




Illinois Coastal Nonpoint Pollution Control Program

Prepared by the Illinois Department of Natural Resources
in partnership with the Illinois Environmental Protection Agency

Draft for Public Review






Contents

Glossary

ACEP	Agricultural Conservation Easement Program
ALMP	Ambient Lake Monitoring Program
AWG	Advisory Working Group
AWQMN	Ambient Water Quality Monitoring Program
BMP	Best Management Practice
BUI	Beneficial Use Impairment
CAG	Coastal Advisory Group
CAWS	Chicago Area Waterway System
CDOT	Chicago Department of Transportation
CERP	Comprehensive Environmental Review Process
CFR	Code of Federal Regulations
CMAP	Chicago Metropolitan Agency for Planning
CNPCP	Coastal Nonpoint Pollution Control Program
CRCW	Chicago River Controlling Works
CSC	Cal-Sag Channel
CSO	Combined Sewer Overflow
CTAP	Critical Trends Assessment Program
CVA	Clean Vessel Act
CWA	Clean Water Act
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
CZMA	Coastal Zone Management Act
DDT	Dichloro-diphenyl-trichloroethane
ESC	Erosion and Sediment Control
FCMP	Fish Contaminant Monitoring Program

FRSS Facility-Related Stream Surveys

GI Green Infrastructure

GIV Green Infrastructure Vision

GLRI Great Lakes Restoration Initiative

HUC Hydrologic Unit Code

IAC Illinois Administrative Code

IBS Intensive Basin Survey

ICLP Illinois Clean Lakes Program

ICMP Illinois Coastal Management Program

IDNR Illinois Department of Natural Resources

IDOA Illinois Department of Agriculture

IDOT Illinois Department of Transportation

IDPH Illinois Department of Public Health

IEMA Illinois Emergency Management Agency

IEPA Illinois Environmental Protection Agency

IFDA Illinois Forestry Development Act

IGIG Illinois Green Infrastructure Grant Program for Stormwater Management

IISG Illinois-Indiana Sea Grant

ILCS Illinois Compiled Statutes

ILMIP Illinois Lake Michigan Implementation Plan

INPC Illinois Nature Preserves Commission

INSMP Illinois Nonpoint Source Management Program

IPCB Illinois Pollution Control Board

IUM Illinois Urban Manual

LaMP Lakewide Management Plan

LCDOT Lake County Department of Transportation

LCSMC Lake County Stormwater Management Commission

LMBS Lake Michigan Biological Station

LMMP Lake Michigan Monitoring Program

LTA Local Technical Assistance

LUST Leaking Underground Storage Units

MOA Memorandum of Agreement

MS4 Municipal Separate Storm Sewer Systems

MSD Marine Sanitation Device

MWRD Metropolitan Water Reclamation District of Greater Chicago

NBCR North Branch Chicago River

NFR No Further Remediation

NIIPP Northeast Illinois Invasive Plant Partnership

NOAA National Oceanic and Atmospheric Administration

NOI Notice of Intent

NPDES National Pollutant Discharge Elimination System

NPL National Priorities List

NPS Nonpoint Source

NRCS Natural Resources Conservation Service

NSC North Shore Channel

NSSD North Shore Sanitary District

OSDS On-Site Disposal System

OSFM Office of the State Fire Marshal

OSHA Occupational Safety and Health Act

OSLAD Open Space Lands Acquisition and Development

OWR Illinois Department of Natural Resources Office of Water Resources

PARC Park and Recreational Facility Construction Act

PCBs Polychlorinated biphenyls

QHEI Qualitative Habitat Evaluation Index

RCRA Federal Resource Conservation and Recovery Act

RLSA Rivers Lakes and Streams Act

SAV Submerged Aquatic Vegetation

SBCR South Branch of the Chicago River

SDC Sanitary District of Chicago

SHAM Stream Habitat Assessment Methodology

SPCC Spill Prevention, Control, and Countermeasures

SRP Site Remediation Program

SSMMA South Suburban Mayors and Managers Association

SWAP Source Water Assessment and Protection Program

SWPPP Stormwater Pollution Prevention Plan

TAC Technical Advisory Committee

TMDL Total Maximum Daily Load

TRM Technical Reference Manual

TSS Total Suspended Solid

USACE US Army Corps of Engineers

USC US Code

USCG US Coast Guard

USDA United States Department of Agriculture

USEPA Us Environmental Protection Agency

USFWS US Fish and Wildlife Service

VFS Vegetated Filter Strip

VLMP Volunteer Lake Monitoring Program

VTS Vegetated Treatment System

WBD Watershed Boundary Dataset

WDO Lake County Watershed Development Ordinance

WHCAG Waukegan Harbor Citizens Advisory Group

WMO Cook County Watershed Management Ordinance

WOUS Waters of the United States

Overview

In 1990, Congress passed the Coastal Zone Act Reauthorization Amendments (CZARA) to the Coastal Zone Management Act (CZMA). Section 6217 of the CZARA addresses nonpoint source pollution problems in coastal waters. The amendments require state programs such as the Illinois Coastal Management Program (ICMP), which are funded through CZMA, to develop programs to implement measures that will control nonpoint source pollution, or 'management measures'. The National Oceanic and Atmospheric Administration (NOAA) administers CZMA and CZARA.

As part of the federal Coastal Zone Management program, the Illinois Coastal Management Program (ICMP) is now developing the program to reduce pollution of the state's coastal waters from nonpoint sources. Nonpoint pollution stems from a wide range of dispersed sources that are challenging to manage, such as runoff from roads, construction sites, eroding banks and numerous other types of diffuse pollution.

NPS pollution management measures must conform to the federal rules developed under the CZARA. The Illinois Department of Natural Resources (IDNR) houses the ICMP and is the lead at the state level to implement the program. Section 6217 of the CZARA requires that the geographic scope of each coastal nonpoint pollution program must be sufficient to ensure implementation of management measures to "restore and protect coastal waters." NOAA, in consultation with the US Environmental Protection Agency (USEPA), is required under this federal law to review and approve each state's nonpoint source pollution program.

This document is intended to define the State of Illinois' Coastal Nonpoint Pollution Control Program (CNPCP) and describes how nonpoint source pollution (NPS) controls will be implemented in Illinois' coastal zone (defined in Figure 1-1). In Chapter 1, we describe the authority background for the program including the proposed geographic area in which it will operate; the existing regulatory authorities underlying the program; and partner agencies that support the program. In Chapters 2 through 7 we address each of the major sources of nonpoint source pollution, such as agriculture, urban sources, etc. Each chapter considers the nature of the impact of that source in the Illinois coastal area and identifies existing management measures in place to control that pollution source. Chapter 8 examines the coastal waters identified as impaired and whether additional management measures are needed. Chapter 9 reports the outcomes of our engagement process with key stakeholders. This process was charged with identifying gaps in the existing management measures and with proposing additional steps to meet those needs. Once this program is approved by NOAA and USEPA, ICMP will be responsible for developing an implementation plan laying out specifics for carrying out the proposed actions in this document, particularly in Chapter 9.

Figure 1-1 Coastal Zone Map showing the Illinois Coastal Zone Boundary

Chapter 1. Introduction & Program Components

1.1. Setting

1.1.1. Geography

The Illinois coast extends 63 miles (101 km) along the southern-most reach of the western shore of Lake Michigan (Figure 1-1). The glacial processes that shaped the Great Lakes Region created the three major landforms of the Illinois coast. These include the Zion beach-ridge plain extending from the Wisconsin border south to North Chicago; the bluff coast from North Chicago to Winnetka where Lake Michigan meets steep glacial moraines dissected by ravines; and the lower-lying Chicago Lakeplain that was once submerged under earlier stages of Lake Michigan. Near the western limits of Chicago is a low-lying area that was uniquely useful as a passage between the Great Lakes and the Mississippi River basins. This passage has since been developed as part of the Chicago Sanitary and Ship Canal and was a primary driver for economic development of the region in the 20th century. The development of this canal drastically altered the flow of water in Illinois' section of the Lake Michigan Basin, effectively shifting the flow of most of the Chicago River watershed and parts of the Calumet River watershed into the Mississippi River Basin.

Land use/land cover in Illinois' coastal zone in the 21st century is largely developed for various urban uses: residential, commercial, industrial and transportation, with a fair proportion set-aside for recreation and preserves. A very small portion of the coastal zone is used for forestry and agriculture. Table 1-1 summarizes land use/land cover for the coastal zone, as taken from 2005 Chicago Metropolitan Agency for Planning (CMAP) Land Use Data. The trend in land use in the coastal zone involves conversion of remaining cropland to residential, industrial, commercial and open space (parks, forest preserves). The 2005 data shows 1.78% agricultural land, but according to the USDA's National Agricultural Statistics Service, cropland constitutes less than 0.7% of the coastal zone today.

Table 1-1 Land Use in the Illinois Coastal Zone

Anderson level I summary

Land Cover	Acres	Percentage
Urban	37227.1	60.15%
Agriculture	1098.8	1.78%
Open Space	12115.2	19.58%
Forest/Grassland/Wetland	8268.6	13.36%
Water *	3193.0	5.16%

Anderson level II summary

Land Cover	Acres	Percentage
Urban: Residential	21178.2	34.22%
Urban: Commercial	2920.2	4.72%
Urban: Civic	3579.1	5.78%
Urban: Industrial	4477.5	7.23%

Urban: Infrastructure	5071.9	8.20%
Agriculture: Crops	881.1	1.42%
Agriculture: Nursery, Greenhouse, Orchard	173.3	0.28%
Agriculture: Equestrian	44.3	0.07%
Open Space: Recreation	4068.3	6.57%
Open Space: Golf course	2118.2	3.42%
Open Space: Conservation	5646.8	9.12%
Open Space: Corridors	277.8	0.45%
Open Space: Other	4.1	0.01%
Vacant Forest & Grassland, Wetland	4758.9	7.69%
Construction activity	508.9	0.82%
Other vacant (abandoned buildings and rubble lots)	3000.8	4.85%
Water: Rivers and canals	1453.4	2.35%
Water: Lakes and Reservoirs *	1739.5	2.81%

* Lake Michigan waters not included in the figures on this page

Data and classifications from 2005 CMAP Land Use Data, Lake Michigan omitted (as it was a coastline buffer and not inclusive of the entire state boundary).

The river and streams in the coastal zone, particularly in Cook County, have been dramatically altered for flood control, wastewater management, and transportation purposes. The Chicago Area Waterway System (CAWS) includes the North Shore Channel (NSC), North Branch Chicago River (NBCR), Main Branch Chicago River, South Branch Chicago River (SBCR), Little Calumet River, and the Grand Calumet River. These Inland Waterway corridors intercept the lakeshore coastal boundary at three locations: 1) in Wilmette along Sheridan Road near Wilmette Harbor; 2) in the Chicago downtown area where Michigan Avenue crosses the Chicago River; and 3) in the Calumet area in far southeast Chicago and in Burnham.

The Coastal Zone is divided into 16 subwatersheds known as 12 digit HUCs, standing for Hydrologic Unit Codes as defined by the U.S. Geologic Survey (Table 1-2, Figure 1-2[1]). These subwatersheds are not fully contained within the Coastal Zone Boundary for a variety of reasons. Several of them cross state lines and so are located partly in Wisconsin or Indiana. All of the subwatersheds in Cook County have had their flow modified due to the creation of the CAWS (noted earlier), and so the boundary reflects only limited segments of the subwatershed with direct influence on Lake Michigan.

[1] Figure 2 and all following map figures are included in Appendix A. The long, narrow shape of the Illinois coastal zone makes it difficult to legibly show maps containing fine detail on a single page. Maps including this level of detail are split into six standardized sections and are collected in an appendix to facilitate reading of the document.

Table 1-2 Acreage of each HUC12 watershed inside the Illinois Coastal Zone Boundary

HUC Code	12-Digit HUC Name	Area Inside Coastal Zone (Acres)	Total Area (Acres)	% Inside Coastal Zone
40400010603	Calumet River-Frontal Lake Michigan	9,509.75	30,664.58	31.0%
40400020501	Waukegan River-Frontal Lake Michigan	29,473.51	31,245.20	94.3%
40400020502	Diversey Harbor-Frontal Lake Michigan	7,962.73	14,977.72	53.2%
40400020503	Oakwoods Cemetery-Frontal Lake Michigan	2,547.28	9,508.19	26.8%
40602000000	Lake Michigan	1,007,196.13	14,372,457.83	7.0%
71200030101	Skokie River	113.16	19,322.20	0.6%
71200030104	North Shore Channel	779.02	14,675.25	5.3%
71200030105	Middle North Branch Chicago River	9.62	18,156.96	0.1%
71200030106	Lower Branch Chicago River	1,355.36	26,982.25	5.0%
71200030107	South Branch Chicago River-Chicago Sanitary and Ship Canal	2,517.81	58,651.84	4.3%
71200030403	Calumet Sag Channel	72.10	22,131.41	0.3%
71200030405	Little Calumet River	109.37	26,779.14	0.4%
71200030407	Grand Calumet River-Little Calumet River	5,881.86	17,178.99	34.2%
71200040104	Jerome Creek-Des Plaines River	360.48	17,782.49	2.0%
71200040301	Sterling Lake-Des Plaines River	446.80	14,857.35	3.0%
71200040302	Bull Creek-Des Plaines River	465.08	32,329.87	1.4%

Data from USDA/NRCS Watershed Boundary Dataset (WBD) HUC12

1.1.2. Precipitation

The average annual total precipitation in Cook County is about 38.65 inches, while in Lake County it is slightly less at 34.36 inches. In Cook County 26.4 inches, or about 68 percent of the total, usually falls in April through October. In Lake County, about 20.57 inches, or 60 percent of the total, usually falls in May through October. Thunderstorms occur on about 38 days each year in both Cook and Lake Counties, and most occur between April and September.

The average seasonal snowfall in Cook County is 32.6 inches. The average seasonal snowfall in Lake County is 37.4 inches. On average, in Cook County approximately 45 days per year have at least 1 inch of snow on the ground while in Lake County, 27 days per year have at least 1 inch of snow on the ground.

1.1.3. Geology

The geologic framework for the Illinois coast began more than 460 million years ago, as marine sediments were deposited that now comprise the regional bedrock of Silurian dolomite. Subsequent deposition of shales and sandstone, provided the more easily erodible strata into which rivers could erode major drainage networks. The valleys associated with some of these ancient rivers guided the pathway for a series of continental ice sheets that advanced, and withdrew, over the past two million

years. These multiple glacial episodes resulted in the erosion of the Lake Michigan basin as well as shaping and reshaping the bedrock surface.

The present landscape is the result of the most recent glacial event, the Wisconsin episode. Glacial ice was receding from the Illinois coastal area about 14,000 years B.P. (before present). After the ice withdrew there was wide fluctuation of water level in the Lake Michigan basin. At its extreme high, lake level was as much as 60 feet (18 m) higher than today, and at its extreme low lake level was as much as262 feet (80 m) lower than today. Not until about 2,500 years B.P. did lake level begin to fluctuate within the seasonal and long-term range that has persisted through historical time.

The geologic history of the coastal area that we see today primarily relates to events of the past 15,000years. This history can be divided into two components of glacial processes and coastal processes.

As glacial ice withdrew from northeastern Illinois, the resulting end moraines provided high ground that acted as a dam to retain a series of elevated water levels within the Lake Michigan basin. The name "Lake Chicago" refers to the lake that formed in the southern part of the Lake Michigan basin between the glacial ice and the end moraines. During these times, lake water drained westward through the Chicago Outlet Valley, which is the prominent Y-shaped erosional valley that cuts through the morainal uplands west of Chicago.

Over the past 5,000 years there were complex coastal changes as both wave-induced deposition and erosion, shaped and reshaped the shore. All of the landscape of the Calumet area was shaped during this time, as declining lake levels and sand deposition formed spits and beach ridges forming high ground between the area's lakes and wetlands. North of Chicago, coastal erosion was dominant along the bluff coast. The historical position of the bluff coast is tens to hundreds of feet landward of where its position was several hundred to a thousand years ago.

1.1.4. Soils

The surficial geology of the region is predominantly depositional moraines, outwash plains, valley trains, filled lake basins, river flood plains, and sand dunes. The dominant material in the Illinois coastal zone is a compact, gray, silty and clayey till. The till may contain discontinuous layers of sand and gravelly sand. This till was deposited by glacial ice during the most recent (Wisconsin) glacial episode. The till is exposed along the coastal bluffs, as well as the material first encountered beneath most of the soils in the area. It also occurs beneath the beach and nearshore sand.

Beach sediments along the Illinois coast are a mix of sand and gravel. The primary source was coastal bluff erosion. Due to a lack of significant sediment supply, many of the beaches along the Chicago lakeshore are constructed beaches, built with placed sand, mined from the lake bottom off the western Indiana coast. Beach renourishment continues in such areas as Illinois Beach State Park with the import of sand from inland sand pits in western Lake County.

1.1.5. Physical Shoreline

Coastal engineering has altered or influenced changes along nearly all 63 miles (101 km) of the Illinois coast. The only remaining shoreline segments free of any shore-protection structures are a three mile (5 km) reach in the South Unit of Illinois Beach State Park, and adjoining shore to the south, as well as a few isolated locations along the bluff.

The most extensive historical shoreline change along the Illinois coast has occurred along the Chicago shoreline. Other areas of major historical shoreline change along the Illinois coast are at the north and south ends of the Zion beach-ridge plain respectively, near North Point Marina and Waukegan Harbor, and the area at and near Lake Calumet.

Shoreline change along the Chicago lakeshore began in 1833 with the entrapment of littoral sand against the north jetty at the Chicago River mouth. By 1869, nearly 70 acres of sand had accumulated had north of the north jetty.

In the late 1800s, there was continued filling to make land in the vicinity of the Chicago River mouth primarily for rail and maritime commerce. There was also growing interest in making new land for lakeshore parks. Chicago has a unique history among coastal cities in the planning and execution of extensive projects to build new shore land and shape the urban shoreline for public use

The building of a park-dominated shoreline required constructing a new shoreline further in the lake, armoring this shoreline to prevent erosion, and building harbors and beaches at select locations. More than 5.5 square miles (14 km_2) of Chicago's lakefront land resulted from the late 19_{th} and early 20_{th} century lakeshore construction. Nearly all of the fill material was sand or clay either mined from the lake bottom or from dune deposits along the Indiana shore. A second generation of lakeshore construction began in the 1990s. This was needed to replace the original generation of timber and stone shore protection with steel sheetpile and reinforced concrete.

North Point Marina is a state-owned and operated, 1500-slip marina on the Lake Michigan shore just south of the Illinois-Wisconsin state line. The marina was constructed between 1987-1989. It is built along a shoreline that has the most severe erosion recorded along the Illinois coast. Shoreline recession has occurred at a long-term average rate of about 10 feet (3 m) per year. Prior to the State of Illinois acquiring this land in the 1970s, private residential property occupied the area.

