See USEPA. 2008. *supra* note 101, at 102.
- <sup>131</sup>MCL § 324.30321.
- <sup>132</sup>MDEQ, Wetland inventory maps. Available from: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687-11178--00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687-11178--00.html)
- <sup>133</sup>See DU (Ducks Unlimited). 2008. Updating the National Wetlands Inventory (NWI) for the Great Lakes (Wisconsin, Illinois, Indiana, Michigan, and Ohio), Project work plan, 10/15/08. Available from: [http://www.ducks.org/media/Conservation/GLARO/Conservation/GLARO\\_documents/library/gis/NWI\\_Workplan.pdf](http://www.ducks.org/media/Conservation/GLARO/Conservation/GLARO_documents/library/gis/NWI_Workplan.pdf); Also, personal communication with Rob MacLeod, Ducks Unlimited, September 3, 2008, June 23, 2009.
- <sup>134</sup>See MDEQ, Coastal and inland waters permit information system. Available from: <http://www.deq.state.mi.us/cjwps/>
- <sup>135</sup>MDEQ. 2008, *supra* note 112.
- <sup>136</sup>*Id.*
- <sup>137</sup>See *Huggett v. Dept. of Natural Resources*, 232 Mich. App. 188, 195, 590 N.W.2d 747 (1998), *affirmed on other grounds*, 464

- Mich. 711, 629 N.W.2d 915 (2001).
- <sup>138</sup>In *Huggett*, the court found that the farming exemption only applied to currently existing farmland and to the farming activities listed in the statute or similar to those listed in the statute. Thus, building a cranberry farm on a wetland did require a permit. *Id.*
- <sup>139</sup>MCL § 324.30305(2).
- <sup>140</sup>See 33 U.S.C. § 1344(f).
- <sup>141</sup>See USEPA. 2008. *supra* note 101, at 95-96.
- <sup>142</sup>See USEPA. 2008. *supra* note 101, at 96-97.
- <sup>143</sup>See USEPA. 2008. *supra* note 101, at 97-98.
- <sup>144</sup>Written comments from MDEQ, Feb. 10, 2009.
- <sup>145</sup>See USEPA. 2008. *supra* note 101, at 95-98.
- <sup>146</sup>MCL § 324.30312(2).
- <sup>147</sup>MAC r. 281.925(7).
- <sup>148</sup>MAC r. 281.925(2).
- <sup>149</sup>MAC r. 281.925(3).
- <sup>150</sup>MAC r. 281.925(4)-(5).
- <sup>151</sup>MAC r. 281.925(7).
- <sup>152</sup>*Id.*
- <sup>153</sup>See MAC r. 281.925(9)-(11).
- <sup>154</sup>MAC r. 281.925(6)(f).
- <sup>155</sup>See MDEQ. 2007. Monitoring of wetland mitigation. (Fact sheet, Feb. 28, 2007).
- <sup>156</sup>See MDEQ. Wetland mitigation banking. Available from: [http://www.michigan.gov/deq/0,1607,7-135-3313\\_3687-10426--,00.html](http://www.michigan.gov/deq/0,1607,7-135-3313_3687-10426--,00.html)
- <sup>157</sup>MAC r. 281.959(1).
- <sup>158</sup>MDEQ, Registry of established mitigation banks. Available from: [http://www.michigan.gov/documents/deq/lwm-wetlands-regOct08\\_255104\\_7.pdf](http://www.michigan.gov/documents/deq/lwm-wetlands-regOct08_255104_7.pdf)
- <sup>159</sup>MDEQ. 2007, *supra* note 100.
- <sup>160</sup>MAC r. 281.925(3).
- <sup>161</sup>ASWM, 2009, *supra* note 67.
- <sup>162</sup>*Id.*
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- <sup>173</sup>See MAC r. 425.101 *et seq.*
- <sup>174</sup>See MAC r. 425.201(1),(2).
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- <sup>319</sup>OAC §§ 3745-1-54(B), (C).
