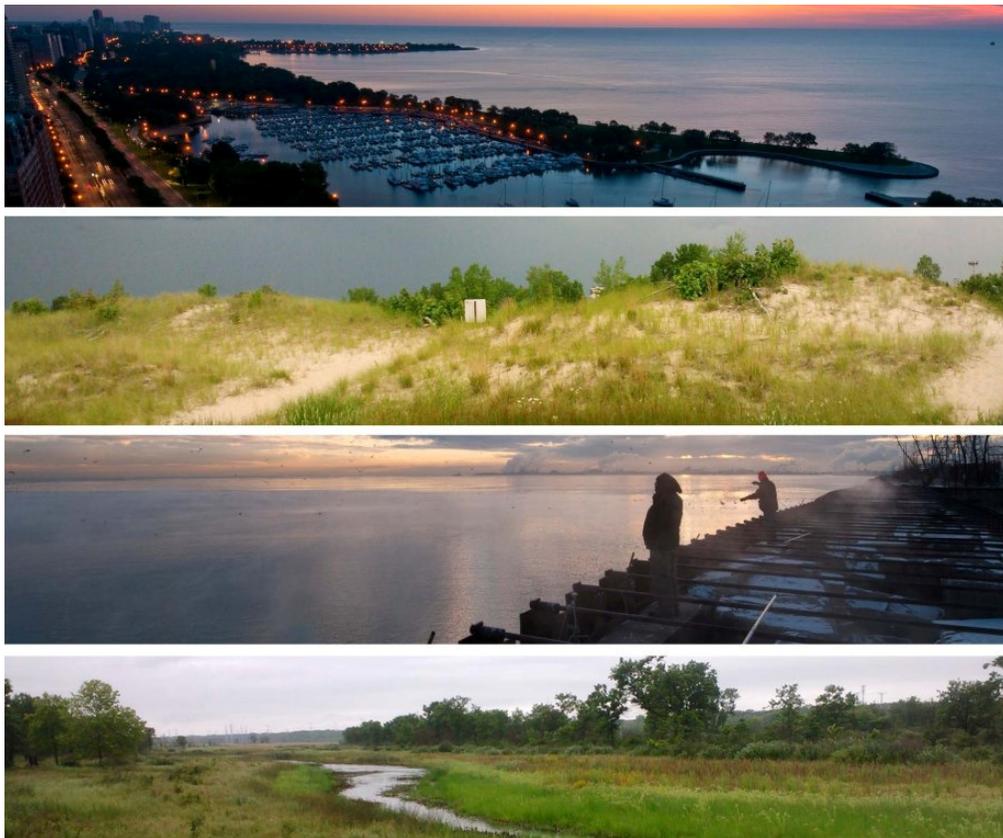


# Illinois Lake Michigan Implementation Plan

## Creating a Vision for the Illinois Coast



**Photo credits:** Lloyd DeGrane, Alliance for the Great Lakes and Duane Ambroz, IDNR

**October 2013**

*The Illinois Lake Michigan Implementation Plan (ILMIP) was developed by the Illinois Department of Natural Resources in partnership with the Alliance for the Great Lakes, Bluestem Communications (formerly Biodiversity Project), Chicago Wilderness, and Environmental Consulting & Technology, Inc.*

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## I. Introduction

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The Illinois Lake Michigan Implementation Plan (ILMIP) is the product of an innovative effort to identify program priorities for the new Illinois Coastal Management Program (ICMP). This project, funded by a grant from the U.S. Environmental Protection Agency (USEPA) used new technologies to gather broad stakeholder input through an open, outreach-driven process to establish program priorities. These ILMIP priorities will help guide overall ICMP program direction for the next 3-5 years and be incorporated into funding priorities for Illinois' Coastal Grants program.

The program priorities stem from the identified priority issues outlined in the program document governing the ICMP and the Lake Michigan Lakewide Management Plan (LaMP), in which the USEPA articulates its guidance for the entire Lake Michigan Basin. A full report of the goals, methodologies, process and complete results will be available in December, 2013. This document summarizes the final results and describes how the information gathered will be used to help guide the course of the ICMP for a 3-5 year period.



*Photo: Ania Ruszaj*



**Figure 1.** Illinois' Coastal Zone boundary, as approved by NOAA in 2012. Major communities partly or wholly within the Coastal Zone are listed.