Contrasting with the net erosion at the north end of the Zion beach-ridge plain near North Point Marina is the net accretion near the south end of the sand plain in the vicinity of Waukegan Harbor. The USACE became involved in constructing a harbor at Waukegan in 1852 and completed a harbor project in the 1880s. The present harbor footprint results from expansion and reconstruction that occurred between 1902 and 1906 and additional improvements built between 1930 and 1932. In 1984, the municipal Waukegan Marina was constructed on the south side of the original harbor complex.

Lake Calumet and the surrounding Calumet area have had substantial shoreline, river line and wetland modification as the landscape of this area was shaped and reshaped for industry, commerce and port facilities. Filling on the perimeter of Lake Calumet has reduced the present (1997) lake area to about 52

percent of what existed in the late 1890s. Filling has occurred on the margins of Wolf Lake, and all of former nearby Hyde Lake has been filled. River engineering has straightened and repositioned segments of the Calumet River. Unlike much of the filling along the Chicago lakefront which used sand and clay, slag from steel mills was a major component in much of the filling in the Calumet area .

The lakeshore municipalities north of Chicago each have municipal parks, and beaches along the shore. Many also have waterworks facilities, several of which are adjacent to parkland. Limited usable land at the base of the bluffs resulted in lake filling for parks or public utilities. These are typically localized shoreline modifications that are no more than a few acres. The following describes the three largest lake fillings north of Chicago.

1.1.6. Chicago Area Waterway System (CAWS)

In the mid-to-late 1800s, the Chicago River served as the main sewer for the city. This contaminated water discharged to Lake Michigan, which was also the source of Chicago's potable water. The engineering solution to this water-quality issue was construction of the Chicago Sanitary and Ship Canal. Under the jurisdiction and management of the Sanitary District of Chicago (SDC), now known as the Metropolitan Water Reclamation District of Greater Chicago (MWRD), this project was completed in 1900. The resulting 28-mile canal links the South Branch Chicago River with the Des Plaines River, a tributary of the Illinois River and part of the Mississippi River basin. The canal provided for commercial river traffic as well as allowing gravity-driven reversed flow in the South Branch Chicago River, and the Main Branch away from Lake Michigan.

The 1900 river diversion had no influence on the dynamics of the North Branch of the Chicago River. Times of low flow on the North Branch limited the movement of sewage in that section of the river. In addition, there was a need to prevent sewage to the lake discharge from communities immediately north of Chicago. In 1910 the SDC completed the North Shore Channel. The channel intercepted combined sewer discharge from Evanston and Wilmette. A sluice gate separated lake and channel water while allowing lake water to be brought into the channel to improve southward flow.

During times when river level was above lake level, the flow direction along the Main Branch could revert to flowing toward the lake. This problem was addressed in the 1930s by building bulkheads and controlling works, in the vicinity of the Chicago River mouth to form a physical barrier between the river and the lake. The Chicago Lock was completed in 1938 to provide navigation to either side of this physical divide. Originally built by the SDC, the Chicago Lock is now operated by the United States Army Corps of Engineers (USACE).

The Calumet Sag (or Cal-Sag) Channel was completed in 1922, linking the Little Calumet River with the Chicago Sanitary and Ship Canal. Widening and other canal improvements occurred in 1965. This canal provides commercial navigation as well as diverting river flow of the Little Calumet River away from Lake Michigan. The physical barrier between Lake Michigan water, and water of the Little Calumet River, is the O'Brien Lock and Dam. The lock and dam, completed in 1965, is a facility of the USACE.

1.1.7. Brownfields

Brownfields are abandoned or under-used industrial and commercial properties with actual or perceived contamination and an active potential for redevelopment. Brownfields exist in most Illinois municipalities and may include former gasoline stations, former dry-cleaners, sites with underground storage tanks, and large manufacturing facilities, among others.

In Illinois, similar to other Great Lakes cities, manufacturing industries established operations on or near the lakes. As the economy shifted after World War II, many firms and businesses left the central city for the suburbs. Older and less efficient operations closed or relocated away from the waterfront, leaving brownfields in their wake. In the northern region of the Illinois coastal zone, manufacturing industries were prevalent in Waukegan, while in the southern portion of the coastal zone the Calumet region was a major manufacturing and steel producing area.

There is no accurate number or complete list of brownfields in Illinois. In 2001, the city of Chicago alone had approximately 2000 brownfield sites comprising an estimated 13 percent of total city land (Great Lakes Commission 2001). In Illinois, sites can be enrolled in a Site Remediation Program (SRP), the state's voluntary cleanup program. There are 740 sites with an "active" status (working towards a No Further Remediation letter) for Cook County and 63 sites for Lake County. In addition, there are 1,931 Leaking Underground Storage Units (LUST) sites in Cook County and 342 LUST sites in Lake County. Not all brownfields are enrolled in the SRP and therefore these numbers do not reflect the total number of brownfields in Lake and Cook counties.

On the federal level, USEPA maintains the National Priorities List (NPL) which lists national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the USEPA in determining which sites warrant further investigation. There are 18 sites listed on the NPL for coastal zone municipalities; one of the sites is located in North Chicago while remaining sites are located either in Chicago or Waukegan. These sites are primarily former manufacturing facilities and waste storage/disposal facilities. They are in various stages of cleanup performed by USEPA under the Superfund program.

1.1.8. Fisheries

Lake and Cook counties have at least 77 species of fish, 16 bivalves, and 12 large crustaceans. The Lake Michigan fish community has undergone many changes in community composition. Historically, lake trout were the top predator in Lake Michigan and supported one of the the largest fishery harvest of the Great Lakes. Yellow perch abundance has fluctuated but late 1980s and early1990s were peak years of yellow perch harvest.

Non-native salmonids have become an integral part of the Lake Michigan fish community and the sport fishery. Pacific salmon and various trout species have been stocked in Lake Michigan since the late 1960s. The purpose of the Pacific salmon introduction was to control alewife population growth and to create a put-grow-take sport fishery. The alewife, a fish native to the Atlantic Ocean first discovered in Lake Michigan in 1949, drastically altered the Lake Michigan food web and negatively impacted native

planktivores. Salmonid stocking in Illinois currently accounts for approximately 7% of the lakewide stockings. The Illinois annual stocking plan, which was revised in 2013, includes 230,000 Chinook salmon, 300,000 coho salmon, 100,000 rainbow trout, and 100,000 brown trout. In addition, 120,000 lake trout are stocked in Illinois waters by U.S. Fish and Wildlife Service. Alewife, rainbow smelt, and bloater chubs are naturally reproducing species in the Lake and comprise most of the food for Lake Michigan salmonids. Naturally occurring populations of largemouth bass, smallmouth bass, sunfish, northern pike, yellow perch, and members of the catfish family exist in nearshore areas of Lake Michigan.

Lake trout were extirpated from Lake Michigan by the 1950s due to overharvest, habitat degradation, and predation by the invasive sea lamprey. Stocking of lake trout began in 1965. The purposes for stocking these fish are to re-establish self sustaining lake trout populations and provide sport fishing opportunities. Rehabilitation has involved control of sea lamprey, determination of appropriate strains of lake trout since the native strains were lost, and management of harvest and impairments to fish habitat.

Historically, yellow perch abundance in the Illinois waters of Lake Michigan has varied greatly. Years of high harvest levels in the past have been countered more recently by years of poor harvests and low population levels. The relatively recent additions of aquatic invasive species, including zebra and quagga mussels and round goby, to Lake Michigan have altered the environment in which yellow perch thrived in the past. Additionally, the Eurasian ruffe was detected in northern Lake Michigan in 2002; this invasive species has displaced yellow perch in other waters (e.g., Duluth Harbor, Lake Superior) where it has become established. These potential changes require that managers continue to monitor yellow perch population levels and assess protective measures to sustain the population.

Several sport and non-sport fish species inhabit Illinois harbors and nearshore areas of Lake Michigan in summer. Concurrent with the decline of the yellow perch fishery over the past decade, there has been an increasing demand for sportfishing opportunities in nearshore areas and an increased interest in the nearshore sport fishery, especially for black bass.

Many aquatic species have disappeared altogether from the area in recent decades, due to polluted water, development, competition from aggressive non-natives, and other factors. The Iowa darter, which inhabits vegetated lakes and pools of quiet streams, still occurs in the Lake Michigan basin. However, the species was once widespread across the northern half of Illinois, but now it is found only in extreme northern Illinois and in one location in central Illinois. The State-threatened banded killifish also exists in Lake Michigan near shore areas.

1.1.9. Population

The coast is the major physical feature of the greater Chicago metropolitan statistical area, which in the 2010 census had a population of nearly 9.5 million people (U.S. Census Bureau 2008). This is the third largest metropolitan area in the nation, and the most densely populated coastal area in the Great Lakes Region. No other coastal area in the Great Lakes has been urbanized and engineered to the same degree as the Illinois coast.

The Illinois coastline extends from Wisconsin to Indiana. The northern portion is in Lake County; the southern part is in Cook County. Together these two counties contain about 46 percent of the Illinois population (U.S. Census Bureau 2010). Chicago is the largest municipality in both population and shoreline length, (22 miles, 35 km) comprising about 35 percent of Illinois' coast.

1.2. Purpose and Approach

1.2.1. Purpose of Program

The purpose of Illinois' Coastal Nonpoint Pollution Control Program is to reduce, control and, to the extent that it is feasible, eliminate nonpoint source (NPS) pollution that is causing, or could potentially cause, harm to the water quality of Lake Michigan and its connected waters.

1.2.2. Definition of Nonpoint Source Pollution

Even though the term "nonpoint source pollution" can be technically defined, the concept can be confusing. A wide variety of human activities and land use practices are potential nonpoint sources of pollution, even when many such activities and practices take place away from water.

Nonpoint source pollution is defined under Section 319 of the Clean Water Act as follows: "Land management activity or land use activity that contributes or may contribute to ground and surface water pollution as a result of runoff, seepage or percolation, and that is not defined as a point source (in Section 115.01, Subd. 15). Nonpoint sources include, but are not limited to, rural and urban land management activities, land use activities and specialty land use activities such as transportation" (Section 115.03, Subd. 6).

1.2.3. Illinois' Approaches to Controlling Nonpoint Source Pollution

Chapters II through VII of this Coastal Nonpoint Program document discuss in detail Illinois' statutes, rules, programs, etc., for each of the 55 federally defined management measures. As a prelude to that detailed discussion, this section describes more broadly how Illinois approaches the management of its nonpoint source pollution.

In addition to the information presented below (in this section of this Coastal Nonpoint Program document) as to how Illinois manages land use, water, and water quality, additional information on each of the six federally defined nonpoint source categories may be found elsewhere, in one or more of the following documents:

- *State of Illinois Coastal Management Program Document and Final Environmental Impact Statement.* Both documents are available online: http://www.dnr.illinois.gov/cmp/Pages/documentation.aspx
- *Illinois Nonpoint Source Management Program.* Available online: http://www.epa.state.il.us/water/watershed/publications/nps-management-program/index.pdf

Legal authority to control nonpoint source pollution is primarily vested in three entities of the State of Illinois: the Illinois Department of Natural Resources (IDNR), the Illinois Environmental Protection Agency (IEPA), and the Pollution Control Board (IPCB). IDNR is the state agency responsible for

implementation of the CNPCP, in partnership with IEPA. IDNR's mission is to manage, protect, and sustain Illinois' natural and cultural resources, further the public's understanding and appreciation of those resources, and promote the education, science and public safety of our natural resources for present and future generations. As the state's primary agency for management and protection of natural resources, the IDNR has been given broad regulatory authority, and management responsibility, for the coastal zone.

The ICMP is implemented through existing state land and water resource authorities, within state and federal rules and regulations. The statutory authorities and enforceable policies are both comprehensive and specific in regulating land and water uses. The authorities vested within the IDNR and the IEPA comprise the foundation for addressing coastal resource management. These statutory authorities, together with other existing cooperative and coordinating linkages between the IDNR and the IEPA, provide the jurisdictional framework to ensure proper implementation of the ICMP policies.

1.2.3.1. Rivers Lakes and Streams Act

Within Illinois statutes formal linkages exist between IDNR and other state agencies, some of which specifically relate to coastal non-point source pollution. Among these, the Rivers Lakes and Streams Act (RLSA) (615 ILCS 5) is particularly important. The RLSA gives IDNR jurisdiction and supervision over all of Illinois's rivers and lakes wherein the State or the public have any rights or interests (615 ILCS 5/5). It is the express intention of this legislation that close cooperation shall exist between the IPCB, the IEPA, and the IDNR and that every resource of State government shall be applied to the proper preservation and utilization of the waters of Lake Michigan.

State agency and state-local coordination is cited under this statute. It requires IDNR, IEPA, and all state agencies to exercise their authorities to protect the waters of Lake Michigan, which is a primary goal of ICMP.

Section 5/14a of the Rivers Lakes and Streams Act reads as follows:

> "It is the express intention of this legislation that close cooperation shall exist between the Pollution Control Board, the Environmental Protection Agency, and the Department of Natural Resources and that every resource of State government shall be applied to the proper preservation and utilization of the waters of Lake Michigan.
>
> "The Environmental Protection Agency shall work in close cooperation with the City of Chicago and other affected units of government to: (1) terminate discharge of pollutional waste materials to Lake Michigan from vessels in both intra-state and inter-state navigation, and (2) abate domestic, industrial, and other pollution to assure that Lake Michigan beaches in Illinois are suitable for full body contact sports, meeting criteria of the Pollution Control Board."
>
> "The Environmental Protection Agency shall regularly conduct water quality and lake bed surveys to evaluate the ecology and the quality of water in Lake Michigan. Results of such surveys shall be made available, without charge, to all interested persons and agencies. It shall

be the responsibility of the Director of the Environmental Protection Agency to report biennially or at such other times as the Governor shall direct; such report shall provide hydrologic, biologic, and chemical data together with recommendations to the Governor and members of the General Assembly."

"The requirement for reporting to the General Assembly shall be satisfied by filing copies of the report with the Speaker, the Minority Leader and the Clerk of the House of Representatives and the President, the Minority Leader and the Secretary of the Senate and the Legislative Research Unit, as required by Section 3.1 of "An Act to revise the law in relation to the General Assembly", approved February 25, 1874, as amended, and filing such additional copies with the State Government Report Distribution Center for the General Assembly as is required under paragraph (t) of Section 7 of the State Library Act. In meeting the requirements of this Act, the Pollution Control Board, Environmental Protection Agency and Department of Natural Resources are authorized to be in direct contact with individuals, municipalities, public and private corporations and other organizations which are or may be contributing to the discharge of pollution to Lake Michigan."

The RLSA provides for a range of enforcement mechanisms enabling IDNR and IEPA to prevent potential causes of nonpoint source pollution. In particular, coordination between IDNR and the IEPA is specified through a joint permitting requirement for structures and fill in Lake Michigan to protect Lake Michigan waters and the lands and waters of the public trust. The Act states:

"It is unlawful to make any fill or deposit of rock, earth, sand, or other material, or any refuse matter of any kind or description or build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, causeway, harbor, or mooring facilities for watercraft, or build or commence the building of any other structure, or do any work of any kind whatsoever in any of the public bodies of water within the State of Illinois, without first submitting the plans, profiles, and specifications therefor, and such other data and information as may be required, to the Department of Natural Resources of the State and receiving a permit therefor signed by the Director of the Department and authenticated by the seal thereof. However, this requirement does not apply to duck blinds which comply with regulations of the Department of Natural Resources."

"However, except as provided in this Act, no permit shall be issued or renewed authorizing any fill or deposit of rock, earth, sand, or other material, or any refuse matter of any kind or description in Lake Michigan unless the Illinois Environmental Protection Agency makes a final determination pursuant to subsection (a) of Section 39 of the Environmental Protection Act, as now or hereafter amended, that the proposed dredging or deposit of material will not cause a violation of the Environmental Protection Act or Pollution Control Board regulations."

"Nothing herein shall be construed to authorize the discharge or other disposition of materials of any kind into Lake Michigan without first obtaining a joint permit from the Department of Natural Resources and the Illinois Environmental Protection Agency. Any person, corporation,

company, city or municipality, or other agency, who or which (1) discharges or disposes of any such materials into Lake Michigan without a permit or in violation of a permit, or (2) does any of the things prohibited by this Section shall be guilty of a Class A misdemeanor."

The RLSA also provides authority to IDNR for permitting any work of any kind (fill, deposit, dredging, building, etc.) in any public body of water in the State (615 ILCS §5/18). For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties (17 Ill. Adm. Code 3704). If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts. Construction projects in Illinois waterways, floodplains and wetlands often require both state and federal authorization. In furtherance of a coordinated permit review process, a Memorandum of Agreement was signed in 1982 to simplify the approval process for the applicants seeking project authorization from the U. S. Army Corps of Engineers, the IDNR Office of Water Resources, and the IEPA. This resulted in the use of a joint permit application.

Other enforcement mechanisms conferred by RLSA to IDNR include the ability to enter into agreements for the extraction of materials and minerals from the bed or below the bed of any public waters within the State (615 ILCS §5/18a, 18b, 18d); permitting requirements for construction in floodplains (615 ILCS §5/18f); and the authority to exercise administrative jurisdiction and control over the bed of Lake Michigan, which is held in trust by IDNR for the benefit of the People of the State of Illinois (615 ILCS §5/24).

The RLSA gives IDNR the power and authority to inquire into encroachments upon, wrongful invasion and private use of every stream, river, lake or other body of water in which the State of Illinois has any right or interests (615 ILCS §5/7). In conjunction with this authority, the department has the power to make and enforce such orders as will secure every stream, river, lake or other body of water, in which the State of Illinois has any right or interest against encroachment, wrongful seizure or private use (615 ILCS §5/7). Any attorney authorized by IDNR has the power to enforce the Act through necessary suits or actions (615 ILCS §5/25).

IDNR is authorized by the RLSA to carry out inspections of any dam within the State, and to establish standards and issue permits for the safe construction of new dams and the reconstruction, repair, operation and maintenance of all existing dams (615 ILCS §5/23a). This includes the power to compel the installation of fishways in dams wherever deemed necessary, and establish by rule minimum water levels for water behind dams on streams and rivers as necessary to preserve the fish and other aquatic life and to safeguard the health of the community.

1.2.3.2. Illinois Environmental Protection Act

IEPA's authority to control nonpoint source pollution is evident through its compliance with Section 319 of the Clean Water Act (CWA). One purpose of the CWA is the expeditious development and implementation of programs for the control of nonpoint sources of pollution (33 U.S.C. §1251(a)(7)). In this regard, the CWA requires that Illinois identify those laws or authorities which certify IEPA as the

state water pollution control agency responsible for developing and implementing the Nonpoint Source Management Program (33 U.S.C. §1329). Section 319 requires, among other things, the development of state management programs for controlling pollution to navigable waters from nonpoint sources.