- <sup>320</sup>OAC §§ 3745-1-05(A)(10)(a), (12) (Category 2 and 3 wetlands also include “. . . other surface waters that are not specifically categorized limited quality waters, superior high quality waters, outstanding state waters, Water, Wetland Ecology Group, Columbus, Ohio. Available from: [http://www.epa.state.oh.us/dsw/wetlands/PART4\\_VIBI\\_OH\\_WTLDs.pdf](http://www.epa.state.oh.us/dsw/wetlands/PART4_VIBI_OH_WTLDs.pdf)
- or outstanding national resource waters.” Category 1 waters also include specially designated waters, such as “. . . limited resource water, nuisance prevention, limited warmwater habitat, or modified warmwater habitat.”)
- <sup>321</sup>OAC § 3745-1-54(C).
- <sup>322</sup>For purposes of this rule, hydrologically isolated wetlands are those without a surface water connection to a water of the state, those outside of and noncontiguous with any 100-year floodplain, and those without any contiguous hydric soil to any surface water of the state. OAC 3745-1-50(T).
- <sup>323</sup>OAC § 3745-1-54(C)(1).
- <sup>324</sup>OAC § 3745-1-54(C)(2).
- <sup>325</sup>OAC § 3745-1-54(C)(3).
- <sup>326</sup>OAC §§ 3745-01-54(B)-(C).
- <sup>327</sup>Mack, J. J. 2001. Ohio rapid assessment method for wetlands, Manual for using version 5.0. Ohio EPA technical bulletin wetland/2001-1-1. Ohio Environmental Protection Agency, Division of Surface Water, 401 Wetland Ecology Unit, Columbus, Ohio; Available from: [http://www.epa.state.oh.us/dsw/401/oram50um\\_s.pdf](http://www.epa.state.oh.us/dsw/401/oram50um_s.pdf).
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- <sup>330</sup>Mack, 2004. *supra* note 328.
- <sup>331</sup>OAC § 3745-1-05(C)(5).
- <sup>332</sup>OAC § 3745-1-54(D).
- <sup>333</sup>See OAC § 3745-1-54(D)(1)(a)-(c).
- <sup>334</sup>*Id.*
- <sup>335</sup>See OAC §§ 3745-1-51 to -54 (currently undergoing revision)-3745-1-51 is the rule that addresses narrative standards.
- <sup>336</sup>OAC § 3745-1-51.
- <sup>337</sup>OAC § 3745-32-05.
- <sup>338</sup>OAC § 3745-32-05(A).
- <sup>339</sup>OAC § 3745-32-05(B).
- <sup>340</sup>ELI. 2005. State wetland program evaluation: Phase 1. January 2005, at 119. Available from: [http://www.elistore.org/topics\\_list.asp?topic=Wetlands](http://www.elistore.org/topics_list.asp?topic=Wetlands); also ELI. 2008. *supra* note 314.
- <sup>341</sup>*Id.*; also, written comments from OEPA, Feb. 5, 2009.
- <sup>342</sup>ORC § 6111.021(B); ORC § 6111.028.
- <sup>343</sup>ORC § 6111.02(F).
- <sup>344</sup>Letter from Christopher Korleski, Director of OEPA, to Chief of Engineers, July 6, 2007 (hereinafter OEPA NWP 2007 letter). Available from: [http://www.epa.state.oh.us/dsw/401/NationwideCertification\\_final\\_iul07.pdf](http://www.epa.state.oh.us/dsw/401/NationwideCertification_final_iul07.pdf)
- <sup>345</sup>*Id.*
- <sup>346</sup>*Id.*
- <sup>347</sup>*Id.*
- <sup>348</sup>*Id.*
- <sup>349</sup>See Letter from Christopher Jones, Director of OEPA, to Buffalo District ACOE on Letters of Permission for Seven Categories of Activities in Surface Waters, July 1, 2003 (hereinafter 2003 OEPA LOP Letter). Available from: [http://www.epa.state.oh.us/dsw/401/LOP\\_July2003\\_s.pdf](http://www.epa.state.oh.us/dsw/401/LOP_July2003_s.pdf)
- <sup>350</sup>*Id.*
- <sup>351</sup>ORC § 6111.30(G).
- <sup>352</sup>ORC § 6111.022(A).