## II. Illinois Lake Michigan Watersheds

Illinois' Lake Michigan coast includes three distinct watersheds that differ substantially from one another in terms of their physiography, patterns of human use and conservation, and current coastal conservation issues. From north to south, they are the Pike-Root watershed, the Chicago River waterway, and the Little Calumet-Galien watershed (Figure 2).

At the north end of the Illinois coast, the Pike-Root Watershed stretches from southeastern Wisconsin into northern Cook County. In Illinois it covers over 105 square miles and has 32 miles of Lake Michigan shoreline between the Wisconsin Border and Wilmette. The combined effects of the draining of the majority of the wetlands and stream channel manipulation have led to degraded water and habitat quality throughout the Pike-Root Basin. The watershed also includes Illinois' only Great Lakes Area of Concern (AOC) at Waukegan Harbor where industrial PCB contamination occurred and is being addressed. Despite these issues, the Pike-Root watershed includes a significant amount of high-quality natural habitat, anchored by 4,160-acres at Illinois Beach State Park. With 6.5 miles of natural shoreline, the park hosts a Nature Preserve, an extensive dune and swale system, and the Dead River, a higher-quality stream system. Numerous rare species and examples of high-quality natural communities occur here. South of Waukegan, the Lake Michigan shoreline of this watershed includes numerous ravines, some with significant natural areas supporting rare species.

The central section of Illinois' coast includes areas in the basin of the Chicago River in downtown Chicago which once drained into Lake Michigan. With the construction of several channels and control structures in the early 20<sup>th</sup> Century, the river was reversed and now draws Lake Michigan water to flow into the Des Plaines River, a part of the Mississippi River basin. Because of this major change, the land area of the Coastal Zone here is limited to narrow sections bordering Lake Michigan, downstream segments of the Chicago River including parts of both North and South branches, and the North Shore Channel. The total area of this part of the Coastal Zone is 25 square miles, with approximately 29 miles of Lake Michigan lakeshore. While



**Figure 2.** The major watersheds of the Illinois Lake Michigan coast. By comparing this map to Figure 1, it is evident that only a small portion of the Chicago River watershed is included within the Coastal Zone boundary.

87% of the land is urban, significant habitat remains in parkland along the lakeshore, including important stopover sites for migratory songbirds.