IEPA's Nonpoint Source Management Program was initially approved by the USEPA on January 3, 1990, and it continues to meet the requirements for federal approval. Section 4(l) of the Illinois Environmental Protection Act ("Act") designates IEPA as the "water pollution control agency" for the state. 415 ILCS §5/4. IEPA is authorized under Section 4(l) to take necessary action to secure the benefits of the CWA and other federal acts, which includes the nonpoint source pollution programs and Section 6217 of the CZARA (415 ILCS §5/4(l)).

Other provisions of the Act provide additional authority for IEPA to act with respect to nonpoint source pollution measures. Section 12 broadly prohibits any actions that could cause water pollution in the state, and requires a permit from IEPA for construction capable of causing or contributing to water pollution (§415 ILCS 5/12). In addition, Section 4(k) of the act authorizes IEPA to "...accept, receive, and administer on behalf of the State any grants, gifts, loans, indirect cost reimbursements, or other funds made available to the State from any source for purposes of the Act or for air or water pollution control, public water supply, solid waste disposal, noise abatement, or other environmental protection activities, surveys, or programs" (415 ILCS §5/4(k)). This same provision gives IEPA authority to promulgate regulations and enter into contracts as necessary to carry out these functions. *Id*. Section 4(m) of the Act authorizes IEPA to engage in planning processes and activities and to develop plans in cooperation with units of local government, state agencies and officers, and other appropriate persons in connection with the jurisdiction or duties of each such unit, agency, officer, or person (415 ILCS §5/4(m)).

Similarly, the IPCB has broad legal authority pursuant to the Act to establish pollution control standards. Section 5 enables the IPCB to "determine, define and implement the environmental control standards applicable in the State of Illinois" and may adopt rules and regulations to that effect (415 ILCS §5/5(b)). Along the same lines, the Board has the authority to act for the State in regard to the adoption of standards for submission to the United States under any federal law respecting environmental protection (415 ILCS §5/5(c)). To enforce these standards the IPCB has authority to promulgate permit standards and any rules necessary to implement and participate in the National Pollutant Discharge Elimination System ("NPDES", 415 ILCS §5/13; 415 ILCS §5/27. Section 31 of the Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31), and IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards (415 ILCS §5/42). IEPA also has authority related to any fill or deposit into Lake Michigan, as noted in subsection (a) of Section 39 of the Act, to ensure that proposed dredging or deposit of material will not violate the Act or IPCB regulations (415 ILCS §5/39).

IEPA is authorized to implement the "Site Remediation Program," which establishes the procedures "for the investigative and remedial activities at sites where there is a release, threatened release, or suspected release of hazardous substances, pesticides, or petroleum and for the review and approval of those activities" (415 ILCS 5/58.1(a)(1)).

1.2.3.3. Other Illinois Statutes Managing Nonpoint Pollution

In addition to the RLSA and the Illinois Environmental Protection Act, a range of other state legislation supports the ICMP and control of nonpoint pollution in Illinois.

- Illinois Endangered Species Protection Act (520 ILCS §10/11). Authorizes IDNR for the environmental consultation process for impacts to threatened and endangered species and natural areas.
- Illinois Natural Areas Preservation Act (525 ILCS 30/17). Also supports IDNR's authorization for the environmental consultation process for impacts to threatened and endangered species and natural areas.
- Flood Control Act of 1945 (615 ILCS §15/2). Authorizes IDNR to control flooding in Illinois. This includes, among other powers, the authority to examine, construct, control, or supervise all works for "the control of floods, the improvement of upland and bottom land drainage and the conservation of low water flows in the rivers and waters of Illinois, including the watersheds thereof, either independently or in cooperation with the United States government, State agencies, units of local government and school districts in connection with such work."
- Water Pollutant Discharge Act (415 ILCS §25/2415 ILCS §25/3). Prohibits the discharge of oil or other pollutants in quantities which exceed the standards adopted by the IPCB, directly or indirectly into the waters of any river, stream, watercourse, pond, or lake wholly or partly within the territorial boundaries of the State of Illinois.
- Lake Michigan Shoreline Act (615 ILCS §55/1) Enables the Office of Water Resources within IDNR to cooperate with appropriate federal, state, and local agencies to devise effective means or methods of preventing erosion of the shore of Lake Michigan. To that end, IDNR may enter into agreements with the proper agencies of the United States government, municipal corporations or political subdivisions of the State or any public or private corporation, organization or individual. Among other things, the agreements may provide for joint undertakings and contributions of funds or other resources to perform or accomplish any work agreed upon between the parties to such agreements.

  This Act provides the means or methods of preventing erosion along the shore of Lake Michigan and empowers the IDNR to enter into agreements to accomplish such.
- Marine Plastic Pollution Research and Control Act (33 U.S.C. §1901 *et seq*.). This federal law restricts the overboard discharge of garbage and makes it is illegal to dump plastic, paper, rags, glass, metal, crockery, etc. into any water body. The law is typically enforced by marine police, such as IDNR Conservation Police Officers, who may exercise their powers anywhere in the state (20 ILCS §805/805-535).
- Boat Registration and Safety Act (625 ILCS §45/2-1). IDNR Conservation Police Officers have a duty to enforce this act.

- Illinois Groundwater Protection Act (415 ILCS 55/4) (from ch. 111 ½. par. 7454) Sec. 4a. There shall be established within State government an interagency committee which shall be known as the Interagency Coordinating Committee on Groundwater. The Committee shall be composed of the Director, or his designee, of the following agencies:

- Illinois Environmental Protection Agency, who shall chair the Committee
- Illinois Department of Natural Resources
- Illinois Department of Public Health
- Office of Mines and Minerals within the DNR
- Office of the State Fire Marshall
- Office of Water Resources of the DNR
- Illinois Department of Agriculture
- Illinois Emergency Management Agency
- Illinois Department of Nuclear Safety
- Illinois Department of Commerce and Economic Opportunity

- Interagency Wetland Policy Act of 1989 (20 ILCS 830/2-1) (from ch.96 ½, par.9702-1) An Interagency Wetlands Committee, chaired by the Director of the Department of Natural Resources or his representative, is established. The Directors of the following agencies, or their respective representatives, shall serve as members of the Committee:
  - Capital Development Board
  - Department of Agriculture
  - Department of Commerce and Economic Opportunity
  - Environmental Protection Agency
  - Department of Transportation
  - Historic Preservation Agency

  The Interagency Wetlands Committee shall also include 2 additional persons with relevant expertise designated by the Director of the Department of Natural Resources. The IDNR offices carry out these responsibilities in conjunction with or with the advice and recommendations of various boards and commissions, as follows:

  - Council on Forestry Development
  - Illinois Endangered Species Protection Board
  - Illinois Geographic Information Council
  - Illinois Nature Preserves Commission
  - Illinois State Museum Board
  - Natural Resources Advisory Board
  - Oil and Gas Board
  - State Mining Board

- Executive Order 10-14 that established the Illinois Coastal Management Program within the Illinois Department of Natural Resources also formalized the linkages between state agencies.

  "…I hereby direct all state agencies to carry out their legally established duties consistently with this program and in a manner which promotes coordination among those agencies in achieving its goals and objectives…"

Certain municipal ordinances also play a major role in the prevention of coastal nonpoint pollution in Illinois in the State's two coastal counties and in the City of Chicago.

- Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq.).* The Metropolitan water Reclamation District of Greater Chicago (MWRD) has the authority for administering this ordinance.
- Lake County Watershed Development Ordinance (55 ILCS §5.5-1062) The Lake County Stormwater Management Commission (SMC) is authorized for administering this ordinance and provides technical assistance to communities on stormwater issues.
- City of Chicago

1.2.4. Selected Illinois Statutes, Rules , Executive Orders and Permits

Chapter 2. Program Components

2.1. Coastal Nonpoint Program Boundary

As defined in the Illinois Coastal Management Program Document (Program Document), available at http://www.dnr.illinois.gov/cmp/Pages/documentation.aspx, the Illinois Coastal Zone Boundary was developed to apply to the Illinois CNPCP. As stated in the document:

> "Federal guidelines recognize that urban coastal areas may have significantly altered shorelines and coastal landscapes, and within urban coastal settings the natural system relationships between land and water may be extremely difficult (or impossible) to define in terms of direct and significant impacts. In such cases, the federal guidance suggests the boundary be based on consideration of sewage discharge and urban runoff (15 CFR 923.32). For the Illinois coast, sewage discharge, and urban runoff, are important factors in defining the inland boundary along much of the Cook County lakeshore" (ICMP 2011).

The Program Document goes on to explain in detail how the boundary was defined based on these urban considerations. Parts of the original Lake Michigan watershed in Cook County that now drain to the Mississippi River Basin were therefore excluded from the Coastal Zone.

The Program Document defined two components of the Illinois Coastal Zone Boundary. The Lakeshore Boundary includes approximately 85 square miles of land "based on the Lake Michigan watershed as it has existed since the early 1900s" (ICMP 2011), and thus excluding "land areas that historically were part of the Lake Michigan watershed but are now outside of this watershed. These areas were removed from the Lake Michigan watershed due to the historical changes in flow directions along the Chicago, Little and Grand Calumet River systems, as well as urbanization, paving, and directing of storm-water sewers away from Lake Michigan." The second component of the Illinois Coastal Zone Boundary is the Inland Waterways Boundary, including an addition of approximately 11.5 square miles of land along segments of the Chicago River, North Shore Channel, and Little Calumet and Grand Calumet Rivers. The Inland Waterways were considered part of the Coastal Zone for a range of reasons cited in the Program Document, including the fact that "because of the history of opening the lock gates during time of heavy

precipitation and runoff, these waterways have at times discharged to the lake and have contributed to major water quality issues along parts of the lakeshore" (ICMP 2011).

The Program Document as approved by NOAA clearly states that the CNPCP will be bounded by the Coastal Zone Boundary it defines. However, it states that the program will be limited to the Lakeshore Boundary, excluding the inland waterways. As stated on p. 185, "The ICMP will only include the Lake Michigan watershed portion (approximately 85 square miles) in the Coastal NPS Control Program." H However, because of the previously-noted issues of discharge into Lake Michigan from these areas at times of heavy storm runoff, we have chosen to include the entire Coastal Zone Boundary to define the Illinois CNPCP. This is consistent with the intent of the Program Document and the rationale developed there for a Coastal Zone Boundary useful for addressing NPS pollution. Therefore the entire Illinois Coastal Zone will also be Illinois' §6217 management area.

2.2. Coordination

Numerous mechanisms exist to ensure that the CNPCP is coordinated among State and local agencies. Some of these coordination mechanisms are established by Illinois statute. Others occur through regular, ongoing mechanisms among state and local partners. The CNPCP will also extend and enhance coordination as part of the program as it develops.

There are four main statutes that either permit or mandate coordination among State and Federal agencies and units of local government in relation to the CNPCP. The first is the Clean Water Act, by which IEPA is authorized to "engage in planning processes and activities and to develop plans in cooperation with units of local government, state agencies and officers, and other appropriate persons in connection with the jurisdiction or duties of each such unit, agency, officer or person" (415 ILCS 5/4(m)). Two units of IEPA's Watershed Management Section are responsible for carrying out these programs. The Planning Unit implements the TMDL Program. Section 319 is administered by the Nonpoint Source Unit as the Illinois Nonpoint Source Management Program (INSMP). The Section The entire Bureau of Water implements the Water Quality Management Program. The Household Hazardous Waste Collection Program and NPDES storm water program are also administered by IEPA.

The INSMP is a particularly crucial point of coordination for CNPCP. In September 2013 IEPA released their new program document (http://www.epa.state.il.us/water/watershed/publications/nps-management-program/index.pdf). Though the program covers the entire state, the INSMP document includes sections dealing specifically with Lake Michigan open waters and nearshore areas. The INSMP recently developed the TMDL for Lake Michigan beaches and provides the water quality data used elsewhere in this document. IEPA's manager for the Watershed Management Section covering Lake Michigan participated directly throughout the process of developing the CNPCP.

The second major statute is the RSLA, which has the "express intention" that close cooperation exists between IDNR, which has primary enforcement responsibility, IEPA and IPCB. 615 ILCS 5/14a (2012). This collaborative effort is to extend to the City of Chicago and other municipalities whose actions affect Lake Michigan water quality. They and IEPA "shall work in close cooperation" to abate pollution from vessels and domestic and industrial sources.

Thirdly, the Lake Michigan Shoreline Act enables the Office of Water Resources - Lake Michigan Programs Section (OWR) within IDNR to cooperate with appropriate federal, state, and local agencies to devise effective means or methods of preventing erosion of the shore of Lake Michigan. 615 ILCS 55/1 (2012). To that end, IDNR may enter into agreements with the proper agencies of the United States government, municipal corporations or political subdivisions of the State or any public or private corporation, organization or individual. 615 ILCS 55/2 (2012). Among other things, the agreements may provide for joint undertakings and contributions of funds or other resources to perform or accomplish any work agreed upon between the parties to such agreements. An analogous provision is found in the Flood Control Act of 1945. 615 ILCS 15/4 (2012). The OWR issues permits for work in and along the Lake Michigan shore, waterways, and within floodplains and floodways. OWR is responsible for evaluating joint permitting applications and is aware of permitting decisions and any permitting issues from IEPA or USACE. OWR is also responsible for carrying out ICMP's program of reviewing projects for Federal Consistency in the Illinois Coastal Zone.

The permit processes noted above are particularly important areas of coordination. In Illinois, waterways, floodplains and wetlands construction projects often require both State and Federal authorization. The state has a joint permit application process designed to simplify the approval process for the applicant seeking project authorizations from the USACE, IDNR, the Office of Water Resources and IEPA. The joint permit review process allows these agencies to evaluate a range of issues related to nonpoint pollution, particularly in areas related to marinas and to channelization. For example, consideration of marina flushing in the siting and design of new and expanded marinas in the coastal zone is part of the joint agency review process.

Finally, the Interagency Wetland Policy Act of 1989 (20 ILCS 830/) mandates coordination among several state agencies in relation to preservation and enhancement of wetlands and avoiding adverse impacts to the state's remaining wetlands. This act creates an Interagency Wetlands Committee including IDNR, IEPA, Illinois Department of Agriculture, Illinois Department of Transportation, Illinois Historic Preservation Agency, Illinois Department of Commerce and Economic Opportunity, and the Capitol Development Board. The goal of the act is to ensure no net loss in wetlands due to state-supported activities, through the development of agency action plans and establishing a mitigation policy.

Various other avenues of coordination flow from the above statutes. As part of the Phase II stormwater permitting program, IEPA coordinates with ICMP and other partners to provide training opportunities that may include planning principles, erosion control, and stormwater quality measures that can be utilized to address issues associated with some of the Urban Management Measures, including the Watershed Protection Management Measure and the Pollution Prevention Management Measure.

Other less formal processes are also in place for coordination. ICMP collaborates with MWRD and LCSMC and municipal stakeholders to disseminate information on trainings and funding opportunities. ICMP has attended, participated in, and presented at public meetings and trainings regarding the Lake County Watershed Development Ordinance and the Cook County Watershed Management Ordinance and will continue coordination activities in the future.

ICMP's Program Document establishes two groups that ensure coordination with local governing bodies. The Technical Advisory Committee (TAC) provides oversight and technical recommendations on ICMP's grant program, reviewing all grants recommended for funding. The TAC also provides feedback on other technical aspects of ICMP, such as priorities for our requests-for-proposals and connections to coastal research. TAC members include leaders in several IDNR agencies (OWR, Office of Realty and Environmental Planning, Office of Resource Conservation, Office of Land Management) and the IEPA Water Bureau, among others. The ICMP Program Document also establishes the Citizens Advisory Committee (CAG), which meets at least annually to oversee program direction. This will include developing the implementation plan for Illinois' CNPCP. CAG membership includes representatives of all municipalities in the Illinois Coastal Zone, MWRD, and LCSMD among others.

ICMP also coordinates through membership and active participation in the Waukegan Harbor Citizen's Advisory Committee, a group that leads the efforts of delisting the Waukegan Harbor Area of Concern. This organization also includes active involvement of USEPA and IEPA as well as other units if IDNR.

Finally, ICMP will be expanding coordination efforts in the future through ongoing engagement with our Advisory Panel, as described in Section 2.3.

2.3. Public Participation

2.3.1 Illinois Lake Michigan Implementation Plan Public Participation

The Illinois Lake Michigan Implementation Plan (ILMIP) is a product of an innovative effort to identify a manageable subset of program priorities for ICMP. ILMIP was formed through a partnership between ICMP, Alliance for the Great Lakes, Chicago Wilderness, Biodiversity Project and Environmental Consulting & Technology Inc.; referred to henceforth as the Lead Partners. This project used web-based technologies to gather broad stakeholder input through an open, outreach-driven process to identify Coastal Management Program priorities. Nonpoint source pollution was one of ten focal areas in this planning process. Examples of other topics addressed in the plan include Habitat Restoration and Management, Persistent Bioaccumulative Toxins, and Public Access and Recreation. These ILMIP priorities will help guide program direction for three to five years and will be reflected in project selection for the Coastal Grants program.

From October 2011 through November 2013, stakeholders and the general public were invited to provide input through online tools and surveys, and in-person through workshops and training sessions and at public meetings. Early in the process, the Lead Partners identified a list of expert stakeholders from each Coastal Priority Issue to serve in an advisory capacity for the project, called the Advisory Working Group (AWG). The AWG participated in (NUMBER) workshops at various stages in the process, during which they were asked to provide feedback on priorities including coastal nonpoint source pollution priorities. The AWG was also asked to help identify additional stakeholders and conduct outreach to their contacts and networks using the outreach materials provided by the Lead Partners.

ILMIP on the Watershed Central Wiki

The Watershed Central Wiki[2] was one of the tools we used to allow stakeholder and public input in the ILMIP process. As of June 2014, although the implementation plan has been completed, it is still open for public input. We created an ILMIP wiki landing page was developed on Watershed Central to make general information available and provide a directory of the information contained within the ILMIP pages. All pages on the wiki allow the users to contribute text, maps, embedded links, pictures, etc. The structure of the Watershed Central wiki pages allows for pages to be categorized so users have the ability to search through a variety of navigation tools, such as; a list of related topics on the bottom of the page, a list of "most popular categories" on the page margins, an introduction wiki page that allows searches by location or topic, the search tool on the page margin, and so on. The structure went through several iterations through a working and development process on the wiki before a final structure was completed. All pages pertaining to the ILMIP have been categorized under "Illinois Lake Michigan Implementation Plan (ILMIP)". A table of contents is placed on the upper right hand corner every ILMIP page to allow the users easier navigation throughout the series of pages. The table of contents was developed to help users navigate either by geographic location or issue topic. Lead Partners developed and posted content on the ILMIP section of the Watershed Central Wiki and encouraged participation from stakeholders and AWG members. Wiki content includes pages on watersheds, issues, projects, tools, and partner organizations. The AWG participated in trainings on how to add content to the wiki. Illinois Coastal Grant applicants were also encouraged to utilize and contribute to the wiki.