- <sup>353</sup>OEPA. 2007. General permit for filling category 1 and category 2 isolated wetlands, April 10, 2007. Available from: [http://www.epa.state.oh.us/dsw/401/IsolatedWetlandGP\\_Final\\_GP\\_apr07.pdf](http://www.epa.state.oh.us/dsw/401/IsolatedWetlandGP_Final_GP_apr07.pdf)
- <sup>354</sup>ORC § 6111.023(A).
- <sup>355</sup>ORC § 6111.023(C).
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- <sup>357</sup>ORC § 6111.024(A).
- <sup>358</sup>ORC § 6111.024(B)(2).
- <sup>359</sup>ORC § 6111.024(C).
- <sup>360</sup>ORC § 6111.024(D).
- <sup>361</sup>ORC § 6111.023(C); ORC § 6111.024(C).
- <sup>362</sup>ELI. 2008. *supra* note 314.
- <sup>363</sup>Association of State Wetlands Managers, State wetland programs, Ohio. Available from: <http://aswm.org/swp/ohio9.htm>
- <sup>364</sup>See OEPA. Enforcement program. Available from: <http://www.epa.state.oh.us/dsw/enforcement/enf.html>
- <sup>365</sup>See e.g., OEPA. 2007. Enforcement report 2006. October 2007. Available from: <http://www.epa.state.oh.us/pic/facts/2006enf.pdf>; other reports (including agency Annual Reports) via OEPA, Fact sheets and publications. Available from: <http://www.epa.state.oh.us/pic/facts/flslist.html>
- <sup>366</sup>ORC § 6111.026.
- <sup>367</sup>An application for a federal 404 permit also constitutes an application for a 401 certification. See OAC § 3745-32-04(A).
- <sup>368</sup>OAC § 3745-1-05(C)(3).
- <sup>369</sup>USGS. 1996. *supra* note 305.
- <sup>370</sup>DU 2008. *supra* note 133.
- <sup>371</sup>*Id.*; Personal communication with Rob MacLeod, September 3, 2008; June 22, 2009.
- <sup>372</sup>ELI. 2008. *supra* note 314.
- <sup>373</sup>Personal communication, Mick Micacchion, Ohio EPA, May 4, 2009.
- <sup>374</sup>ORC § 6111.025(C).
- <sup>375</sup>OEPA. 2008. *supra* note 314.
- <sup>376</sup>*Id.*
- <sup>377</sup>OEPA. 2007. Isolated wetland permits and 401 water quality certifications in Ohio: State fiscal year 2006. Available from: [http://www.epa.state.oh.us/dsw/401/IWP\\_Rep\\_2006.pdf](http://www.epa.state.oh.us/dsw/401/IWP_Rep_2006.pdf); and OEPA. 2006. Isolated wetland permits and 401 water quality certifications in Ohio: State fiscal year 2005. Available from: <http://www.epa.state.oh.us/dsw/401/401PermitSummary2005reduced.pdf>
- <sup>378</sup>See OAC § 3745-32-03. Compare OAC § 3745-32-01(E), (G), *with*, 33 U.S.C. §1344(f)(1).
- <sup>379</sup>ORC § 6111.02(D); ORC § 6111.028(B)(2).
- <sup>380</sup>See OAC §§ 3745-1-54(D)(1)(a)-(c).
- <sup>381</sup>OAC § 3745-1-54(E).
- <sup>382</sup>OAC §§ 3745-1-54(E)(1)(a),(b).
- <sup>383</sup>OAC § 3745-1-54(E)(2).
- <sup>384</sup>OAC § 3745-1-54(E)(4),(5).
- <sup>385</sup>OAC § 3745-1-54(F)(1).
- <sup>386</sup>ORC § 6111.027.
- <sup>387</sup>ORC § 6111.023(E), § 6111.024(E).
- <sup>388</sup>ORC § 6111.027.
- <sup>389</sup>OEPA NWP 2007 letter. *supra* note 344.
- <sup>390</sup>See overview in ELI. 2008. *supra* note 314.
- <sup>391</sup>ODNR. Division of Wildlife, Strategic plan 2001-2010. Available from: [http://www.dnr.state.oh.us/Portals/9/pdf/stratplan01\\_10.pdf](http://www.dnr.state.oh.us/Portals/9/pdf/stratplan01_10.pdf)
- <sup>392</sup>See ELI. 2008. *supra* note 314.