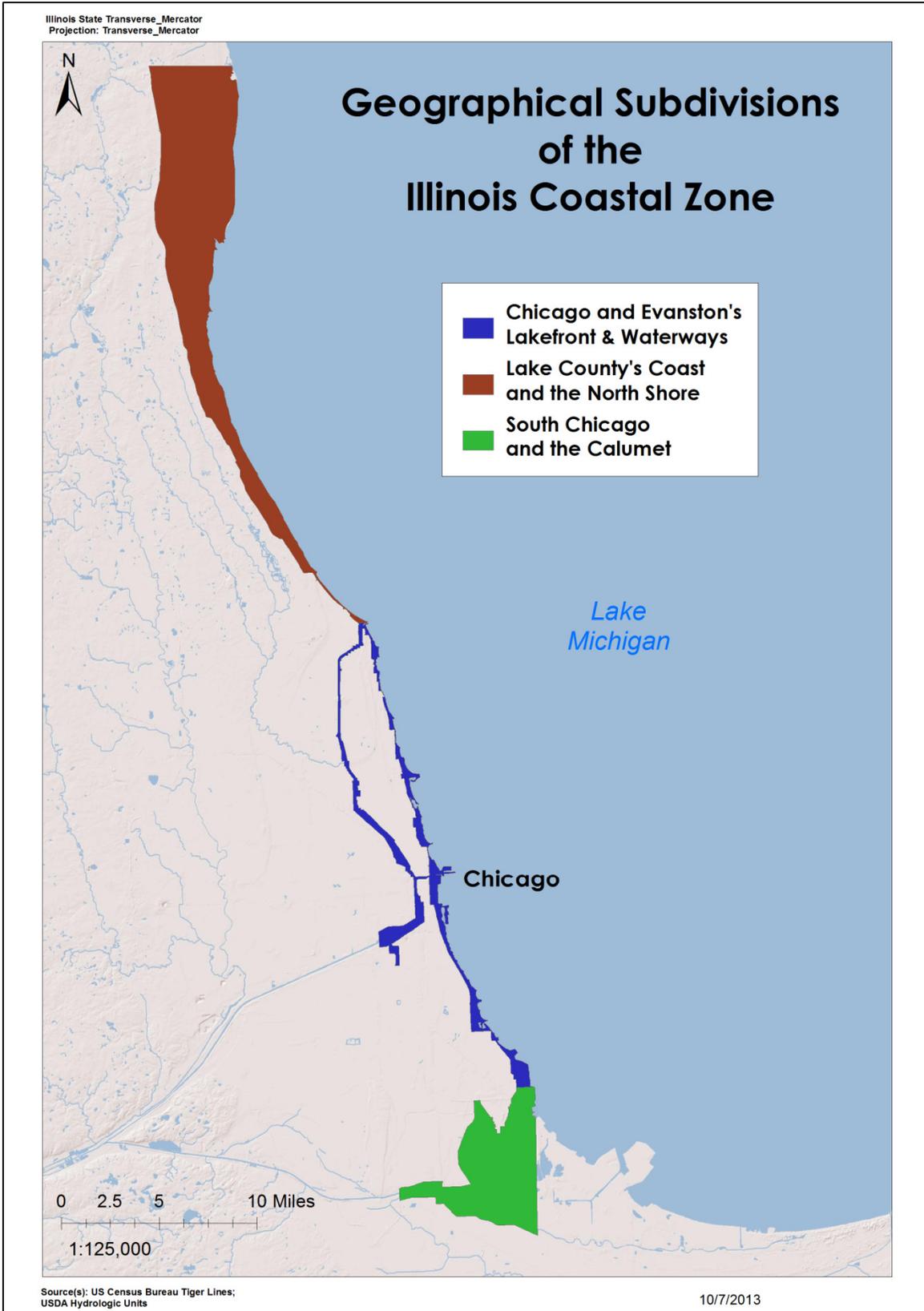
The southernmost part of Illinois' Coastal Zone includes the Calumet River (part of the Little Calumet-Galien watershed), which was also heavily modified and reversed as part of the Chicago Area Waterway System in the early 20<sup>th</sup> Century. This watershed includes the modified remnants of two large natural lakes that once drained to Lake Michigan - Lake Calumet and Wolf Lake - and slightly more than two miles of Lake Michigan shoreline. Pre-industrial land cover included a complex system of low sand dune ridges running parallel to the Lake Michigan shoreline separated by wetland swales, sheltering diverse plants and wildlife. This area was heavily industrialized, with significant acreage of former industrial land now abandoned, leaving numerous brownfield sites. Large scale dumping of slag from the steel industry altered and destroyed many wetland areas and significantly altered local hydrology. However many important natural lands have survived, and others have been restored, sheltering regional biodiversity hotspots providing important habitat for wetland species, particularly birds. Due to the original topography with extensive wetlands (5% of the land area) and subsequent changes, flooding and non-point pollution are particularly significant here.

The differences among the three major sections of the Illinois Coastal Zone have led us to organize our planning around these geographic designations, in addition to considering issues at the level of the full Coastal Zone (Figure 3). This will allow us to better target strategies, partnerships and grants to the local priorities in each area. For example, while all three areas retain significant remnant coastal habitats, the types of areas and their management needs are distinct. The Pike-Root area includes large, high-



*Hegewisch Marsh, Chicago*  
**Photo: IDNR**

quality natural communities where management for diverse native vegetation is needed. In the central area of the Chicago coast, habitat areas are more modest and interspersed with non-native park plantings. Enhancing shoreline and riverfront parks for migratory birds will be a key focus. In the Calumet region, the focus will extend to wetland management techniques to improve hydrology at heavily modified sites to restore marsh types needed by breeding birds.



**Figure 3.** Geographic subdivisions of the Illinois Coastal Zone used in ILMIP.

### III. Foundations of ILMIP

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Lake Michigan and the land within the Illinois Coastal Zone are rich in natural and cultural resources and have been the focus of many planning efforts spanning decades. Foremost of these in relation to this implementation plan are the Lake Michigan LaMP and the ICMP Program Document. The Lake Michigan LaMP is a vision and status report on the health of the Lake developed by the USEPA. It was created and is regularly updated through a collaborative process, and has been organized into a series of goals which envision a healthier future for Lake Michigan. These goals were considered in developing the ICMP Program Document, completed in 2011 to describe the work that ICMP would undertake.