Communications

Lead Partners developed and distributed regularly scheduled email updates about the wiki and online engagement forum to keep AWG and stakeholders up to date on the project and involved in the activities. Other communication channels included one-on-one conversations with experts, wiki trainings, AWG meetings, the stakeholder survey, and the online engagement forum.

Survey

Lead partners created and distributed a survey to collect information about projects on key coastal issues that are currently underway or recently completed within the Illinois Coastal Zone, and to encourage wiki participation and to act as an outreach tool to engage stakeholders and AWG members in the project.

Mindmixer

Stakeholders and the general public were encouraged to get involved in the ILMIP process through an online engagement forum called MindMixer. This online forum (www.mindmixer.com) became a central place for discussing and voting on coastal priorities. It was promoted to the general public through the Lead Partners' Facebook pages, email distribution lists and websites. Voting and discussions were divided up into four regions, throughout the coastal zone, northern region, central region and southern region (Figure 1-X). This allowed for better targeting of strategies, partnerships, and grants to the local

[2] https://wiki.epa.gov/watershed2/index.php/Illinois_Lake_Michigan_Implementation_Plan

priorities in each area. Each region had 63 ideas to vote on, nine of which were focused on nonpoint source pollution. Overall, there were 260 participants in ILMIP's MindMixer forum who left 65 comments in addition to their votes. The final rankings of the nonpoint source pollution ideas within each region are presented in Table 1-X.

Public Meetings

The Lead Partners hosted three public meetings to provide an opportunity for the general public, AWG members, and other stakeholders to review the final document and provide feedback. Meetings took place in Lake County, downtown Chicago, and south Chicago during the weeks of October 21 and October 28th, 2013. Two meetings were held in the evening to make them more accessible to the general public and one was held during the day to attract professionals from stake-holder organizations. The three meetings were attended by a total of 41 people. For anyone that was unable to attend a meeting, the plan was posted on ICMP's website and a link to a survey that was identical to the comment cards at the meetings was available to submit feedback. ICMP received a total of 85 comments from meeting attendees and online survey takers, 11 were specific to nonpoint source pollution.

Figure 2-1 Geographic subdivisions of the Illinois Coastal Zone used in ILMIP.

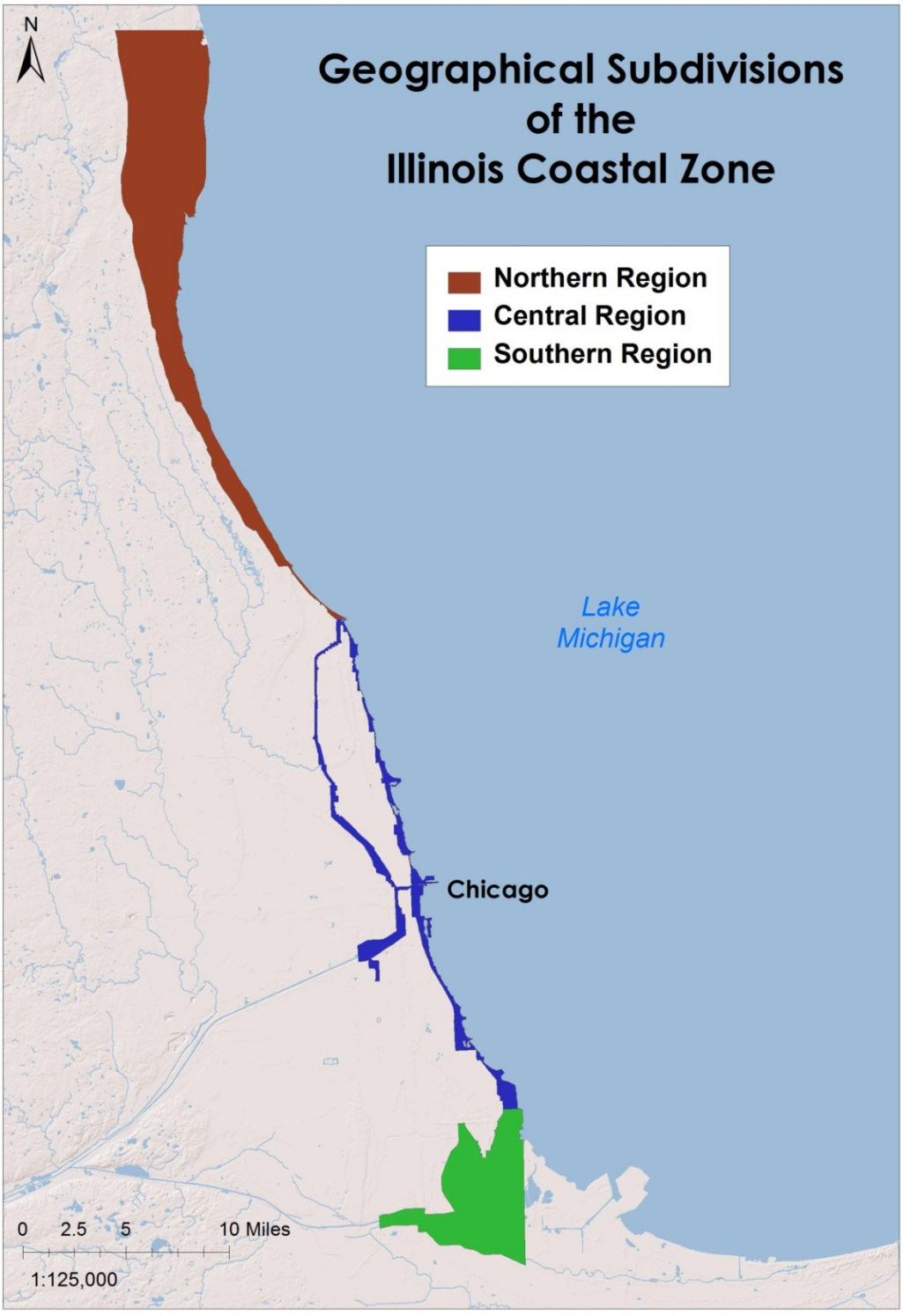

Table 2-1 MindMixer Rankings of Nonpoint Source Pollution Ideas in Each Region.

Overall Rankings are out of 63 ideas in each region.

Idea Title	Throughout Coastal Zone	Northern Region	Central Region	Southern Region
Choose the best mitigation or prevention strategy	50	63	27	48
Improve beach quality and protect the public from health risks	34	41	16	31
Increase use of green infrastructure for stormwater management	1	26	1	15
Promote regional cooperation on non-point source pollution	28	49	30	39
Reduce frequency of untreated sewage release	39	25	5	30
Reduce runoff volume	17	36	6	21
Reduce soil loss and sedimentation	48	43	38	32
Reduce the impacts of chloride (aka road salt) pollution	61	54	35	45
Reduce the impacts of nutrient pollution on coastal ecosystems	20	27	31	46

2.3.2 Presentations Given by ICMP Staff

As part of the public outreach for this plan, ICMP staff gave presentations to local government representatives, environmental professionals, and students. Two of these presentations focused on raising awareness and participation by local governments in the CNPCP program and its development. The third focused on networking and communicating green infrastructure success stories in the Calumet region. Projects highlighted at that talk included South Suburban College's rain garden and bioswale, an innovative project that ICMP provided technical assistance on and which is funded by an Illinois Green Infrastructure Grant.

LCSMC Municipal Advisory Committee Quarterly Meeting, December 11, 2013

This was an introduction to Illinois' Coastal Nonpoint Pollution Control Program development process. It focused on education to local governmental representatives from Lake County with technical knowledge on stormwater on resources available from the Coastal Management Program and CNPCP development. After the meeting, three members of the ICMP staff were available for questions and networking.

Chicago Wilderness Congress, April 3, 2014

This was part of an organized session on regional collaboration on Green Infrastructure implementation, which, in addition to an ICMP staff member, included representatives from two levels of government in Indiana and a local government representative from Blue Island, IL. This presentation focused on ongoing green infrastructure project implementation which is intended to mitigate nonpoint source pollution and reduce stormwater volume and was attended by environmental professionals, and students.

Lake Michigan League of Women Voters and Faith in Place Stormwater Workshop, June 18, 2014

As part of a stormwater workshop, development of the CNPCP was discussed, along with the public participation portion of the process. Other speakers included the director of MWRD, two staff members of IEPA, and the program manager for the Center for Neighborhood Technology. This meeting was attended by over 100 interested members of the general public.

MWRD Partners Meeting, September 23, 2013

A presentation was given to the MWRD Partners in efforts to recruit Advisory Panel members. This meeting was attended by local governmental representatives and organizations with technical knowledge on stormwater. Some attendees signed up to be on the Advisory Panel and others wanted to remain informed on the plan's progress.

2.3.3 CNPCP Advisory Panel

ICMP retained Bluestem Communications (Bluestem) to assist with facilitating an Advisory Panel of expert members of the public to provide input into the development of the Illinois Coastal Nonpoint Source Pollution Control Program (CNPCP).

Through the Advisory Panel, ICMP sought to identify the following:

- Input into the unfilled niche(s) that the new CNPCP could address
- How best the CNPCP could provide technical assistance to local governments and the public to implement management measures
- A blueprint for a continued process for CNPCP coordination with stakeholders into the future

Participants

Bluestem worked with staff from ICMP and IEPA to identify a panel of experts who work in the Illinois Coastal Zone on issues related to stormwater management or nonpoint source pollution. Invitations were extended to 22 professionals representing regulatory agencies, land management agencies, stormwater management agencies, municipal departments, municipal planning agencies and local nonprofit organizations working on these issues. The final Advisory Panel comprised the following group of volunteers as seen in Table 2-2.

Table 2-2 Advisory Panel Members

Name	Organization
Lyman Welch	Alliance for the Great Lakes
Richard Nichols	Association of Illinois Soil and Water Conservation Districts
Dan Cooper	Chicago Park District
John Quail	Friends of the Chicago River
Dan Injerd	Illinois Department of Natural Resources - Office of Water Resources
Amy Walkenbach	Illinois Environmental Protection Agency – Water Bureau
Ders Anderson	Openlands - Lake Calumet Watershed Group
Stacy Meyers	Openlands
Michael Adam	Lake County Health Department
Patty Werner	Lake County Stormwater Management District
Mike Prusila	Lake County Stormwater Management District
Abby Crisostomo	Metropolitan Planning Commission
John Murray	Metropolitan Water Reclamation District
Josh Lott	National Oceanic and Atmospheric Administration
Reggie Greenwood	South Suburban Mayors and Managers Association
Janette Marsh	U.S. Environmental Protection Agency - Region 5

Providing Input

The Advisory Panel met six times from January 2014 - June 2014 in a series of workshops designed to answer three specific questions:

- What gaps currently exist in our region's efforts to reduce nonpoint source pollution?
- How can the CNPCP best contribute to filling those gaps?
- How can the CNPCP best complement the efforts already being made to decrease nonpoint source pollution and improve Lake Michigan's water quality?

Appendix 2 includes the meeting agendas and notes from each of the Advisory Panel meetings. In addition to the questions above, the Panel assisted with the development of a survey sent to a broader group of stakeholders in the region, and identifying the most pressing needs (i.e., prioritization).

Survey

After several months of working to identify on-the-ground needs and potential solutions, the Advisory Panel assisted with the development of a survey sent to a group of regional stakeholders. The survey was designed to assist with prioritization of issues and solutions, and was geared toward municipal representatives, regulatory agency staff, public utility staff and local nonprofit partners. Results will be added to the report once they are all collected.

Addressing Source Categories and Management Measures

Each workshop began with an overview of the Management Measures identified by Source Category, the Advisory Panel first reviewed each Source Category, and how other State Coastal Programs have addressed those particular Management Measures. Then, Bluestem facilitated a discussion in which the Panel identified all of the on-the-ground gaps in nonpoint source pollution management within the Illinois Coastal Zone. Discussions focused on where current management needs exist, and to the extent possible, identifying potential solutions to address those gaps. Appendix 2 includes summary charts of the needs and solutions identified by the Advisory Panel, within each Source Category.

Top Issues Identified

Over the course of the months in which the Advisory Panel met, several issues received a lot of attention. While all of the gaps identified are very important, some of the issues already have agencies or organizations leading efforts to provide solutions, while others have no clear leaders yet identified and/or need additional support in the short term. Currently, the issues of greatest need for support (in no particular order) were identified as:

- Coordination among the many agencies working in the Illinois Coastal Zone
    - Need for more streamlined or integrated permitting processes
    - Wetlands data, for example, is often inconsistent among various agencies or organizations; need a consistent method or dataset for the Coastal Zone
- Water quality monitoring
    - Monitoring is extremely important to track progress, but continually underfunded
    - Monitoring results are not shared effectively, when available, and need better reporting standards
- Stormwater BMP maintenance
    - Many agencies and organizations are installing BMPs, but the long term maintenance and management is not monitored or enforced
    - Consistency in maintaining and monitoring installed BMPs also lacking; not all owners using the same methods or guidelines
    - Illinois Urban Manual is valuable, however it is dense and difficult to interpret; an easier guide could be beneficial
- Green infrastructure (GI) implementation
    - Good planning and siting of GI opportunities exists, but funding and political will to implement is limited
- Addressing the actual pollutants causing nonpoint source pollution
    - Cleaning up/capping brownfields – especially in the Calumet region – where pollutants are exposed and directly polluting the waterways. This may be a point source, but is nevertheless important to local stakeholders.
    - Regulating the chemicals in or use of asphalt sealants (i.e., parking lots at marinas, etc.)
    - Controlling the amount of road salt used in the Coastal Zone

To address the needs above, a preliminary implementation strategy has been developed (See Section 2.6). The Advisory Panel identified the above issues as having the most pressing needs over the next three to five years.

2.3.4 Moving Forward

The above information represents the current needs, as of the completion of the Advisory Panel workshop series in June 2014. The CNPCP will flourish beyond the short term view of three to five years in which these needs were identified. The Advisory Panel recommends that regular stakeholder engagement to track progress and needs should be built into the Program. This ensures real time evaluation and program revisions as may be needed. To accomplish this, the Advisory Panel devised the following strategy for future CNPCP engagement.

- Annual Stakeholder Survey
    - This process generated a list of stakeholders in the Illinois Coastal Zone; that list should be maintained and added to as staff in the region conduct projects or otherwise engage with practitioners in the field.
    - Advisory Panel members should be recruited to assist with survey development and distribution.
    - The survey should focus on key information needs about the CNPCP, such as: gauging how effectively stakeholders feel the Program has identified and addressed needs; polling for new or emerging trends or issues related to nonpoint source pollution; and assessing gaps or needs consistently not being met.
- Advisory Panel Annual Meeting
    - A group of engaged expert advisors has guided this process and their current level of commitment should be recognized as opportunity for support and coordination.
    - The CNPCP should convene the Advisory Panel on an annual basis to share best practices, discuss emerging trends and develop the broader stakeholder survey identified above.
- CNPCP Workshops
    - Workshops are a great way to engage stakeholders and practitioners in the region; to the extent the CNPCP will host technical assistance workshops, these should be considered excellent opportunities for engagement.
- Five Year Needs Assessment
    - After the fifth year of CNPCP implementation, ICMP should reconvene the Advisory Panel to evaluate the program's overall focus and effectiveness. At that point, ICMP should establish with the Advisory Panel a regular schedule for evaluation and assessment of the CNPCP and its focus.

2.4. Technical and Financial Assistance

As detailed under the descriptions of the Management Measures, the CNPCP can take advantage of numerous voluntary programs, technical assistance manuals and programs, and grant funding sources to support non-point source pollution control in Illinois' Coastal Zone. These can broadly be divided into programs that are sources of funding and those that provide other forms of technical assistance, including voluntary programs.

2.4.1. Financial Assistance

Many forms of financial assistance are available in Illinois to reduce nonpoint source pollution. One subset of these programs provides **direct grants** to qualifying local units of government and non-profit organizations.

2.4.1.1. Illinois' Green Infrastructure for Clean Water Act

The Illinois Green Infrastructure Grant Program (Public Act 96-26) allows the Illinois Clean Water Initiative (State Revolving Loan fund) to be used for nonpoint pollution control. Projects in the Coastal Zone are eligible for this funding. (http://www.epa.state.il.us/water/financial-assistance/igig.html)

2.4.1.2. Streambank Stabilization and Restoration Program

Sponsored by the Illinois Department of Agriculture (IDOA) and USDA NRCS, the program is designed to demonstrate effective, inexpensive vegetative and bio-engineering techniques for limiting streambank erosion. Program monies fund demonstration projects at suitable locations statewide and provide cost-share assistance to landowners with severely eroding streambanks. The IDOA, Illinois' soil and water conservation districts and the Natural Resources Conservation Service of the U.S. Department of Agriculture (NRCS) serve as partners in implementing the program. Urban streams, such as those within the Illinois Coastal Zone, are eligible for funding (http://dnr.state.il.us/OREP/pfc/Incentives.htm#SSRP).

2.4.1.3. Clean Vessel Act

The Act (50 CFR 85) provides grant funds to IDNR to distribute for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage. Under this act, marinas can receive funding to install a pump-out system. In exchange for grant funding, marina owners agree to maintain pump-out systems in good operating condition for a minimum of 10 years and not to charge more than $5 per pump-out. The pump-out system must be able to accept waste from portable toilets, as well as holding tanks, and must be available to the public during reasonable business hours.

2.4.1.4. State Programs under the Clean Water Act

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. Section 104(b)(3) of the CWA provides for financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. Through Section 319(h) of the CWA, IEPA provides grant funds for projects that prevent, eliminate, or reduce water

quality impairments caused by NPS pollution (http://www.epa.state.il.us/water/financial-assistance/non-point.html). Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach.

2.4.1.5. The Chi-Cal Rivers Fund

The Chi-Cal Rivers Fund is a program within the National Fish and Wildlife Foundation, new in 2013. The Fund is a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. IDNR and MWRD are two of the partners contributing to fund the program. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses (www.nfwf.org/chi-cal).

2.4.1.6. Park and Recreational Facility Construction Grant Program

The Park and Recreational Facility Construction Grant Program (PARC), Public Act 096-0820, provides for grant funding to acquire land to protect floodplains, wetlands, natural areas, wildlife habitat, and unique geologic and biologic features (https://dnr.state.il.us/ocd/newparc1.htm).

2.4.1.7. Special Wildlife Funds Grant Program

The IDNR Office of Resource Conservation's Division of Wildlife Resources administers special grant programs that are funded by Illinois sportsmen through the purchase of Habitat Stamps and Migratory Waterfowl Stamps. For CNPCP, relevant programs include the Illinois Habitat Fund, the Migratory Waterfowl Stamp Fund, and the Illinois Wildlife Preservation Fund. Eligible projects include those seeking to preserve, protect, acquire or manage habitat (all wetlands, woodlands, grasslands, and agricultural lands, natural or altered) in Illinois that have the potential to support populations of wildlife in any or all phases of their life cycles (https://dnr.state.il.us/grants/special_funds/wildgrant.htm).