- <sup>393</sup>ODNR and OEPA. 1999. *supra* note 306.
- <sup>394</sup>ODNR. Division of Wildlife, Wetland restoration program. Available from: <http://www.dnr.state.oh.us/wildlife/Home/resources/mgtplans/wetlandrestoration/tabid/5810/Default.aspx>
- <sup>395</sup>See NOAA (National Oceanic and Atmospheric Administration). 2007. Office of Ocean and Coastal Resource Management, Combined coastal management program and final environmental impact statement for the state of Ohio, April 2007, Part II, at 5-56, 5-57. Available from: [http://www.ohiodnr.com/LakeErie/OCMP\\_Document/tabid/9260/Default.aspx](http://www.ohiodnr.com/LakeErie/OCMP_Document/tabid/9260/Default.aspx)
- <sup>396</sup>See Ducks Unlimited, North American Wetlands Conservation Act in Ohio, January 2009.
- <sup>397</sup>See USDA. 2008 WRP cumulative contract information. Available from: [http://www.nrcs.usda.gov/programs/wrp/2008\\_ContractInfo/CumulativeContractInfo2008.html](http://www.nrcs.usda.gov/programs/wrp/2008_ContractInfo/CumulativeContractInfo2008.html); Also see USDA, Ohio wetlands reserve program. Available from: [http://www.oh.nrcs.usda.gov/programs/wrp/wetlands\\_reserve\\_program.html](http://www.oh.nrcs.usda.gov/programs/wrp/wetlands_reserve_program.html)
- <sup>398</sup>Healing Our Waters. 2007. *supra* note 168.
- <sup>399</sup>USFWS. Partners for Fish and Wildlife, Ohio. Available from: <http://www.fws.gov/midwest/Partners/Ohio.html>
- <sup>400</sup>OAC § 3745-1-54(C).
- <sup>401</sup>See Fennessy et al. 2007. *supra* note 309.
- <sup>402</sup>*Id.*
- <sup>403</sup>See Western Lake Erie Basin Partnership, Strategic plan. Available from: <http://www.wleeb.org/leadership/WLEBStrategicPlan.pdf>
- <sup>404</sup>OEPA. 2008. *supra* note 314.
- <sup>405</sup>Written comments from OEPA, Feb. 5, 2009; also Mack. 2001. *supra* note 327.
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- <sup>410</sup>OEPA. 2007. *supra* note 377; OEPA. 2008. *supra* note 314.
- <sup>411</sup>Interview with David Celebrezze, OEC (Ohio Environmental Council), July 12, 2006; also, letter from OEC to Randy Bournique, OEPA, May 31, 2006, and letter from Audubon Ohio et al. to Randy Bournique, OEPA, May 31, 2006.
- <sup>412</sup>Kettlewell et al., 2008.
- <sup>413</sup>Personal communication, Mick Micacchion, July 11, 2006.
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- <sup>421</sup>USGS. 1996. National water summary on wetland resources, Wisconsin wetland resources, Water supply paper 2425, pp. 411-416, and references therein. Available from: <http://pubs.er.usgs.gov/usgspubs/wsp/wsp2425>
- <sup>422</sup>*Id.* Also see WLAB (Wisconsin Legislative Audit Bureau). 2007. Wetland regulatory programs, Department of Natural Resources, Report 07-6, May 2007. Available from: <http://www.legis.state.wi.us/lab/reports/07-6full.pdf>
- <sup>423</sup>See USGS. 1996. *supra* note 421.
- <sup>424</sup>WDNR (Wisconsin Department of Natural Resources). 2007. In water we trust: The 2006 waterways and wetlands annual report. Available from: <http://dnr.wi.gov/org/water/fhp/waterway/permits/2006AnnualReport.pdf>
- <sup>425</sup>WDNR. 2008. Wisconsin Wetland Team, Reversing the loss: A strategy to protect, restore and explore Wisconsin's wetlands, June 2008. Available from: [http://dnr.wi.gov/wetlands/documents/ReversingLoss08\\_FINAL.pdf](http://dnr.wi.gov/wetlands/documents/ReversingLoss08_FINAL.pdf)
- <sup>426</sup>Wis. Stat. (Wisconsin Statutes) §§ 30.12(1) (fill); 30.20(1)(dredging). Although "draining" is not explicitly disallowed, it is highly unlikely that drainage could be conducted without running afoul of the dredging provisions, which preclude removal of any material from the bed without a permit.