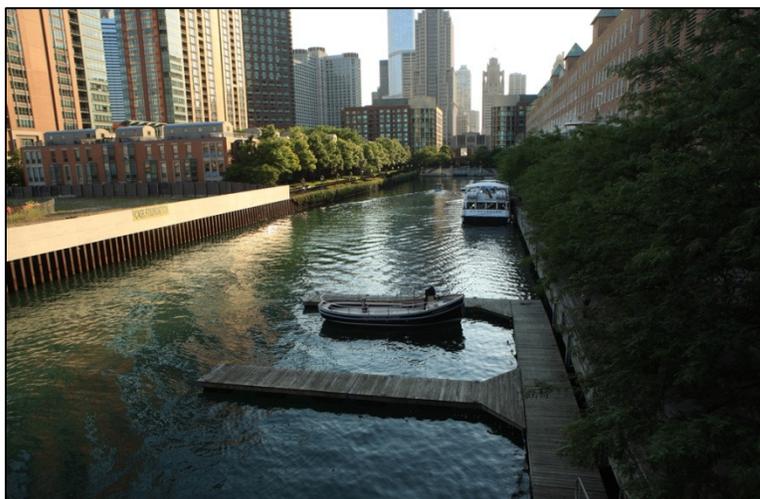
#### ILMIP Issue Areas

The ICMP Program Document identified ten main priority issue areas listed below, which are the foundation for program implementation. Several of these issue areas overlap with priorities from the Lake Michigan LaMP and are noted below.

***Invasive Species.*** Long term sustainable solutions to terrestrial and aquatic invasive species are necessary to restore and maintain the health of coastal ecosystems.

Prevention, monitoring, control, and impact mitigation are essential components of a multi-pronged approach to this challenging issue.

***Habitat, Ecosystems and Natural Area Restoration.*** The Illinois Coastal Zone contains a diverse collection of habitats with a wide range of restoration and management needs. Beaches, dune and swale communities, bluffs, ravines, forest fragments, wetlands, riparian corridors and brownfields all present management challenges. Sites which were singled out for attention in the program document include the undeveloped portions of shoreline in Cook and Lake Counties immediately north of Chicago to the Wisconsin state line, the Chicago River, Lake Calumet, the Little Calumet River, and nearby wetlands. The Lake Michigan LaMP expresses a goal that encapsulates this issue, that all habitats are healthy, naturally diverse, and sufficient to sustain viable biological communities.



*Chicago River, Chicago*

**Photo:** IDNR

**Area of Concern (AOC).** Waukegan Harbor is the only designated AOC in Illinois. Six “beneficial use impairments” were originally identified for the Waukegan AOC. The impairments designations for beach closings and loss of fish and wildlife habitat have been removed, leaving four impairments requiring additional action. These include restrictions on fish and wildlife consumption, benthos degradation, restrictions on dredging (removal request pending), and degradation of phytoplankton populations.

**Persistent Bio-Accumulative Toxins.** Toxic issues in Northeastern Illinois are generally legacy issues from the region’s industrial past. They are mostly well-documented and tend to be concentrated in the river sediments, brownfields, and Superfund sites. This issue area is related to the LaMP goal to eliminate lakewide fish consumption advisories due to toxic contaminants.

**Sustainable Development.** The Illinois coast is primarily urban, with the few exceptions mentioned previously. Sustainable development strategies can help mitigate and adapt to climate change, and increase resilience of coastal communities, structures and resources.

**Non-Point Source Pollution.**

Non-point source pollution in Illinois is primarily related to stormwater, which is managed, treated, and ultimately discharged away from the Lake Michigan Basin. This issue area is connected to the LaMP goal to ensure that Lake Michigan beaches are open at least 90% of the time, because beach closures are often related to stormwater runoff.



*Canada Geese at industrial site.*

**Photo:** IDNR

**Public Access and Recreation.**

Illinois’ shoreline is increasingly used for recreation at unprecedented levels. The demands for public access to the lake and for recreation resources have outstripped the supply, and the needs are expected to continue to grow. In the LaMP, this issue area is covered by the goal that public access to open space, shoreline, and natural areas is abundant and provides enhanced opportunities for human interaction with the Lake Michigan ecosystem.

**Economic Development.** Our coastal communities are essential components of a strong Illinois economy, and coastal resources support significant tourism and economic uses. Wise, appropriate and sustainable use of coastal resources can improve local and regional economies.