2.4.1.8. Illinois Coastal Management Grants Program

ICMP provides grant funding which can be used for qualified projects within the Illinois Coastal Zone. As of June 2014, sustainable coastal planning and environmental education and outreach projects that address wetland restoration, channelized streams improvements, pollution prevention, or watershed management, etc. are eligible. Additional funding categories, including wetland acquisition and green infrastructure implementation, may be added in the future.

2.4.1.9. Urban and Community Forestry Program

Through the Urban and Community Forestry Program, IDNR provides funding to local governments for urban and community forestry management. This may include the purchase and planting of trees to improve urban riparian corridors or wetlands. http://dnr.state.il.us/orc/Urbanforestry/financialasst.html

Other programs are in place that provide for **Public Investment** in lands or other projects that will reduce nonpoint pollution.

2.4.1.10. Local Land Purchase Funds

The Forest Preserve Districts of Cook and Lake Counties, as well as Park Districts and municipalities throughout the Illinois Coastal Zone have funding and authority for land acquisition, preservation, restoration, and management. These acquisitions may include special lands and waters that provide important water quality or biological functions in the coastal zone.

2.4.1.11. Chicago Green Stormwater Infrastructure Strategy

The City of Chicago has adopted a Green Stormwater Infrastructure Strategy (see http://www.cityofchicago.org/content/dam/city/progs/env/ChicagoGreenStormwaterInfrastructureStrategy.pdf). This sets forth an investment strategy and policy for stormwater infrastructure that will reduce the frequency, volume, and contaminant loads from combined sewer overflows (CSO) in the Chicago Area Waterway System.

2.4.1.12. Natural Areas Acquisition Fund

Authorized by the Illinois Natural Areas Preservation Act (525 ILCS 30/6.01), the Fund is, administered by the IDNR, provides funding for purchase, protection and stewardship of high quality natural areas including wetlands and riparian habitats.

2.4.2. Other Technical Assistance

Several opportunities fall under the category of "**Voluntary Programs"**, in which entities and individuals can access programs that help reduce nonpoint pollution.

2.4.2.1. Clean Marinas Program

This program is managed by ICMP. Clean Marinas is a voluntary, incentive-based program that encourages marina operators and recreational boaters to protect coastal water quality by engaging in environmentally sound operating and maintenance procedures. The Illinois Clean Marina Program offers information, guidance, and technical assistance to marina operators, local governments, and recreational boaters on Best Management Practices (BMPs) that can be used to prevent or reduce pollution. Marinas that participate in the Clean Marina Program are recognized for their environmental stewardship. The program has published the Illinois Clean Marina Program Guidebook, containing a number of water quality BMPs. (http://www.dnr.illinois.gov/cmp/pages/illinoiscleanmarina.aspx)

2.4.2.2. Household hazardous waste collection

Collection of household hazardous wastes is sponsored by the IEPA in partnership with local units of government. Household hazardous waste collections, funded by statewide fees on landfilled nonhazardous solid wastes, are free to the public. An Agency contractor assures that all wastes are properly containerized, manifested and safely transported to their ultimate destination. Acceptable wastes includes oil-based paints, household batteries, paint thinners, used motor oil, herbicides, drain cleaners, insecticides, lawn chemicals, pesticides, solvents, old gasoline, antifreeze, pool chemicals, hobby chemicals, cleaning products, aerosol paints, products containing mercury, fluorescent lamp bulbs, double bagged and wetted asbestos, old and outdated medicines and pharmaceuticals. For example, Chicago's program is online here:

http://www.cityofchicago.org/city/en/depts/cdph/supp_info/hccrf/household_chemicalscomputerrecyclingfacilityoverview.html

2.4.2.3. "Acres for Wildlife"

This is an IDNR Landowner Assistance Program. Through "Acres for Wildlife," landowners receive help in protecting, improving, or developing lasting wildlife habitat on their property. Key provisions include: the program is strictly voluntary, landowners retain complete property control (trespass for any reason is prohibited without landowner permission), there is no cost for IDNR services (or payments for participation). In return for IDNR assistance, landowners pledge their willingness to protect and improve habitat on their land as they are able. Protecting a minimum of one acre of habitat for at least one year is required. Landowners, including riparian land owners, will receive a management plan which may suggest changes to land management including the use of prescribed fire, the control of invasive species, etc. Free native plant seeds or plugs may be provided, and biologists advise land owners on available funding (https://dnr.state.il.us/orc/Wildliferesources/AFW/).

2.4.2.4. Conservation Easements

According to the Real Property Conservation Rights Act (765 ILCS 120/1 et. seq.), a landowner may grant a conservation easement to any agency of the state, a unit of local government, or a not-for-profit corporation or trust. The appraised value of an easement may qualify for a federal income tax deduction as a charitable contribution. Technical assistance is available from a range of sources including the Land Trust Alliance (http://www.landtrustalliance.org/). Many of the funding sources noted here require an easement for projects on private property, and private lands are crucial to nonpoint pollution strategies in various parts of the Coastal Zone such as the ravines.

2.4.2.5. Illinois Nature Preserves Commission

Established by the Illinois Natural Areas Preservation Act (525 ILCS 30/), the Illinois Nature Preserves Commission (INPC) promotes the preservation of significant lands and oversees their stewardship, management, and protection by offering various land protection options designed to assist landowners who wish to voluntarily preserve their land (http://dnr.state.il.us/inpc/Index.htm). Several programs are available for landowners with properties with high-quality natural communities or other significant natural and/or archeological features. The INPC operates within the IDNR.

Additional technical assistance is available in the form of **Resources** such as technical manuals and related information.

2.4.2.6. Watershed Management Technical Manuals

Technical manuals for implementing the Cook County Watershed Management Ordinance, Lake County Watershed Development Ordinance and the City of Chicago Stormwater Management Ordinance have been published by the lead agencies. These manuals provide guidance on meeting the non-point source pollution control measures required by the respective ordinances. For example, the Lake County manual is available here:

http://www.lakecountyil.gov/Stormwater/FloodplainStormwaterRegulations/WDOandTRM/Pages/TechnicalReferenceManual.aspx

2.4.2.7. Illinois Urban Manual

The Illinois Urban Manual (IUM, available at http://www.aiswcd.org/ium) is a technical resource containing a myriad of stormwater best management practices, ranging from planning guides to practice standards and design specifications, including soil erosion and control practices. This practice, and others in the IUM, is used statewide to mitigate effects of watershed development. It is regularly updated by the Illinois Association of Soil and Water Conservation Districts.

2.4.2.8. Floodplain Management in Illinois Quick Guide

This guide, published by the IDNR Office of Water Resources, was written to encourage "smart" development and to minimize flood damage. The intended audience is landowners and developers interested in completing projects within floodplains. The guidebook provides visual examples of the hazards of developing within floodplains, including flooding risk and the impacts of adding fill on the upper bank or within the floodplain. Although the main goal is preventing flood damage, several of best management practices within the guidebook reduce non-point pollution and protect riparian areas and streambanks. http://www.dnr.illinois.gov/waterresources/documents/resman_ilfpmquickguide.pdf

2.4.2.9. Extension Land Use Information

The University of Illinois Extension provides information on land use planning and riparian corridor and habitat management for local communities. They provide guidance on cost-sharing incentive programs available through federal, state, and some local governments help reduce the expenses of restoration or protection (http://urbanext.illinois.edu/lcr/environmental.cfm).

Outreach programs provide an additional mechanism for technical assistance in the CNPCP.

2.4.2.10. IEPA's Phase II MS4 Stormwater Program

The program requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

2.4.1.11. IDNR Boating Education and Safety Program

This program provides a Boating Education Certificate of Competency to boaters that complete the course, either in person or online. This course is aimed at boaters under the age of 18, to prevent reckless driving of a motorized boat. Various course components relate to reducing nonpoint pollution, including fueling a boat and proper disposal of waste, oil, and trash.
(http://www.dnr.illinois.gov/safety/pages/boatingsafety.aspx)

2.5. Monitoring

Section 6217 of the CZARA of 1990 calls for a description of monitoring techniques that accompany the prescribed management measures in reducing pollution loads and improving water quality. By tracking the management measures and water quality over time, Illinois will continue to evaluate the performance and effectiveness of the management measures and determine if additional management measures are needed.

To evaluate the effectiveness of the CNPCP, Illinois will use existing monitoring and analysis efforts. Water quality monitoring activities in Illinois are designed to support and direct other program activities by providing information on the quality of water resources and to determine the effectiveness of water pollution control programs. This information is established through the collection and assessment of water and sediment chemistry, macroinvertebrates, fish population and species diversity, physical habitat, fish tissue residue, bioassay, and stream discharge data.

Both fixed station networks and bioassessment surveys (surface water only) are used to monitor water quality in Illinois. Fixed station networks are designed to provide background, current conditions, and long-term trend information from a broad geographic area. Bioassessment surveys are designed to provide more intensive, site-specific water resource information to accurately characterize the biological integrity of water resources and the identification of sources, both point and NPS. Monitoring efforts are conducted by the IEPA, IDNR, Illinois Department of Public Health (IDPH), Illinois Department of Agriculture (IDOA), the Prairie Research Institute and the U.S. Geological Survey. Interagency coordination reduces the duplication of monitoring, standardizes data units, and expands the research database. The participating agencies test different waterbody types for a variety of water quality parameters. Monitoring efforts include problem detection activities and long-term trend analysis.

Evaluation methods for each management measure are included in tables at the end of chapters four through seven. Management measure implementation success can be tracked through these evaluation methods in addition to water quality monitoring.

IEPA's Statewide Nonpoint Source Management Program is critical to this program. Monitoring and assessment efforts are an integral part of the IEPA program, which was finalized in September 2013. Illinois will use these efforts to implement the monitoring and tracking requirement of Section 6217 of the CZARA of 1990.

The goals of statewide monitoring closely align with CNPCP. These objectives include defining and designating priority areas in the state, monitoring implemented BMPs, evaluating NPS pollution reduction and watershed plan implementation effectiveness, and ultimately reducing NPS pollution in order to improve water quality in Illinois. An annotated list of current monitoring and assessment programs that are conducted in Illinois is included in Section 8.2.2.

IEPA has determined that additional monitoring locations, tools, and activities are needed to better define and address NPS pollution impairments in Illinois. To this end, the Illinois Water Monitoring Strategy 2007 – 2012 (Strategy) will be updated starting in the fall of 2013. IEPA uses the Strategy as a

foundation for prioritization and implementation of both the state-wide efforts and the watershed-scale management activities.

The following programs are in place to monitor water quality. This text is modified from the Illinois' Nonpoint Source Management Program document which was approved in September 2013. The applicability of each program to the Illinois Coastal Zone may vary.

Ambient Lake Monitoring Program (ALMP) IEPA conducts the ALMP at approximately 50 inland lakes annually, including sites within the Illinois Coastal Zone, to diagnose lake problems, encourage development of management plans, and to evaluate the effectiveness of programs implemented. ALMP monitoring involves the collection of physical data (e.g., temperature/dissolved oxygen profiles, water clarity, and water color), water and sediment chemical data, and field observations, including weather conditions and the presence of algae and macrophytes. Inland lakes monitoring as part of the ALMP are monitored five times; once during the spring runoff and turnover period (April or May), three times during the summer (June, July, August) and once during fall turnover (October). Monitoring of each lake occurs every 3 or 5 years depending upon the site. Data are routinely collected from three distinct lake stations, 1) deep lake, 2) mid-lake, and 3) headwater. Water quality parameters analyzed include suspended solids, nutrients, and chlorophyll. A sediment grab sample is collected at Stations 1 and 3 once during the sampling season and analyzed for organic and inorganic constitutes. Lakes that serve as source water for public waters supplies are also sampled for organic and inorganic compounds as part of the Source Water Protection Program. A more detailed description of the ALMP is available in Lake Notes brochure.

Ambient Water Quality Monitoring Network (AWQMN) Historically, stream water quality data in Illinois have been collected by several state and federal agencies including the Illinois State Water Survey (ISWS), the Illinois Department of Public Health (IDPH), IEPA, and the U.S. Geological Survey (USGS). This monitoring has resulted in a rich data set from streams ranging in size from small agricultural drainage ditches to the Mississippi River. This network currently includes 202 stations statewide. IEPA uses the AWQMN to (a) provide baseline water quality information; (b) characterize and define trends in the physical, chemical, and biological conditions of the Illinois' waters; (c) identify new or existing water quality problems; and (d) act as a triggering mechanism for special studies or other appropriate actions.

Illinois Clean Lakes Program (ICLP) The Illinois Clean Lakes Program is a financial assistance grant program that fosters lake owners' interest and commitment to long-term, comprehensive lake management. Generally three to five lakes statewide are sampled each year as part of this program.

Facility-Related Stream Surveys (FRSS) IEPA conducts Facility-Related Stream Surveys (FRSS) primarily on wadeable streams. These surveys involve the collection of macroinvertebrate, water chemistry, stream flow, and habitat data upstream, and incrementally downstream, from municipal and industrial wastewater treatment facility discharges. The FRSS information is used to evaluate water quality impacts and the need for additional wastewater treatment controls. Data are also used to (a) characterize the existing and potential aquatic resource of each receiving stream; (b) determine whether there is a significant biological impact to the receiving stream; and (c) support BOW's NPDES permit

reissuance activities. Depending on staff resources, 10 to 30 surveys may be conducted annually statewide, usually during July through September.

Fish Contaminant Monitoring Program (FCMP) IEPA participates in the FCMP in accordance with a memorandum of agreement with IDNR, IDPH, and IDOA. Fish samples area analyzed for approximately 28 parameters. The statewide monitoring network consists of the following components:

- Intensive Basin Survey Samples
- Follow-up Samples
- Lower Priority Samples
- Lake Michigan Samples
- Special Samples.

Intensive Basin Surveys (IBS) Surveys are conducted in selected basins each year by IEPA Bureau of Water in cooperation with the Illinois Department of Natural Resources (IDNR). An IBS is designed to meet several objectives, some of which apply only to one of the two cooperating entities. Basins are selected each year so that statewide coverage is achieved once every five years. Each year, more than 100 stations are monitoring for biological, chemical, and physical indicators of aquatic resource condition. Intensive Basin Surveys are a major source of information for assessing attainment of aquatic life use in Illinois streams. At each IBS station, fish and macroinvertebrate assemblages, physical habitat (including stream discharge), and water chemistry are measured or otherwise characterized to determine resource conditions. Sampling for fish-tissue contaminants and sediment chemistry also is conducted to screen for the accumulation of toxic substances.

Lake Michigan Monitoring Program (LMMP) Recognizing the great importance of Lake Michigan as a natural asset, the 75th Illinois General Assembly authorized IEPA through 615 ILCS 5/14a to "regularly conduct water quality and lake bed surveys to evaluate the ecology and quality of water in Lake Michigan." Since 1977, the Illinois/Indiana portion of Lake Michigan has been monitored under the terms of a cooperative agreement between the City of Chicago and IEPA. The current Lake Michigan Monitoring Program, as conducted by the City of Chicago's Water Quality Surveillance Section, consists of 80 stations on five separate surveys:

- 14 Open Water stations (6 – 18 miles offshore)
- 23 Jardine Water Purification Plant Radial stations
- 22 South Water Purification Plant Radial stations
- 10 North Shore stations (1-4 miles offshore)
- 11 South Shore stations (<1-6 miles offshore)

Radial surveys are designed to collect samples within a ten-mile radius of the water purifications plants. An ideal monitoring season would consist of 22 surveys; four open water surveys, six radial surveys, and twelve shore surveys. Water quality parameters routinely collected by the city include water temperature, nutrients, solids, chloride, sulfate, bacteria, and plankton. Shore surveys are conducted more often than radial and open water surveys. Generally six north shore and six south shore surveys are run each year. As a result, IEPA attempts to accompany the City of Chicago on these shore surveys

in order to collect additional information not routinely collected by the city including: metals, cyanide, pesticides, phenols, and field measurements of pH, dissolved oxygen, conductivity, and turbidity. The Lake Michigan Monitoring Program is utilized by IEPA to provide ongoing water quality information to define trends in chemical and biological conditions of the state's portion of Lake Michigan, to identify new or existing water quality problems, and to review existing water quality standards. Because of the size of Lake Michigan and the availability of the city of Chicago's tugboat, as well as weather related problems, significant IEPA staff resources are required to conduct these annual surveys.

Large Rivers Subnetwork Program (LRSP) IEPA participates in various efforts to monitor the environmental conditions of large rivers, including US EPA's "Survey of the Nation's Rivers' project and ongoing large-river sampling and biological assessment studies by the Midwest Biodiversity Institute and US EPA Region 5.

Source Water Assessment and Protection Program (SWAP) The IEPA is implementing a source water assessment program (SWAP) to assist with wellhead and watershed protection of public drinking water supplies. The 1996 amendments to the federal Safe Drinking Water Act established several programs that will help water suppliers continue to provide safe, adequate, and affordable water to their customers. As required by these amendments, the IEPA, in cooperation with water utilities and other stakeholder, has developed and the USEPA has approved, Illinois' SWAP. The purpose of SWAP is to:

- Identify areas that supply drinking water to the public
- Inventory potential sources of contamination
- Determine the susceptibility of the source water to contamination
- Information the public of the assessment results

Assessments will be conducted for all public water supplies in Illinois, including approximately 1,800 community water supplies. In addition, more than 4,100 non-community water supplies will be assessed. The Source Water Assessment Program will help communities make important decisions about how to protect their drinking water. By working to ensure safe drinking water supplies, the health and economy of the community, as well as the preservation of natural resources, will be greatly improved.

Volunteer Lake Monitoring Program (VLMP) The Volunteer Lake Monitoring Program (VLMP) serves as an educational program that teaches Illinois citizens about lake ecosystems, contributing to an understanding of lake/watershed relationships and promoting informed decision-making. It also provides a cost-effective method of gathering fundamental information about inland lakes. About 175 lakes statewide participate annual in the VLMP. Each VLMP lake generally has three stations: Station 1 is the deep station; Station 2 is at mid-lake and generally mid-depth; and Station 3 is located in the headwater area or opposite of Station 2. Volunteers are requested to monitor each station twice a month from May through October. Volunteers collect Secchi transparency, total depth, and various field observations at each station. Additionally, volunteers collect water quality samples on a monthly basis at a little over half of the sites. These samples are filtered and sent to the laboratory for analysis for nutrients, suspended solids, chlorophyll and other parameters to assess each lake's condition.

Watershed-Based Monitoring (e.g., Nonpoint Source/BMP, TMDL) When monitoring data from various surface water programs are available and relevant to specific CWA Section 319 projects, IEPA uses these data to "evaluate… to the extent that appropriate information is available, reductions in NPS pollutant loading and improvements in water quality…resulting from implementation of the management program," in accordance with CWA Section 319(h)(11). When monitoring data from various Agency surface water programs or contractual efforts are available and relevant to specific watershed or TMDL plans, IEPA uses these data to plan, track its success, and adapt it accordingly.