- <sup>427</sup>WDNR authority to set water quality standards for wetlands is established in Wisconsin Statutes section 281.15 and section 281.01(18) (defining "waters of the state" to include "marshes.")
- <sup>428</sup>Wis. Stat. § 281.36.
- <sup>429</sup>See Wis. Stat. §§ 59.692(1m) (counties); 61.351(3) (villages); 62.231(3)(cities).
- <sup>430</sup>See WAC (Wisconsin Administrative Code) § NR 103.06.
- <sup>431</sup>WAC § NR 310.03(5).
- <sup>432</sup>See *DeGayner & Co. v. DNR*, 70 Wis. 2d 936, 236 N.W.2d 217 (1975) (approving WDNR's consideration of beaver activity and spring runoff in determining navigability).
- <sup>433</sup>WAC §§ NR 103.06(3), 131.06(4), 132.06(4).
- <sup>434</sup>USGS and Wisconsin Geological and Natural History Survey. 2008. 2005 Minerals yearbook, Wisconsin, June 2008. Available from: <http://minerals.usgs.gov/minerals/pubs/state/2005/myb2-2005-wi.pdf>
- <sup>435</sup>WAC § NR 131.06(4)(a).
- <sup>436</sup>WAC § NR 131.06(4)(b).
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- <sup>438</sup>WAC § NR 103.03(1).
- <sup>439</sup>WAC § NR 103.03(2)(e).
- <sup>440</sup>WAC § NR 103.03(2)(f).
- <sup>441</sup>WAC § NR 103.08(3).
- <sup>442</sup>WAC § NR 103.08(4)(a)(3).
- <sup>443</sup>WAC §§ NR 115.01-.06; WAC §§ NR 117.01-.06.
- <sup>444</sup>WAC § NR 115.03(8)
- <sup>445</sup>WAC § NR 117.05(7)(b).
- <sup>446</sup>WAC § NR 115.05(2)(c).
- <sup>447</sup>*Id.*
- <sup>448</sup>WAC § NR 115.05(2)(d).
- <sup>449</sup>WAC §§ NR 115.05(2)(d), (e).
- <sup>450</sup>WAC § NR 115.05(2)(e)(8).
- <sup>451</sup>WDNR. Wisconsin wetlands: Assessment methods and tools. Available from: <http://dnr.wi.gov/wetlands/methods.html>
- <sup>452</sup>Kline, J., T. Bernthal, M. Burzynski, K. Barrett. 2006. Milwaukee River Basin wetland assessment project: Developing decision support tools for effective planning (draft). Final report to the U.S. Environmental Protection Agency, Region V, Wetland Grant #97565801-3, June 2006. WDNR, Bureau of Watershed Management. Available from: [http://dnr.wi.gov/wetlands/documents/Mukwonago\\_Version\\_MRPW\\_AP\\_August\\_17.pdf](http://dnr.wi.gov/wetlands/documents/Mukwonago_Version_MRPW_AP_August_17.pdf)
- <sup>453</sup>WDNR. Rapid assessment methodology for evaluating wetland functional values, January 2001. Available from: <http://dnr.wi.gov/wetlands/documents/RapidWetlandAssessment.pdf>
- <sup>454</sup>Bernthal, T. et al. 2003. Development of a floristic quality assessment methodology for Wisconsin, Final report to USEPA - Region V, Wetland Grant #CD975115-01-0, June 2003, WDNR, Bureau of Watershed Management. Available from: <http://dnr.wi.gov/wetlands/documents/FOAMethodWithAcknowledgements.pdf>
- <sup>455</sup>WAC § NR 103.08(2).
- <sup>456</sup>WAC § NR 103.08(2); WAC § NR 103.08(3).
- <sup>457</sup>WAC § NR 103.08(4)(a)(1).