*Rowing, North Shore Channel.*  
**Photo:** IDNR

**Priority Rivers, Lakes and Harbors.** The Coastal Zone boundary includes the North Shore Channel and parts of the Chicago River and Calumet River. There are also significant connected lakes in the Calumet region along with many economically important harbors throughout the Coastal Zone. Public access, habitat connectivity, water quality, and rehabilitation of contamination at these sites are important components of the ICMP.

**Climate Change.** Climate change will likely influence and be influenced by all other issues. However, through the stakeholder engagement process, it was decided that climate change will have such a major influence on the Lake Michigan coast that it merits separate emphasis. The focus is on helping human and natural communities reduce risks exacerbated by climate change, and to prepare for and adapt to anticipated changes.

## IV. Methodology

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### Overview

The process that led to the development of the Coastal Management Program Implementation Priorities was a collaborative effort between ICMP and a range of partners and stakeholders. The partners used previously-developed plans for the coastal region to gather background information. That information was the basis for development of “Issue Papers” that detailed the potential outcomes and objectives for ICMP’s



*Photo: Diane Banta*

ten priority issue areas. These Issue Papers were reviewed by topic experts and then used for an extensive stakeholder prioritization process using an online engagement website called MindMixer. This online tool allowed a broad group of stakeholders to provide input and prioritize objectives specific to the distinct geographies of the Coastal Zone. The ILMIP team also used wiki technology to gather and store plan content, background information and results of the process. The USEPA Watershed Central Wiki and the MindMixer technologies ensured that the prioritization and plan development processes remained open, democratic and transparent.

### Project Development and Partnership Structure

The ILMIP project began in October 2011 with the first meeting of the Lead Partners group. This group consisted of the following organizations: ICMP staff, the Alliance for the Great Lakes (the Alliance), Biodiversity Project, Chicago Wilderness (CW) and Environmental Consulting & Technology Inc. (ECT). This group met monthly throughout the process to assign tasks, share work products, report back findings, and keep the project moving. The Lead Partners recruited an Advisory Working Group (AWG) of approximately forty members, with three co-chairs of the group, one from each of the watersheds. The co-chairs were also invited to participate in Lead Partner meetings to provide geographic representation and guidance to assure that all watersheds would be adequately reflected in the plan development.

Lead Partners, with help from the AWG, identified the major issue areas that would be treated in the ILMIP. As part of this task, we evaluated eleven resource plans and extracted

recommendations related to coastal issues. We also invited stakeholders and AWG members to participate in a survey which focused on collecting project information and gauging opinions on the most pressing issues in the Coastal Zone. Survey results and resource plan findings were incorporated into issue papers which became the foundation of the prioritization process, and were shared on the wiki.

## Issue Papers

Lead Partners used the information from planning documents, the wiki and the survey to develop outcomes, objectives, and strategies for each of the ten Priority Issues (described earlier). For each Priority Issue, the desired outcomes were broad, overarching goals; objectives were more narrowly defined to contribute to meeting the outcomes; and potential strategies were project-level actions which could be taken to achieve the objectives. Draft Issue Papers were reviewed by subject matter experts and additional input was solicited from the AWG at a workshop. The Issue Papers were then further refined and revised to become the main contextual information for the ILMIP. The final Issue Papers are available on the wiki<sup>1</sup>.

## Prioritization

The Lead Partners decided that prioritization of the issues should occur at the level of Issue Paper objectives and that it should be specific to the different geographies within the coastal zone. Prioritization of objectives was performed via the online engagement website powered by MindMixer, at [www.IllinoisCoastalPriorities.org](http://www.IllinoisCoastalPriorities.org).

Four geography-based sections were set up on the site (Figures 3 and 4): “Throughout the Coastal Zone;” “Lake County’s Coast and North Shore” (Pike-Root watershed); “Chicago and Evanston’s Lakefront and Waterways” (Chicago River watershed included in the Coastal Zone); and “South Chicago and Calumet” (Calumet River watershed in the Coastal Zone). Each geographic section contained a list of all coastal zone Priority Issues. Selecting a Priority Issue brought the user to a list of objectives originally identified in the Issue Papers, and allowed stakeholders to vote on which objectives should be most important by assigning a point value to each objective (0 to 4 points; with 0 being neutral and 4 being the highest and therefore most important). Engagement with content from the ten Priority Issues was staggered over a 3 month period, and participants were sent emails when new opportunities were added to the website. Analysis of results included tallying vote sums for each Priority Issue in each geographic section to obtain a score for degree of support and analyzing the results for interest level. A second round of MindMixer questions was deployed to further refine and confirm the initial results and to gather additional priority interests in particular focus areas.