Lake Michigan Nearshore Bacterial Monitoring Lake Michigan beaches and their coastal waters are a highly valued societal and ecological resource. These beaches are widely popular, highly used, and frequently monitored by stakeholders and local government to ensure that water quality conditions support safe and healthy recreation. There are 51 segments along the shoreline listed as impaired on Illinois' 303(d) list. The segments are not synonymous with "beaches" because not all 51 segments are considered beaches as defined by the local management agencies and are therefore not regularly monitored. However, all Lake Michigan nearshore waters have a designated use for primary contact recreation (77 Ill. Adm. Code 820.400); therefore, IEPA assesses any shoreline segment with available monitoring data at the time of the assessment to determine if they are supporting its designated use. Segments without swimming access are not monitored regularly, but historical data indicate whether each segment supports its designated use. Lake County beaches are monitored by the Lake County Health Department. The beaches within Cook County are monitored by municipal agencies, including: Glencoe Park District, Winnetka Park District, Kenilworth Public Works Department, Wilmette Park District, Evanston Health Department, and Chicago Park District. Analysis includes daily assessment of health risk, long term trend analysis, and Total Maximum Daily Load development and implementation.

Wetland Monitoring Wetland monitoring in Illinois is primarily conducted through the Critical Trends Assessment Program (CTAP) run by the Illinois Natural History Survey. This program, started in 1997, randomly selects 150 wetland sites for sampling statewide and samples plants, birds, and arthropods to monitor ecological conditions over time. This monitoring would be expected to demonstrate trends caused by to nonpoint source pollution. Currently, IEPA neither monitors environmental conditions nor assesses attainment of uses in wetlands. Recently, IEPA coordinated the creation of an Illinois Wetland Technical Working Group that comprises natural resource professionals and stakeholders with diverse public and private interests. This wetland work group will address (a) how to define the beneficial uses of Illinois wetlands; (b) how to monitor wetland resources to assess if such uses are being attained; (c) how to identify causes of non-attainment; and (d) how to track wetland resource conditions through time.

2.6. Implementation Focus, Framework and Schedule

2.6.1. Implementation Framework

The Illinois CNPCP is a direct outgrowth of the State's ongoing implementation of programs that are designed to control nonpoint source pollution, improve and preserve water quality, and protect and enhance coastal natural resources including wetlands and riparian corridors. Implementation will be conducted through a number of existing state programs, including the following:

- Illinois Department of Natural Resources' Coastal Management Program
- Illinois Environmental Protection Agency's Nonpoint Source Management Program
- Illinois Department of Natural Resources' Office of Water Resources permitting programs

In addition, the two counties which make up the Illinois Coastal Zone, Cook and Lake Counties, have robust ordinances in place which establish uniform stormwater management requirements and provide significant technical assistance on best management practices which reduce nonpoint source pollution. These requirements supplement the state programs and are managed by MWRD and LCSMC respectively, both of which are well-resourced and technically adept regional governmental entities.

The CNPCP relies on a mix of voluntary and regulatory approaches for controlling nonpoint source pollution. For example, the Clean Marinas Program is a voluntary certification program which recognizes and encourages best management practices for sources of nonpoint pollution originating from marinas.

2.6.2. Implementation Focus and Schedule

During development of the CNPCP, ICMP and IEPA have worked with an Advisory Panel made up of expert members of the public to identify implementation activities which will be key priorities. Our expert panel identified over forty opportunities for augmenting current aspects of the existing nonpoint source framework within the Illinois Coastal Zone (See Appendix 2.2). The plurality (15) related to urban sources of nonpoint pollution (Table 2-3). The urban areas gaps were generally bigger and more pressing issues in our regions such as implementing green infrastructure practices, retrofits and protecting sensitive ecological areas. In comparison, typical gaps identified for marinas included a need for outreach and education on topics such as the Clean Marinas program, bilge disposal laws, etc..

Table 2-3 Number of Gaps per Source Category Identified by the Advisory Panel

Source Category	Number of Gaps Identified by Panel
Urban Areas	15
Wetlands	10
Marinas	9
Hydromodification	8

We have summarized the results of the advisory panel process into the following priorities. These focus areas are organized approximately in order from the highest to lowest priority, based upon the needs of

our Coastal Zone, stakeholder input, and ICMP priorities. We have no focus areas identified for Agriculture or Forestry because we are requesting exemption from these nonpoint source categories.

Focus Areas:

1) Clean Marinas Program (Marinas and Recreational Boating)
2) Implement, maintain, and monitor green infrastructure and other sustainability and best management practices (Urban Areas)
3) Wetland protection and restoration (Wetlands)
4) Ravine, riparian, and stream protection and restoration (Wetlands)
5) Sand management (Hydromodification)
6) Snow management and road salt control (Urban Areas)
7) Seawall repair, removal and replacement (Hydromodification)
8) Develop, adopt, implement, and monitor watershed plans (Urban Areas)
9) Water quality monitoring (Urban Areas, Marinas, Hydromodification, and Wetlands)
10) Other issues including commercial marinas, asphalt sealants, gull/wildlife control (primarily Urban Areas, Marinas)

Under each focus area, we have identified goals along with potential activities that the CNPCP may implement. Our main strategies for program implementation include education and outreach, training, promotion of existing tools and resources, coordination, and funding.

Our draft workplan (Table 2-4) includes activities that we expect will be undertaken by CNPCP staff, activities which can potentially be funded through IDNR or IEPA, and opportunities for CNPCP to partner with other local and regional entities. In compliance with the federal guidelines, our timeline following program approval is five years for program implementation and evidence of progress. We recognize that implementation of the CNPCP is a long-term commitment and have worked with the advisory panel to identify realistic roles for our program in the next five years.

Table 2-4 Five Year Implementation Goals for the CNPCP

Goals	Potential Role of CNPCP	Source Category
1) Clean Marinas Program		
Increase number of certified Clean Marinas	Outreach to marina operators on the Clean Marinas program	Marinas
Decrease gull problems caused by fish waste and solid waste	Enforce fish waste regulations; Outreach and education to all marinas on best practices; Certify more Clean Marinas	Marinas, Urban Areas
Increase awareness of regulations and best practices among out-of-state and resident boaters who don't have dock slips at Clean Marinas	Support work of Clean Boats Program to reach boat-ramp users; Coordinate with Great Lakes Clean Marina program to provide information to visiting out-of-state boaters	Marinas
Increase compliance with boat sewage discharge laws	Outreach on laws to boaters; Workshops for Marina management	Marinas
Reduce nonpoint source pollution from boat maintenance facilities	Increase number of certified Clean Marinas; Outreach to independent facilities on best practices	Marinas
2) Implement, maintain, and monitor green infrastructure and other sustainability and best management practices		
Increase implementation of green infrastructure practices and sustainable design	Support green infrastructure planning and/or implementation; Work with partners to provide training opportunities and materials	Urban Areas, Wetlands
Improve monitoring and maintenance of green infrastructure and BMPs	Promote operations/maintenance resources such as the Illinois Urban Manual; Coordinate with partners including MWRD and LCSMC to provide training	Urban Areas
Increase daylighting of storm sewers	Partner with local project leads to set priorities and assess next steps; Help identify and pursue funding opportunities	Hydromodification
3) Wetland protection and restoration		
Implement wetland restoration projects in a regionally-collaborative manner	Coordinate with local and regional public landowners and planning entities on prioritizing wetlands for restoration, using latest mapping tools where needed; Support restoration planning and implementation	Wetlands
Prioritize restoration and acquisition opportunities	Support mapping and data collection; Create inventory of restoration opportunities; Use existing 319 watershed plans as a resource	Wetlands
Increase restoration of privately-owned wetlands	Create data inventory on wetland ownership; Provide outreach on conservation easements and funding opportunities; Outreach and education on restoration aimed at private owners	Wetlands

3) Wetland protection and restoration, cont.		
Improve and connect hydrology in wetland areas	Help prioritize restoration projects with technical tools; Support inventories and prioritization of sensitive areas and restoration planning	Hydromodification
4) Ravine, riparian, and stream protection and restoration		
Increase implementation of BMPs on both public and private properties with ravines	Provide outreach on conservation easements and funding opportunities; Connect landowners with existing information and resources; Build partnerships to prioritize restoration projects with technical tools	Hydromodification
Improve riparian land management through coordination between riparian landowners	Create and/or promote coordination mechanisms such as working groups, forums, symposia, etc.	Wetlands
Improve the quality of ravine restoration projects	Outreach and education about existing programs and resources to communities and municipalities	Hydromodification
Protection and management of riparian lands	Support restoration and land acquisition projects; Outreach and education to riparian landowners on conservation easements and funding opportunities	Wetlands
Regulation of stormwater discharges into ravine systems	Outreach and education to municipalities; Support sustainable coastal planning	Urban Areas
5) Sand Management and shoreline protection and restoration		
Balance sand management and erosion control	Coordinate local, federal and state interests; Work with local communities to provide more info about state and federal programs; Outreach to local communities	Hydromodification
Reduce the impacts of new structural shoreline projects	Outreach and education about existing programs and resources to communities and municipalities	Hydromodification
6) Snow management and road salt control		
Improve the management of snow	Outreach and education to municipalities and private commercial enterprises on existing regulations	Urban Areas
Decrease impacts of salt (roads, sidewalks, parking lots)	Investigate the creation of a salt applicator licensing program (EX: Minnesota)	Urban Areas
7) Seawall repair, removal, and replacement		
Naturalize channelized streams and reduce risks related to failing sea walls	Work with partners to prioritize seawalls for repair, removal, or replacement, with a focus on reducing risks to people and the environment such as persistent toxins; Work with municipalities and land owners to identify next steps	Hydromodification

7) Seawall repair, removal, and replacement, cont.		
Repair and maintenance of new or existing structures (seawalls, piers)	Promote operation and maintenance technical resources; Provide information on available funding	Hydromodification
8) Develop, adopt, implement, and monitor watershed plans		
Monitoring/follow up on implementation of watershed plans	319 program staff	Urban Areas
Increase comprehensive planning at watershed scale through the development, adoption, and implementation of 319 plans	Funding is available for 319 plans; Outreach and education to local government and stakeholders; Support partnerships to complete 319 plans for additional watersheds	Urban Areas
Protect sensitive ecological areas	Ensure that sensitive ecological areas are included in 319 plans; Participate in regional planning initiatives such as the Chicago Wilderness Green Infrastructure Task Force; Provide information on available funding	Urban Areas
9) Water quality monitoring		
Improve water quality monitoring	Organize a consortium to bring together agencies conducting monitoring; Advocate for the implementation of additional water quality monitoring with strategic placement of monitors	Urban Areas
10) Other issues including commercial marinas, asphalt sealants, gull/wildlife control.		
Reduce nonpoint source pollution originating from commercial marinas	Outreach to commercial marinas on best practices and existing legislation	Marinas
Asphalt sealants	Support outreach projects such as point of purchase education on sealants	Urban Areas, Marinas
Urban wildlife and nuisance control (gulls, pets)	Education and outreach to park districts and other land owners about management tactics	Urban Areas

Progress on many of these goals will be captured in the ICMP performance measures and grant reports issued to NOAA. Many of the presentations, trainings, and coordination meetings undertaken as part of CNPCP implementation, either through CNPCP staff time or ICMP grants, will be included when ICMP reports performance measures. Other measures of progress will be captured in biannual grant reports to NOAA, regarding the Coastal Management Program Funding, and to USEPA in grant reports for the Lake Michigan Lakewide Management Plan funding ICMP receives and 319 funds. As described in the tables at the end of Chapters 4 through 7 and in the water quality monitoring section in Chapter 8, a variety of other evaluation methods are available to track progress in addition to performance measures.

Chapter 3. Agriculture & Forestry

3.1. Introduction: Agriculture

About 89 percent of Illinois' cropland is considered prime farmland, ranking the state third nationally in total prime farmland acreage. Illinois ranks second nationally in exporting agricultural commodities. Agriculture in Illinois generates more than $9 billion annually, with corn accounting for nearly 40 percent of that and soybeans about one-third. Livestock, dairy, and poultry are most of the balance. Billions more dollars flow into the state's economy from agriculture-related industries, such as farm machinery manufacturing, agricultural real estate, and production and sale of value-added food products.

In contrast to the overall socioeconomic importance of agriculture to the state, there is limited agriculture occurring in Illinois' Illinois Coastal Zone. Nonpoint pollution associated with agricultural operations is not significant. In addition, continued urbanization of the metropolitan Chicago area supports the conclusion that remaining agricultural areas will likely be developed or converted to forest preserves, public open space and parks in the future.

The NOAA and USEPA allow states to exclude some categories, subcategories or sources from the requirements of the coastal nonpoint program. Such exclusion may occur if:

- A nonpoint source category or subcategory is neither present nor reasonably anticipated in the Illinois Coastal Zone, or,
- A state can demonstrate that a category, subcategory or particular source of nonpoint pollution does not and is not reasonably expected to, individually or cumulatively, present significant adverse effects to living coastal resources or human health.

It would not be useful to develop priorities and strategies for a watershed activity that is not present nor expected to become a source of nonpoint pollution. Therefore Illinois requests a categorical exclusion for agriculture.

3.2. Request for Exclusion of Agriculture Category

3.2.1. Agricultural Land in the Coastal Zone

Historically agriculture in Illinois' Coastal Zone was undoubtedly important; today agriculture is a minor land use. According to the USDA's National Agricultural Statistics Service, cropland constitutes less than 0.7% of the coastal zone today; pasture accounts for another 0.5%. This proportion is expected to diminish in future years with continued urbanization of the Chicago metropolitan area. The trend in land use in the coastal zone involves conversion of cropland to residential, industrial, commercial and open space (parks, forest preserves). Table 3-1 summarizes agricultural land use (and other land covers/uses) for the Illinois Coastal Zone, as taken from the 2012 30 meter grid satellite imagery by the USDA.

Table 3-1 Agriculture Land Use in Illinois Coastal Zone

Land Cover	Acres	Percent
Corn	102.5	0.17%
Soybeans	308	0.50%
Winter Wheat	5.6	0.01%
Double Crop Winter Wheat/Soybeans	6	0.01%
Alfalfa	1.1	0.00%
Potatoes	0.4	0.00%
Herbs	1.8	0.00%
Pasture/Hay	298.7	0.48%
All Other Land Uses	61,044.9	98.81%
Total	61,768.9	100%

The 2014 Integrated Water Quality Report (IEPA 2014) does not indicate that cropland is a source of water quality impairment of any lake or stream in the Illinois Coastal Zone.

3.2.2. Animal Husbandry in the Coastal Zone

There is no commercial rearing of livestock in the Illinois Coastal Zone. The 2014 Integrated Water Quality Report (IEPA 2014) does not indicate that livestock areas are a source of water quality impairment of any lake or stream in the Illinois Coastal Zone.

3.3. Agriculture Conclusions and Recommendations

Information obtained from agencies at the federal, state and local levels strongly supports the exclusion of agriculture from Illinois' CNPCP. This conclusion is based on the following key factors:

- Cropland in Illinois' Coastal Zone is insignificant and is continuing to be lost to urbanization and restoration as parks and open space. The agricultural areas in the watershed are fragmented due to urbanization and becoming less viable as commercial operations.
- Nonpoint source inventories and data (305(b) and 303(d)) do not indicate that crop production or livestock rearing is a significant source of water quality impairment of any lake or stream in the Illinois Coastal Zone.
- Soil erosion that is occurring in the 6217 boundary area is more likely due to stream bank erosion caused by more extreme flow variation due to the increasingly impervious watersheds of the Chicago metropolitan area or to construction sites than agriculture. These NPS categories are addressed in other parts of this program.

Illinois has ongoing agriculture management programs that include NPS control management measures. Residents with small-scale agriculture can take advantage of these existing programs.

Based on these factors, agricultural activities are not significant nor are they foreseen, either individually or cumulatively, to present significant adverse impacts to coastal resources or human health in Illinois' Illinois Coastal Zone. And on this basis, Illinois believes a categorical exclusion for agriculture from its CNPCP is reasonable and warranted.

3.4 Introduction: Forestry

The NOAA and USEPA allow states to exclude some categories, subcategories or sources from the requirements of the coastal nonpoint program. Such exclusion may occur if:

- A nonpoint source category or subcategory is neither present nor reasonably anticipated in the Illinois Coastal Zone, or,
- A state can demonstrate that a category, subcategory or particular source of nonpoint pollution does not and is not reasonably expected to, individually or cumulatively, present significant adverse effects to living coastal resources or human health.

There is no commercial forestry in Illinois' Coastal Zone and nonpoint pollution associated with commercial forestry operations are nonexistent. In addition, continued urbanization of the metropolitan Chicago area supports the conclusion that no commercial forestry will occur in the future. It would not be useful to develop priorities and strategies for a watershed activity that is not present nor expected to become a source of nonpoint pollution. Therefore, based on the following information, Illinois believes a categorical exclusion for forestry is justified.

3.5 Request for Exclusion of Forestry Category

Most of the forestland in Illinois (more than 90%) is owned by private landowners. In the Illinois Coastal Zone, 28.04% of forested is on public land (state and local parks and forest preserves). The balance is small tracts of undeveloped private land (Table 3-2).

Table 3-2 Forestry Ownership in the Coastal Zone

Owner	Number of Owners	Acres	Percentage
Private	1546	2487.5	71.96%
Public	353	969.2	28.04%

IDNR Division of Forestry records make no distinction between private versus public forest ownership. Forest ownership is divided among an increasing number of private owners. This fragmentation is attributed to continuing urbanization, which diminishes the efficiency of timber harvests. Larger areas that are less fragmented, are preserved by the state and local government, and are not used for commercial forestry. Existing highways and commuter rail lines facilitate new residential and industrial developments. Such development continues to divide forest areas and reduce the potential for future timberland harvests.

According to the IDNR Division of Forestry, there are no sawmills in the Illinois Coastal Zone. Cook County has no sawmills and Lake County has one specialty sawmill in Zion, IL, outside of the coastal zone. This facility contracts for small to mid-size logging and milling and reports that they occasionally harvest single trees from residential properties. They specialize in salvaged lumber, resawing, and custom millwork for the northern Chicago metropolitan area and southern Wisconsin.

In 1983 (and amended later), the Illinois General Assembly passed the Illinois Forestry Development Act (IFDA) (525 ILCS 15). The IFDA amended the Timber Buyers Licensing Act (225 ILCS 732/2), requiring that when timber or logs are sold the buyer shall deduct 4% of the purchase price from the payment to the timber grower an amount which equals 4% of the purchase price, and forward this fee to the IDNR, along with a report of the purchase on IDNR-approved forms. Consultation with the DNR Division of Forestry indicates a total absence of IFDA clients in Illinois' coastal zone.