- <sup>458</sup>WAC § NR 103.08(4)(a)(2).
- <sup>459</sup>WAC § NR 103.08(4)(a)(3).
- <sup>460</sup>*Id.*
- <sup>461</sup>WAC § NR 103.08(1); also see Cain, M.J., Wisconsin's wetland regulatory program, August 21, 2008, WDNR. Available from: <http://dnr.wi.gov/wetlands/documents/OverviewWIRegulatoryProg.pdf>
- <sup>462</sup>WAC §§ NR 103.08(4)(c),(d).
- <sup>463</sup>WAC § NR 103.08(4)(c).
- <sup>464</sup>WDNR. 2006. *supra* note 424.
- <sup>465</sup>WDNR. 2008. Nonfederal wetlands water quality certification general permit. Available from: <http://dnr.wi.gov/wetlands/documents/IsolatedWetlandsGeneralPermit.pdf>
- <sup>466</sup>USACE. 2006. General permit, GP-002-WI, April 17, 2006. Available from: <http://www.mvp.usace.army.mil/docs/regulatory/Special%20Notices/2005007181SN.pdf>
- <sup>467</sup>WDNR. 2008. *supra* note 465.
- <sup>468</sup>Wis. Stat. §§ 30.208(3)-(4).
- <sup>469</sup>WAC § NR 299.05(5).
- <sup>470</sup>WLAB. 2007. *supra* note 422.
- <sup>471</sup>*Id.*
- <sup>472</sup>WDNR. Wisconsin wetlands: Acreage facts. Available from: <http://dnr.wi.gov/wetlands/acreagefacts.html>
- <sup>473</sup>DU. 2008. *supra* note 133; Personal communication with Robb MacLeod, June 23, 2009.
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- <sup>475</sup>*Id.*
- <sup>476</sup>WDNR. Waterway and Wetland Permit Query System, <http://dnr.wi.gov/org/water/fhp/waterway/permitdata/>. (Note: The system was still being redesigned as of June 15, 2009).
- <sup>477</sup>Wis. Stat. § 281.36(4); WAC § NR 351.05 (incorporating federal law by reference).
- <sup>478</sup>Wis. Stat. § 281.36(5).
- <sup>479</sup>WAC § NR 103.06(4).
- <sup>480</sup>Wis. Stat. § 281.37
- <sup>481</sup>WDNR. 2008. *supra* note 425.
- <sup>482</sup>Cain, M.J. 2008. *supra* note 461.
- <sup>483</sup>Wis. Stat. § 281.37
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- <sup>486</sup>WDNR, USACE, St. Paul District, USEPA Region V, USFWS. 2002. Guidelines for wetland compensatory mitigation in Wisconsin at 9. Available from: [http://dnr.wi.gov/org/es/science/publications/wetland\\_mitig.pdf](http://dnr.wi.gov/org/es/science/publications/wetland_mitig.pdf)
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- <sup>490</sup>WAC § NR 350.05(5).
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- <sup>492</sup>WAC § NR 350.07(4),(5).
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- <sup>494</sup>WAC § NR 353.01.
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- <sup>509</sup>For example, from 2004 to 2007, ethanol production increased from 8.7 trillion BTU (TBTU) to 13.6 TBTU in the state; see Wisconsin Office of Energy Independence. 2008. 2008 Wisconsin energy statistics book, at 61. Available from: <http://energyindependence.wi.gov/subcategory.asp?linksubcatid=2825&linkcatid=2847&linkid=1451&locid=160>
- <sup>510</sup>Personal communication with Erin O'Brien, WWA, July 19, 2006; Also see WDNR. 2008. *supra* note 474.
- <sup>511</sup>Personal communication with Brent Denzin, Midwest Environmental Advocates, July 13, 2006.
- <sup>512</sup>WAC § NR 103.08(4).
- <sup>513</sup>WDNR. Wetland mitigation: Understanding the NR 103 decision process, <http://www.dnr.state.wi.us/wetlands/mitigation/decisionprocess.html>
- <sup>514</sup>Memorandum from Becky Abel, Wisconsin Wetlands Association, to Members of the Joint Legislative Audit Committee, on Audit Report 07-6, An evaluation of DNR's wetland regulatory programs, July 26, 2007. Available from: <http://www.wisconsinwetlands.org/WWA/Beckyaudittestimony.pdf>
- <sup>515</sup>Personal communication with Dale Simon, WDNR, July 17, 2006.