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<sup>1</sup> [https://wiki.epa.gov/watershed2/index.php/Illinois\\_Lake\\_Michigan\\_Priority\\_Issues](https://wiki.epa.gov/watershed2/index.php/Illinois_Lake_Michigan_Priority_Issues)

## V. Stakeholder-Identified Priorities by Geography

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For each geographic section of the Coastal Zone (Figure 3), the top ILMIP objectives from across the ten issue areas were ranked according to the vote scores of public participants. Similar, related objectives were combined or synthesized to develop a concise set of top objectives for each section. Based on natural breaks among the vote scores, a set of top priorities and slightly lower-scoring set of secondary priorities were designated.

### Throughout the Coastal Zone

#### Top Priorities

- Restore and improve riparian areas, lakes and streams as habitat for birds and wildlife, including expanding protection and restoration of nearshore aquatic habitat.
- Use green infrastructure and other strategies to manage stormwater and reduce runoff.
- Improve and coordinate regional collaboration on invasive species management to control terrestrial and aquatic invasive species and improve ecological conditions.

#### Secondary Priorities

- Ensure habitat needs for safe passage of aerial migrants.
- Prevent bio-accumulative toxins from entering waterways, especially recreational areas.

### Lake County and the North Shore

#### Top Priorities

- Improve the connectivity among core areas of natural lands.
- Increase recreational access to waterways and beaches.
- Link water and land-based trails and facilities.

#### Secondary Priorities

- Coordinate management of natural lands, using targeted restoration to improve ecological conditions.
- Restore and improve riparian areas, lakes and streams as habitat for birds and wildlife, including expanding protection and restoration of nearshore aquatic habitat.
- Ensure habitat needs for safe passage of aerial migrants.
- Promote and improve diverse recreational opportunities.

## Waukegan AOC

The Waukegan AOC includes a limited area within the “Lake County and North Shore” region of the coast. Because of high interest in the AOC and very specific issues there, we looked at priorities for the AOC separately from the rest of the northern region.

### Top Priorities

- Maintain and improve terrestrial habitat for native plants and animals.
- Improve beach health and reduce beach closures.
- Reduce impacts of contaminants to humans and wildlife.

## Chicago and Evanston Region

### Top Priorities

- Improve habitat value of urbanized areas including neighborhoods.
- Restore and improve riparian areas, lakes and streams as habitat for birds and wildlife, including expanding protection and restoration of nearshore aquatic habitat.
- Use green infrastructure and other strategies to:
  - a. manage stormwater
  - b. reduce runoff volumes
  - c. reduce frequency of untreated sewage release

### Secondary Priorities

- Improve and coordinate regional collaboration on invasive species management to control terrestrial and aquatic invasive species and improve ecological conditions.
- Help make beach and water conditions safe for recreational use.
- Ensure that waterways are no dispersal vectors for aquatic invasive species – including supporting development of environmentally responsible shipping.

## South Chicago and the Calumet Region

### Top Priorities

- Improve hydrologic regimes to more natural conditions.
- Restore and improve riparian areas, lakes and streams as habitat for birds and wildlife, including expanding protection and restoration of nearshore aquatic habitat.
- Protect and increase interconnected open space, especially along priority waterways.
- Support rehabilitation and redevelopment of brownfield and old industrial sites.

### **Secondary Priorities**

- Improve and coordinate regional collaboration on invasive species management to control terrestrial and aquatic invasive species and improve ecological conditions.
- Ensure habitat needs for safe passage of aerial migrants.
- Support recreational use of waterways and increase number of public access points.
- Make water conditions safe for recreational use.

## VI. Conclusions and Next Steps

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The ILMIP planning process has provided ICMP with a detailed, comprehensive set of geographically-based objectives for improving and maintaining the Illinois coast of Lake Michigan. This planning process has met our goal for identifying a nested set of objectives that correspond to the different watersheds and issues at different scales in the Illinois Coastal Zone. It has also provided significant investment and understanding of partners and stakeholders in our region in the development of the plan.