3.6 Forestry Conclusions and Recommendations

Information obtained from agencies at the federal, state and local levels strongly supports the exclusion of forestry from Illinois' CNPCP. This conclusion is based on the following key factors:

- Commercial forestry in Illinois' Illinois Coastal Zone is insignificant or nonexistent. The wooded areas in the watershed are fragmented due to urbanization. Larger forests in the Coastal Zone are protected as parks and forest preserves.
- Sawmills do not exist in the Coastal Zone. Cook County has no commercial sawmills and Lake County has one, located outside the coastal zone.
- Individuals who reside in low-density suburban areas own small tracts of forestland. These small tracts are not conducive to efficient commercial logging. In most cases there is no desire to log the property.
- Harvest of timber, if it occurs will be extremely small scale (e.g. single trees), will occur infrequently, and if it occurs, is not likely to pose a significant nonpoint source pollution source.
- Nonpoint source inventories and data (305(b) and 303(d)) do not suggest that forestry management or timber harvesting activities are a source of water quality impairment of any lake or stream in the Illinois Coastal Zone.
- Soil erosion that is occurring within the Coastal Zone is more likely due to stream bank erosion caused by more extreme flow variation due to the increasingly impervious watersheds of the Chicago metropolitan area or to construction sites than forestry. These NPS categories are addressed in other parts of this program.

Illinois has ongoing urban forestry management programs that include NPS control management measures. Residents can take advantage of these existing programs.

Based on these factors, commercial forestry-related activities are not significant nor are they foreseen, either individually or cumulatively, to present significant adverse impacts to coastal resources or human health in Illinois' Coastal Zone. And on this basis, Illinois believes a categorical exclusion for forestry from its CNPCP is reasonable and warranted.

Chapter 4. Urban Areas

4.1.Introduction

Illinois' 63-mile-long 61,769-acre coastal zone has undergone tremendous and permanent modifications, including:

- Over 310,000 residents in about 117,900 households
- Monumental hydrologic modifications
- Enormous industrial and commercial development
- Construction of a world-class transportation infrastructure
- Creation of some of the greatest skyscrapers in the world

Illinois' shoreline is highly urbanized and has been subject to considerable stress from intense land use and competition to serve the economic and workforce needs and demands of this densely populated area. Lake and Cook counties are currently home to 6 million people and are projected to be home to nearly 6.8 million people by 2030. More than 20 million people visit the Lake Michigan shoreline each year. Illinois Beach State Park alone has over 2 million visitors annually. Lake Michigan provides water to nearly 7 million Illinois residents (over half of the state's population) and the industries that support those 7 million people (Figure 4-1).

4.1.1. Stormwater Management Regulations in Urbanized Areas

In 1987, amendments to the Clean Water Act extended the National Pollutant Discharge Elimination System (NPDES) to stormwater in two phases. Phase I addressed the most significant sources of pollution in storm water runoff (large construction sites and cities over 100,000 in population). Phase II addresses other sources to protect water quality. Today, IEPA administers the stormwater NPDES program in Illinois and addresses and regulates stormwater runoff from construction sites, industrial properties and municipal separate storm sewer systems (MS4) communities. In addition, IEPA regulates traditional municipal wastewater treatment plants, combined sewer overflows and other point source discharges.

Certain stormwater management measures that are covered in the NPDES Stormwater Program (Phases I and II) are no longer subject to requirements of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) Section 6217 CNPCP. USEPA and NOAA have identified the following ten management measures specified in the 6217(g) guidance that overlap in part or in full with the NPDES storm water regulations:

- New Development (geographically limited)
- Construction Site Erosion and Sediment Control
- Construction Site Chemical Control
- Existing Development (geographically limited)
- Road, Highway and Bridge Construction Projects
- Road, Highway and Bridge Construction Site Chemical Control
- Road, Highway and Bridge Operation and Maintenance (geographically limited)

- Road, Highway and Bridge Runoff Systems (geographically limited)
- Hydromodification, Erosion and Sediment Control for Dams
- Hydromodification, Chemical and Pollutant Control for Dams

Figure 4-2 illustrates that essentially all of Illinois' coastal zone is considered an urbanized area and is governed by the NPDES stormwater regulations. The only portions not included in municipal-level permits are unincorporated sections of Lake County and the 4,160-acre Illinois Beach State Park near Zion, Illinois in Lake County.This state park represents about 6.7% of the coastal zone and is owned and managed by the IDNR, one of the state agencies responsible for the 6217 program. Both the unincorporated areas in Lake County and Illinois Beach State Park are covered by the Lake County MS4 Permit because it is a countywide permit.

4.2.Sources of Nonpoint Pollution in Urban Areas

This section discusses sources of nonpoint source pollution associated with urbanization and the effect of existing and new development on Lake Michigan and its tributaries. Ranges of stormwater pollutant concentrations and unit area loading rates are available for urbanized land (Lin 2004, Corsi et al. 1998). These concentrations and rates can be applied locally to estimate nonpoint source loads in the coastal zone. Land managers or regulators should use their own professional judgment as to the applicability of these values to their area of interest. A detailed discussion of the range of nonpoint sources and their effects on water quality and riparian habitats is provided in Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (USEPA 1993).

4.2.1. Runoff from Developed and Developing Areas

Stormwater runoff quantity and quality are significantly altered as watersheds are developed for industrial, commercial, residential and related uses. The hydrology and quality of runoff undergo significant changes when impervious surfaces like building rooftops and roadways replace natural landscapes. The effect of impervious surfaces is to reduce infiltration, increase runoff speed, and increase direct stormwater volume and storm-related pollutant loadings to streams. Consequently, stream channels in urbanized watersheds are typically eroded and have reduced biological integrity. To compensate for increased storm runoff from developed land, stormwater conveyance systems are built. Historically, these systems have been designed to convey runoff in an efficient manner without regard for their impacts on waterbodies to which they discharge and downstream ecosystems. While this design philosophy is beginning to change, these negative consequences will continue for decades.

Stormwater runoff from impervious surfaces is efficient at collecting and transporting pollutants downstream to receiving waterbodies. Pollutants associated with urban areas are specific to the type and intensity of the land use. Some examples of pollutants include sediments, various nutrients, oxygen demanding substances, road salt, heavy metals, oils, grease and hydrocarbons, and bacteria. Runoff from commercial lands such as shopping centers, business districts, and various roads and parking lots may contain high hydrocarbon loadings and metal concentrations from automobiles. Retail gasoline stations may generate high loads of heavy metals, hydrocarbons, and other automobile-related pollutants; these facilities regularly have fuel spills, even small ones, due to accidents and human error.

4.2.2. Runoff from Construction Sites

Sediment is the pollutant most associated with runoff from construction sites and is the pollutant primarily regulated at construction sites. There may be other pollutants, such as petroleum products, concrete wash water or other construction chemicals that may be associated with construction runoff. The pollutants associated with construction activities are dependent on the nature of the construction activity and the physical characteristics of the project site. And, the overall adversity of effects of construction site stormwater depends on the proximity to the receiving waters.

Construction activity that results in significant earthmoving has a higher potential for high sediment loss. Projects with heavy equipment and significant vehicle refueling, fuel storage, and equipment maintenance areas have higher potential for contamination of stormwater by lubricants, fuel, or other petroleum products.

4.2.3 Runoff from Existing Development

Most existing development was constructed without consideration for water quality protection, with stormwater management systems designed solely to convey runoff efficiently off the site, without regard for downstream effects. This makes pollutant reduction in existing developments difficult. Retrofits, including gutter disconnection and green infrastructure such as permeable pavement, rain gardens, green roofs, and naturalized retention and detention basins are becoming increasingly popular, but are not poised to replace conventional systems in the near to medium term. The City of Chicago captures much of its stormwater during large events in the

4.2.4 On-site Sewage Disposal Systems (Request for Exclusion)

On-site sewage disposal systems typically consist of a septic tank and a dispersal field (network of trenches filled with pipe and gravel). On-site systems may also include aerobic treatment units with spray irrigation, aerobic treatment units with drip irrigation, low-pressure dosing systems, and lagoon systems. All are designed and installed for the purpose of wastewater treatment. Design and installation is site specific. On-site systems may require significant maintenance. Failure of on-site systems can often be attributed to incorrectly characterizing waste loads, limiting soil or geologic features, or improper depth to groundwater. An increase in water usage over a period of time can also exceed the design capability of a system and result in failure.

Illinois' coastal zone is essentially completely sewered. In Cook County, collection and treatment services are provided by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). In Lake County, collection and treatment is provided by the North Shore Sanitary District (NSSD) or local municipalities that collect wastewater for treatment by the NSSD (Figure 4-3). The NSSD does not serve the communities of Winthrop Harbor, Zion or Beach Park. These communities own and maintain their own sewage collection systems, and deliver their sewage to NSSD for treatment. We were unable to ascertain sewer hookup availability for approximately 400 households in unincorporated areas of Lake County, representing much less than one percent of the population within the Illinois Coastal Zone. Housing density suggests that most of these households are sewered.

The Illinois Beach State Park is a 4,160-acre park, physically encompassing two units: north and south. The north unit is not sewered by the NSSD. The park's northern unit is the site of Camp Logan, a prisoner of war camp during the American Civil War and subsequently a National Guard training facility. The northern unit includes the former Camp Logan site, IDNR offices, and the Lake Michigan Biological Station (LMBS) staffed by the Illinois Natural History Survey. There is one toilet and one shower in the permanent building (the shower is not generally used) and the trailers that are used as offices have two toilets. There are currently nine employees working at LMBS. All toilets and the shower of these are served by on-site treatment systems (rebuilt in 1996). The south unit, which includes the Illinois Beach Resort and Conference Center, is sewered. There are eight pit toilets in the camping and picnicking areas. The pit toilets are pumped out and checked for leaks annually. The pit toilets are scheduled to be replaced with new pit toilets in 2014.

Overall, on-site septic systems in Illinois' coastal zone will contribute negligible pollutant loads to Lake Michigan. Any further development in the future would involve connection to existing or new sewerage system.

There are point sources of pollutants in Illinois' coastal zone that are regulated under NPDES permits. The North Shore Channel, North Branch Chicago River, Chicago River, South Branch Chicago River, South Fork South Branch Chicago River and Calumet River all have combined sewer overflows (CSO) that only discharge during extreme storm events (Figure 4-4). During the majority of CSO discharge occurrences, the Chicago Area Waterway System (CAWS) continues to flow away from Lake Michigan. Only during the most extreme flood conditions does the MWRD open locks or sluice gates to allow discharge to Lake Michigan at one or more of three possible locations (Wilmette Pumping Station, Chicago River Controlling Works, or O'Brien Lock and Dam) to protect residences and businesses from flooding. Opening of the locks or sluice gates as flood protection is allowed by legislation and through agreements between the Army Corps of Engineers and MWRD. CSO discharges which enter Lake Michigan during these rare events are regulated under the Clean Water Act. MWRD is currently under a consent decree with the USEPA and the US Department of Justice to reduce untreated sewer discharges to safeguard water quality and protect human health. The Clean Water Act settlement was reached in December 2011 and requires the MWRD to complete its tunnel and reservoir plan to increase storage capacity for storm water, control trash and debris in overflows using skim boats, and implement a green infrastructure program to reduce stormwater runoff (United States Department of Justice 2011).

4.2.5 General Sources (Including Household, Commercial, and Landscaping)

General sources of pollutants are released through the routine activities of the public, government organizations, and private businesses. This category includes household activities, lawn and garden care, vehicle use and maintenance, illegal discharges, and pet and domesticated animal waste.

Household activities produce waste that can include paint, solvents, lawn and garden care products, detergents and other cleansers, and automotive products such as transmission fluid and oil. A household product that contains hazardous substances becomes household hazardous waste when the consumer opts to dispose of it; examples of household hazardous waste are batteries, fluorescent light

bulbs, and various consumer electronics. Household hazardous waste is not regulated as hazardous waste under federal or state laws.

Landscaping can contribute to the water pollution from the improper application or over-application of fertilizers and pesticides. Nutrients such as nitrogen and phosphorus can enter surface water by runoff or can leach to groundwater. Improper disposal of yard waste can also lead to nonpoint source pollution in runoff.

Litter can also contribute to the degradation of surface water. Smaller materials can be carried by runoff and deposited in surface waters. Larger solid waste items such as refrigerators or automobile tires can impair water quality through the release of fluids into surface or ground waters or habitat degradation. These items also degrade the aesthetic and recreational value of surface waters and may be a hazard to some species of wildlife and aquatic organisms.

The waste of pets and quasi-domesticated wildlife has been found to be an important cause of nonpoint source pollution, particularly in urban areas. This waste can elevate fecal coliform bacteria levels in receiving waters. Urban wildlife, particularly ducks, Canada geese and gulls, can be major contributors to the nonpoint source problem in areas where they congregate.

The contamination of surface and ground water can be reduced through the proper handling, disposal, and management of these general sources of pollutants.

4.2.6 Roads, Highways, and Bridges

Roads, highways, and bridges generate pollutants that can become nonpoint sources during construction and operation. Construction activities expose soil to erosional processes. There are also source areas like fuel storage and fueling stations, solid waste generation and handling areas, and chemicals used during construction or site stabilization and restoration. Pollutants associated with road operations include weed management chemicals, solid waste from littering, automobile use, and pollutants washed from the pavement (like deicing chemicals, oils and metals). County and state highway maintenance garages can also contribute to nonpoint pollutant loadings. Maintenance garages are typically used for refueling and storage of sand and salt materials. If not properly managed, these substances can become potential pollutants.

4.3 Management Measures for Urban Sources

This section addresses management measures for urban areas; management measures are economically achievable measures to control pollution of coastal waters, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives (USEPA 1993). This section includes 15 management measures and is organized in the manner presented in USEPA's guidance documents:

1. (4.3.1) Urban Runoff New Development Management Measure (Exclusion Requested)
2. (4.3.2) Watershed Protection Management Measure

3. (4.3.3) Site Development Management Measure
4. (4.3.4) Construction Site Erosion & Sediment Control Management Measure (Exclusion Requested)
5. (4.3.5) Construction Site Waste and Chemical Control Management Measure (Exclusion Requested)
6. (4.3.6) Existing Development Management Measure (Exclusion Requested)
7. (4.3.7) New On-Site Sewage Disposal Systems (Exclusion Requested)
8. (4.3.8) Operating Onsite Sewage Disposal Systems Management Measure (Exclusion Requested)
9. (4.3.9) Pollution Prevention Management Measure
10. (4.3.10) Management Measures for Planning, Siting and Developing Roads and Highways
11. (4.3.11) Management Measure for Bridges
12. (4.3.12) Management Measure for Road, Highway and Bridge Construction (Excluded)
13. (4.3.13) Management Measure for Road, Highway and Bridge Construction Site Waste and Chemical Control (Excluded)
14. (4.3.14) Management Measure for Road, Highway and Bridge Operation & Maintenance (Excluded)
15. (4.3.15) Management Measure for Road, Highway and Bridge Runoff Systems (Excluded)

4.3.1 Urban Runoff New Development Management Measure (Exclusion Requested)

This management measure is intended to decrease the erosion potential of increased runoff volumes and velocities associated with development-induced changes in hydrology and to remove suspended solids and associated pollutants entrained in urban runoff during and after development. In this way, this management measure strives to retain hydrological conditions that resemble those of the undeveloped condition and to preserve natural systems, including stream and wetland habitats.

During the development process, both the existing landscape and hydrology are altered, in the following ways:

- Compaction decreases soil porosity
- Paving and building construction increases impermeable surfaces area
- Storm sewers and ditches are constructed
- Earthmoving changes topography and removes vegetative cover
- Native vegetation is replaced with exotic species, lawns, and high maintenance landscapes

Such changes result in increased runoff volume and velocities and adversely affected aquatic habitats (USEPA 1993).

Federal guidelines for the Urban Runoff New Development Management Measure specify that practices should meet the following criteria:

- By design or performance
    - After construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80 percent. For the purposes

of this measure, an 80 percent TSS reduction is to be determined on an average annual basis[3], or

- Reduce the post-development loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and

- To the extent practicable, maintain post-development peak runoff rate and average volume at levels that are similar to predevelopment levels

Sound watershed management requires that both structural and nonstructural measures be employed to mitigate the adverse impacts of storm water. Hence USEPA (1993) recommends that the New Development Management Measure be paired with the Watershed Protection Management Measure and Site Development Management Measure as a system to prevent and mitigate the problems associated with new urban development. In combination, these three management measures applied on-site and throughout watersheds can be used to provide watershed protection and prevent erosion, flooding, and increased pollutant loads that are associated with poorly planned development.

Structural practices to control urban runoff rely on three basic mechanisms to treat runoff: infiltration, filtration, and detention. USEPA (1993) provides lists specific urban runoff control practices that relate to these mechanisms, including information on advantages, disadvantages, and costs.

Applicability

State CNPCPs are not required to include the New Development Management Measure for any new development, redevelopment, and new and relocated roads, highways, and bridges occurring in urbanized areas subject to Phase I or Phase II MS4 permits. The expectation from USEPA is that these Stormwater Permit programs are appropriately stringent enough to ensure water quality protections from storm water impacts. All of the Illinois Coastal Zone is subject to a Phase I or Phase II MS4 Permit (See Section 4.11 and Figure 4-2). Consequently, the Illinois CNPCP is requesting a geographical exemption from this management measure.

4.3.2 Watershed Protection Management Measure

This management measure is applied to new development and any redevelopment that generates nonpoint source pollutants. The measure provides general goals for local governments to use in developing comprehensive programs for guiding development and land use activities in a manner that will prevent and mitigate the effects of nonpoint source pollution. This measure is effective in producing long-term water quality benefits and generally lacks the recurring costs associated with structural controls.

Federal criteria indicate that watershed protection management measures should:

[3] Based on the average annual TSS loadings from all storms less than or equal to the 2-year/24hour storm. TSS loadings from storms greater than the 2-year/24-hour storm are not expected to be included in the calculation of the average annual TSS loadings. Methods are available to estimate the impacts of new development on runoff volumes, rates and quality (NRCS 2009).

- Avoid conversion, to the extent practicable, of areas that are highly susceptible to erosion and sediment loss
- Preserve areas that provide important water quality benefits or are necessary to maintain riparian and aquatic biota
- Locate development of roads, highways, and bridges to protect, to the extent practicable, the natural integrity of waterbodies and natural drainage systems

Applicability

The Illinois CNPCP addresses this management measure. This management measure, nationwide, applies to new development or redevelopment, including construction of roads, highways and bridges that generate nonpoint source pollutants. The Illinois CNPCP addresses this management measure. This management measure is intended to reduce nonpoint source pollution in all areas within the coastal management area through the long-term behavioral changes that reduce nonpoint source pollutant loading.

Existing Programs or Practices

Following is a list of programs, practices, and activities that are being implemented statewide or in Cook and Lake Counties applicable to this management measure Details on each program which will be used to implement this measure are summarized in Table 4-1.