- <sup>516</sup>Personal communication with Pat Trochlell, WDNR. July 25, 2006.
- <sup>517</sup>See WDNR. 2008. *supra* note 474.
- <sup>518</sup>WAC § NR 299.05(5).
- <sup>519</sup>Personal communication with Erin O'Brien, WWA, July 19, 2006.
- <sup>520</sup>Wis. Stat. § 281.36(2)(b)(1).
- <sup>521</sup>USEPA. National Wetland Condition Assessment. Available from: <http://www.epa.gov/owow/wetlands/survey/>
- <sup>522</sup>Oslund et al., 2008. *supra* note 204.
- <sup>523</sup>Renewable Fuels Association. 2009. Growing innovation, 2009 ethanol industry outlook, February 2009. Available from: <http://www.ethanolrfa.org/industry/outlook/>
- <sup>524</sup>See Claassen, R. and D. Hellerstein. 2008. Conservation Reserve Program acreage to decline; Will benefits also fall? *Amber Waves*, 6(5):6. Available from: <http://www.ers.usda.gov/AmberWaves/November08/PDF/CRPAcreage.pdf>. Also see discussion on impacts in Porder, S., A. Bento., A. Leip, L.A. Martinelli, J. Samseth, T. Simpson. 2009. Quantifying the environmental impacts of biofuel production: Knowns and unknowns, *In* Biofuels: environmental consequences and interactions with changing land use, Proceedings of the Scientific Committee on Problems of the Environment (SCOPE), International Biofuels Project Rapid Assessment, 22-25 September 2008. Gummertsbach, Germany, R.W. Howarth and S. Bringezu, Eds., pp. 227-242. Available from: <http://cip.cornell.edu/biofuels/>
- <sup>525</sup>See U.S. Geological Survey and U.S. Department of Agriculture, Natural Resources Conservation Service, 2009, Federal guidelines, requirements, and procedures for the national Watershed Boundary Dataset: U.S. Geological Survey Techniques and Methods 11-A3, 55 p. Available from: <ftp://ftp-fc.sc.egov.usda.gov/NCGC/products/watershed/hu-standards.pdf>
- <sup>526</sup>Mitsch and Gosselink, 2007. *supra* note 1. See discussion in Chapter 10 and pp. 413-415; also see Field, C.B., D.B. Lobell, H.A. Peters, and N.R. Chiariello. 2007. Feedbacks of terrestrial ecosystems to climate change. *Annual Review of Environment and Resources* 32:1-29.
- <sup>527</sup>Mitsch and Gosselink, 2007. *supra* note 1.
- <sup>528</sup>Altor A.E., and W.J. Mitsch.. 2008. Methane and carbon dioxide dynamics in wetland mesocosms: Effect of hydrology and soils. *Ecological Applications* 18(5):1307-1320.
- <sup>529</sup>Cuiabá Declaration on Wetlands, The state of wetlands and their role in a world of global climate change, 8<sup>th</sup> INTECOL Wetlands Conference, July 20-25, 2008, Cuiabá, Brazil. *Society of Wetland Scientists Bulletin* 25 (3):20-23.
- <sup>530</sup>See Earthjustice, Environment America, Clean Water Action, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, and Southern Environmental Law Center. 2009. *Courting disaster: How the Supreme Court has broken the Clean Water Act and why Congress must fix it*. Available from: [http://www.nwf.org/nwfwecadmin/binaryVault/Courting\\_Disaster\\_4-2009.pdf](http://www.nwf.org/nwfwecadmin/binaryVault/Courting_Disaster_4-2009.pdf)
- <sup>531</sup>The Clean Water Restoration Act (S 787) was introduced in the U.S. Senate on April 2, 2009; See Library of Congress. Available from: <http://thomas.loc.gov/>

All URLs were current as of June 15, 2009.

Great Lakes Regional Center, National Wildlife Federation  
213 West Liberty St., Suite 200, Ann Arbor, MI 48104