### Putting the Results to Work

The results of the ILMIP process will fundamentally affect the way that ICMP allocates its resources through deployment of personnel and funding over the next five years. All of the topics identified by experts and described in our Issue Papers are relevant to ICMP's goals and mission, and the program may invest resources in any of these areas as opportunities and needs arise. However, the prioritization process identified a set of these issues with particular resonance for stakeholders within the Illinois Coastal Zone. ICMP plans to focus staff time and other resources on the top prioritized objectives for the respective watersheds and throughout the coastal zone. We will seek ways to actively pursue these issues in our annual work plans and look for opportunities to leverage our resources in these areas. Resource allocation will depend upon many factors including ILMIP priorities, and input from ICMP's Technical Advisory Group and Citizen's Advisory Group.

In addition, stakeholder-identified priorities will directly contribute to the ranking of projects submitted for funding through the ICMP Grant Program. Project proposals that meet the ILMIP priority objectives for their specific watershed or the entire coastal zone will be given additional points in the grant selection process. ICMP will also pursue other additional funding and resource opportunities that will help achieve those objectives, including grants from USEPA, USFWS, and other sources.

Expert recommendations, professional judgment, and emerging needs and opportunities – in addition to the stakeholder input we received through the ILMIP process – will also play a role in both resource and staff time allocations. Some coastal issues ranked poorly but are known to be extremely important for improving coastal natural resources. For example, non-point source pollution topics did not score well for the South Chicago area of the Coastal Zone compared to other topic areas. However, stormwater and associated flooding issues are a major problem in this region, and ICMP is well-positioned to assist in efforts to expand and promote the use of green infrastructure to reduce runoff and flooding problems. ICMP will continue to focus time and attention on this issue and others of similar local significance.

## ICMP Grant Program

One of the major activities of ICMP will be the administration of an annual grant program to allocate NOAA funding for Illinois Coastal Zone priorities. While all issues identified in ILMIP will be potential targets for funding, ICMP will focus a portion of our grant funds on the priorities identified here through our scoring system and by listing priorities in our requests for proposals.

As part of the ILMIP process, ICMP will also track the amount of funding awarded to various ILMIP priority issues and objectives as a means of monitoring the balance of grants among the range of issues identified. This will be one aspect of tracking the program's effectiveness and will feed into annual development of the RFPs as well as work plans.

## Future Revisions

The ICMP will be responsible for continuing to update and improve the ILMIP in order to tailor the Coastal Program to the shifting needs of the Illinois Coast. Updating will occur on a five-year cycle to revisit the range of issues; reassess coastal resources and needs; identify what significant progress has been made; and determine what issues may need increased focus. Based on our positive experience with MindMixer, it



*Powderhorn Lake.*

**Photo:** IDNR

is likely that we will return to that online application as a fundamental tool for the next revision. ICMP will also assess what other types of public participation tools may have become available in the interim to improve our assessment, outreach, and prioritization process. In addition, the ICMP will regularly assess new or emerging issues and identify new partners and opportunities for collaboration.

Based on the outcomes of ILMIP, the Coastal Program may also delve more deeply into some of the higher-priority areas identified in this plan over the next few years. Habitat issues were particularly important to our stakeholders, and one of the major habitat issues in our area is the loss of wetlands. Examining wetland restoration, preservation and management opportunities may require additional analysis before the next five-year update. Other issues that may require

additional assessment include coastal hazards such as flooding and runoff issues and associated sedimentation, as well as issues related to coastal access.

ICMP will continue to engage with coastal stakeholders and communities along the Lake Michigan shoreline to ensure that the program efficiently and effectively focuses staff and funding resources on local and regional needs. ICMP will also continue to consult with the broader scientific and conservation community to provide a firm scientific grounding for the program. Through these mechanisms and through ongoing periodic revisions, ILMIP will continue as a relevant, responsive, evolving framework for improving Lake Michigan coastal conditions in Illinois. In the complex landscape of municipalities, resources, organizations and issues, ICMP will seek out opportunities to bring coordination, strategic thinking, added value and useful tools and knowledge to the range of coastal issues and challenges that face the region. ICMP provides the stakeholder-driven basis for building a Coastal Program that will best suit the needs of the communities and resources along the magnificent 63 miles of the Illinois Coast.