Regulatory

Projects that are located in or near waterbodies and natural drainage systems that have the potential to discharge materials to waters of the United States trigger the "dredge and fill" permitting process **(Joint Permitting)**. This nationwide regulation is implemented by the State of Illinois through environmental reviews and approvals that support the three above criteria for this management measure. Regulations for **401 Water Quality Certifications** by the IEPA are at **35 IAC 395**. The IEPA performs a water quality review that evaluates many factors, including potential violation of water quality standards, point and nonpoint source pollutant loading, and erosion potential and sediment loads. Their antidegradation review under **35 IAC 302.105** evaluates deterioration of water quality, water uses, and existing aquatic communities. The Agency is authorized to place conditions on its certification (or waiver of certification) of activities under the IAC rules. Such conditions relate to the characteristics of the specific site, the nature of the intended activities, and the resources requiring protection. The IDNR is involved in a parallel review under its authority (**17 IAC 3700 *et seq*.**) to protect threatened or endangered species or their critical habitat, natural areas, waterways, floodplains, and wetlands. The DNR's approvals may also concern special provisions to protect natural resources.

The **Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq*.)** is administered by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The purpose of the Cook County Watershed Management Ordinance is to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments. Article 4 of the Ordinance mandates that new developments must meet certain erosion and sediment control requirements and references the Illinois Urban Manual as well as MWRD's WMO Technical

Guidance Manual. The Ordinance mandates that all developments incorporate erosion and sediment control practices into their initial site plans, placing primary emphasis on erosion control practices as preventative source controls, while sediment control practices are secondary measures designed to contain eroded soil after it is in transport. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood elevations or decrease conveyance capacity on other property. Developments also cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices such as streambank stabilization and native vegetation planting are required. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.

The **Lake County Watershed Development Ordinance (55 ILCS §5.5-1062)** is administered and enforced by the Lake County Stormwater Management Commission (SMC), as well as authorized communities in Lake County. The purposes of the Lake County Ordinance are, among others, to prevent flood damages to life and property, to assure that development does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. This Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. In fact, any development which hydrologically disturbs 5,000 square feet or more is required at a minimum to meet the soil erosion and sediment control performance standards of the Ordinance. Stormwater management systems and erosion and sediment control measures must be functional before building permits are issued or construction begins, again emphasizing the preventative nature of erosion controls. Section B of Article 4 of Lake County's Ordinance pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, NRCS, et al., (as amended) as a minimum standard. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation

wetlands are required, and, mitigation is not allowed within detention facilities. These and other requirements mandated by the Lake County Watershed Development Ordinance meet the requirements of this management measure.

IEPA also issues construction permits under the **NPDES Phase II Stormwater Program**. The construction permit requires development of a **Storm Water Pollution Prevention Plan (SWPPP)** to protect areas that are highly susceptible to erosion and sediment loss.

The Illinois Department of Agriculture (IDOA) is responsible for implementing the **Watershed Improvement Act (505 ILCS 140/1 (2012))**, which among other things is designed to "reduce[] the siltation of streams and lakes." It accomplishes this objective by empowering the Department of Agriculture "to enter into agreements with any agency of the United States or with any local watershed organization or organizations as may be necessary to furnish surveys, engineering and assistance in planning for works of improvement in any approved watershed in this State and for maintaining watershed works of improvement which are constructed primarily for retaining surplus rainfall" **(505 ILCS 140/3 (2012))**.

The **Soil and Water Conservation Districts Act** regulations most relevant to Illinois's mostly urban coastal zone are the soil loss standards for non-agricultural land and construction sites **(8 IAC 650.50)**. They require that during development the smallest practical area be exposed to stormwater, ""[n]atural features which enhance erosion control such as trees, groves, waterways, and other similar resources…be preserved whenever possible," and measures are taken to "effectively accommodate the increased runoff caused by changed soil and surface conditions," both during and after development.

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (IUM, available at http://www.aiswcd.org/ium) is a technical resource containing a myriad of stormwater best management practices, ranging from planning guides to practice standards and design specifications, including soil erosion and control practices. Appendix B is Urban Technical Note No. 1, Erosion and Sedimentation on Construction Sites. This practice, and others in the IUM, is used statewide to mitigate effects of watershed development. It is regularly updated by the Illinois Association of Soil and Water Conservation Districts.

Illinois' Green Infrastructure for Clean Water Act, Public Act 96-26 funds the Illinois Green Infrastructure Grant Program and allows the Illinois Clean Water Initiative (State Revolving Loan fund) to be used for nonpoint pollution control.

The Green Infrastructure for Clean Water Act requires the IEPA to assess and evaluate using green infrastructure to help manage stormwater in Illinois. The State has established financial and technical programs to support green infrastructure programs that mitigate nonpoint source pollution from stormwater.

The LCSMC has a **Technical Reference Manual (TRM)** for use by the public to meet the objectives of their Watershed Development Ordinance. The TRM contains guidance on preservation of natural

resources and drainageways (Sections 3.4A, 3.4B), maintaining the water quality benefits of streams and channels (Sections 3.7B), and design performance of soil erosion and sediment controls (Section 3.10).

Several State and local agencies have programs that fund land acquisition and preservation that support the implementation of this management measure. The Illinois Department of Natural Resources land acquisition grant programs including OSLAD and PARC, and Illinois Coastal Grants. Open space preservation and management is performed by the DNR, local park districts, Cook and Lake County Forest Preserve Districts, City of Chicago, and private conservation organizations that also serve to preserve areas that provide important water quality or aquatic ecology benefits.

Enforcement Mechanisms

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES stormwater rules for construction activities (regulated under 40 CFR 122.26). Section 31 of Illinois' Environmental Protection Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. In addition, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302).

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act gives the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide

technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

All programs used to implement this measure are listed in Table 4-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

4.3.3 Site Development Management Measure

The Site Development Management Measure addresses the reduction of nonpoint source pollution from all site development, including planning and construction of roads, highways, and bridges. The impacts of impervious surfaces and pollutants associated with site development should be addressed during the planning phase of projects, as well as development phases. The Site Development Management Measure differs from the New Development Management Measure, which only applies to post development runoff. Activities associated with the Site Development Management Measure should plan, design, and develop sites to:

- Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss
- Limit increases in impervious area, except where necessary
- Limit land disturbance activities, such as clearing and grading, and cut and fill, to reduce erosion and sediment loss
- Limit disturbance of natural drainage features and vegetation

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to all site development activities, including those associated with roads, highways and bridges.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented statewide or in Cook and Lake Counties and their applicability to this management measure. Each program which will be used to implement this measure is summarized in Table 4-1.

Regulatory

Projects that are located in or near waterbodies and natural drainage systems that have the potential to discharge materials to waters of the United States trigger the "dredge and fill" permitting process **(Joint Permitting)**. This nationwide regulation is implemented by the State of Illinois through environmental reviews and approvals that support the three above criteria for this management measure. Regulations for **401 Water Quality Certifications** by the IEPA are at **35 IAC 395**. The IEPA performs a water quality review that evaluates many factors, including potential violation of water quality standards, point and nonpoint source pollutant loading, and erosion potential and sediment loads. Their antidegradation review under **35 IAC 302.105** evaluates deterioration of water quality, water uses, and existing aquatic communities. The Agency is authorized to place conditions on its certification (or waiver of certification) of activities under the IAC rules. Such conditions relate to the characteristics of the specific site, the

nature of the intended activities, and the resources requiring protection. The IDNR is involved in a parallel review under its authority **(17 IAC 3700 *et seq*.)** to protect threatened or endangered species or their critical habitat, natural areas, waterways, floodplains, and wetlands. The DNR's approvals may also concern special provisions to protect natural resources and limit the area of disturbance.

The **Cook County Watershed Management Ordinance** is intended to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments. Article 4 of this Ordinance mandates that new developments must meet certain erosion and sediment control requirements and references the Illinois Urban Manual as well as MWRD's WMO Technical Guidance Manual. The Ordinance mandates that all developments incorporate erosion and sediment control practices into their initial site plans, placing primary emphasis on erosion control practices as preventative source controls, while sediment control practices are secondary measures designed to contain eroded soil after it is in transport. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas, which indicates further authority for implementation of this management measure. Further, Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices such as streambank stabilization and native vegetation planting are required. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.

Similarly, the **Lake County Watershed Development Ordinance** is intended to limit the creation of unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. The Lake County Watershed Development Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. In fact, any development which hydrologically disturbs 5,000 square feet or more is required at a minimum to meet the soil erosion and sediment control performance standards of the Ordinance. Stormwater management systems and erosion and sediment control measures must be functional before building permits are issued or construction begins, again emphasizing the preventative nature of erosion controls, and, directly implementing the federal criteria for this management measure. Section B of Article 4 of Lake County's Ordinance pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using the native plants. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively

create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation wetlands are required, and, mitigation is not allowed within detention facilities. These and other requirements mandated by the Lake County Watershed Development Ordinance are suitable activities to implement this management measure.

The IEPA also issues construction permits under the **NPDES Phase II Stormwater Program**. The construction permit requires development of a Storm Water Pollution Prevention Plan (SWPPP) to protect areas that are highly susceptible to erosion and sediment loss.

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (IUM, available at http://www.aiswcd.org/ium) is a technical resource containing a myriad of stormwater best management practices, ranging from planning guides to practice standards and design specifications, including soil erosion and control practices. BMPs in the IUM are used statewide to mitigate effects of watershed development.

The **Cook County Technical Guidance Manual** is available to help assistance with interpreting the regulations and proper planning and installation of construction BMPs. The LCSMC also has a **Technical Reference Manual (TRM)** for use by the public to meet the objectives of their Watershed Development Ordinance.

I**llinois' Green Infrastructure for Clean Water Act, Public Act 96-26** funds the Illinois Green Infrastructure Grant Program and allows the Illinois Clean Water Initiative (State Revolving Loan fund) to be used for nonpoint pollution control. Public Act 96-26, the Green Infrastructure for Clean Water Act, requires the IEPA to assess and evaluate using green infrastructure to help manage stormwater in Illinois. The State has established financial and technical programs to support green infrastructure programs that mitigate nonpoint source pollution from stormwater.

Enforcement Mechanisms

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES stormwater rules for construction activities (regulated under 40 CFR 122.26). Section 31 of Illinois' Environmental Protection Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. In addition,

IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302).

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act gives the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

All programs used to implement this measure are listed in Table 4-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

4.3.4 Site Construction Site Erosion & Sediment Control Management Measure (Exclusion Requested)

The goal of the Construction Site Erosion & Sediment Control Management Measure is to reduce the sediment loadings from construction sites in coastal areas that enter surface waters. This measure generally requires that coastal States establish new or enhance existing erosion and sediment control (ESC) programs and/or require ESC programs at the local level. This management measure is intended to be part of a comprehensive land use or watershed management program.

Applicability

State coastal nonpoint control programs are not required to include the Construction Site Erosion & Sediment Control Management Measure for any new development, redevelopment, and new and relocated roads, highways, and bridges occurring in urbanized areas subject to Phase I or Phase II MS4 permits. The expectation from USEPA is that these Storm water Permit programs are appropriately stringent enough to ensure water quality protections from storm water impacts. All of the Illinois Coastal Zone is subject to a Phase I or Phase II MS4 Permit (See Section 4.11 and Figure 4-2).

Consequently, the Illinois CNPCP is requesting a geographical exemption from this management measure.

4.3.5 Construction Site Waste and Chemical Control Management Measure (Exclusion Requested)

The Construction Site Waste and Chemical Control Management Measure is meant to prevent the generation of nonpoint source pollution from construction sites due to improper handling and usage of nutrients and toxic substances, and to prevent the movement of these contaminants from the construction site.

Applicability

State CNPCPs are not required to include the Construction Site Waste and Chemical Control Management Measure for any new development, redevelopment, and new and relocated roads, highways, and bridges occurring in urbanized areas subject to Phase I or Phase II MS4 permits. The expectation from USEPA is that these Storm water Permit programs are appropriately stringent enough to ensure water quality protections from storm water impacts. All of the Illinois Coastal Zone is subject to a Phase I or Phase II MS4 Permit (See Section 4.11 and Figure 4-2). Consequently, the Illinois CNPCP is requesting a geographical exemption from this management measure.

4.3.6 Existing Development Management Measure (Exclusion Requested)

The purpose of this management measure is to protect or improve surface water quality by the development and implementation of watershed management programs that pursue the following objectives:

1. Reduce surface water runoff pollution loadings from areas where development has already occurred;
2. Limit surface water runoff volumes in order to minimize sediment loadings resulting from the erosion of streambanks and other natural conveyance systems; and
3. Preserve, enhance, or establish buffers that provide water quality benefits along waterbodies and their tributaries.

Applicability

State CNPCPs are not required to include the New Development Management Measure for any new development, redevelopment, and new and relocated roads, highways, and bridges occurring in urbanized areas subject to Phase I or Phase II MS4 permits. The expectation from USEPA is that these Storm water Permit programs are appropriately stringent enough to ensure water quality protections from storm water impacts. All of the Illinois Coastal Zone is subject to a Phase I or Phase II MS4 Permit (See Section 4.11 and Figure 4-2). Consequently, the Illinois CNPCP is requesting a geographical exemption from this management measure.

4.3.7 New On-Site Sewage Disposal Systems Management Measure (Exclusion Requested)

The purpose of this management measure is to protect the 6217 management area from pollutants discharged by On-Site Disposal Systems (OSDS). The measure requires that OSDS be sited, designed, and installed so that impacts to waterbodies will be reduced, to the extent practicable. Factors such as soil type, soil depth, depth to water table, rate of sea level rise, and topography must be considered in siting and installing conventional OSDS.

The objective of the management measure is to prevent the installation of conventional OSDS in areas where soil absorption systems will not provide adequate treatment of effluents containing solids, phosphorus, pathogens, nitrogen, and nonconventional pollutants prior to entry into surface waters and ground water (e.g., highly permeable soils, areas with shallow water tables or confining layers, or poorly drained soils).

Applicability

This management measure is intended to be applied by States to all new OSDS including package plants and small-scale or regional treatment facilities not covered by NPDES regulations in order to manage the siting, design, installation, and operation and maintenance of all such OSDS.

Any new development in the coastal zone in Cook or Lake Counties would include connection to existing or new sewerage. This source is requested to be excluded. See Section 4.2.5 for more details.

4.3.8 Operating Onsite Sewage Disposal Systems Management Measure (Exclusion Requested)

The purpose of this management measure is to minimize pollutant loadings from operating OSDS. This management measure requires that OSDS be modified, operated, repaired, and maintained to reduce nutrient and pathogen loadings in order to protect and enhance surface waters. In the past, it has been a common practice to site conventional OSDS in coastal areas that have inadequate separation distances to ground water, fractured bedrock, sandy soils, or other conditions that prevent or do not allow adequate treatment of OSDS-generated pollutants. Eutrophication in surface waters has also been attributed to the low nitrogen reductions provided by conventional OSDS designs.

Applicability

This management measure is intended to be applied by States to all operating OSDS. Under the Coastal Zone Act Reauthorization Amendments of 1990, States are subject to a number of requirements as they develop coastal NPS programs in conformity with this management measure and will have flexibility in doing so. This management measure does not apply to existing conventional OSDS that meet all of the following criteria: (1) treat wastewater from a single family home; (2) are sited where OSDS density is less than or equal to one OSDS per 20 acres; and (3) the OSDS is sited at least 1,250 feet away from surface waters. All Illinois coastal municipalities are served by municipal wastewater collection systems. We are requesting that operating onsite sewage systems be excluded as a nonpoint source of pollution in Illinois' coastal zone. See Section 4.2.5 for more details.

4.3.9 Pollution Prevention Management Measure

This management measure prevents or reduces nonpoint source loadings generated from a myriad of urban and suburban activities. Major sources include improper disposal of household hazardous wastes, lawn and garden wastes, operation and maintenance of motor vehicles, pet and urban wildlife wastes, and other activities. Reducing pollutant generation will benefit water quality, and in fact, some practices reduce the volume or rate of storm runoff.

The practices in this management measure are nonstructural, and are often referred to as source reduction practices. The costs of source control practices are generally associated with programmatic expenses such as signage and informational materials, workshops, and development and enforcement of ordinances.

Federal guidelines specify that pollution prevention and education programs reduce nonpoint source pollutants generated from the following activities, where applicable:

1. The improper storage, use, and disposal of household hazardous chemicals, including automobiles fluids, pesticides, paints, solvents, etc.
2. Lawn and garden activities, including the application and disposal of lawn and garden care products, and the improper disposal of leaves and yard trimmings
3. Turf management on golf courses, parks, and recreational areas
4. Improper operation and maintenance of onsite sewage treatment and disposal systems
5. Discharge of pollutants into storm drains including floatables, waste oil, and litter
6. Commercial activities including parking lots, gas stations and other facilities not under NPDES purview; and
7. Improper disposal of pet wastes.

Applicability

The Illinois CNPCP addresses this management measure. This management measure is intended to reduce the generation of nonpoint source pollution in all areas within the Lake Michigan Coastal Management area. Adoption of the Pollution Prevention Management Measure does not exclude applicability of other management measures associated with the pollutant sources listed above.

Existing Programs or Practices

Programs and activities that are being implemented statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 4-3.

Regulatory

Discharge of any pollutant, including household hazardous chemicals, lawn and garden wastes, onsite sewage treatment systems, hydrocarbons, and other waste materials mentioned in the federal guidelines above, are prohibited by the **Illinois Environmental Protection Act Pollution Control Board (35 IAC 301)**. This Act establishes pollution control standards for land, water and air contamination.

The IEPA also implements the **NPDES Stormwater Program**, which supports proper operation and maintenance of onsite sewage treatment with disposal systems linked to waters of the US as well as the discharge of pollutants into storm drains (including floatables, waste oil, and litter). The IEPA's General NPDES Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s, available at http://www.epa.state.il.us/water/permits/storm-water/general-ms4-permit.pdf) includes requirements for pollution prevention for municipal operations. MS4s are required to train staff on ways to protect stormwater, particularly when maintaining MS4 infrastructure and performing daily municipal activities, such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance. This requirement primarily includes:

- Developing inspection and maintenance procedures and schedules for stormwater BMPs,
- Implementing BMPs to treat pollutants from parks, golf courses, and other open space management areas, transportation infrastructure, maintenance areas, storage yards, sand and salt storage areas, and waste transfer stations,
- Establishing procedures for properly disposing of pollutants removed from the MS4, and
- Identifying ways to incorporate water quality controls into new and existing flood management projects.

The **MS4 General Permit** also includes a requirement for municipalities to develop and implement a program for minimizing the pollutants leaving private property and entering the MS4. Such programs are to identify those sources of pollutants and to implement controls. This requirement would apply to parking lots, gas stations and other facilities.

These pollution prevention requirements are imposed on the entire Phase II permit area (Figure 4-2).

The **City of Chicago's Stormwater Ordinance** requires food serving establishments and multiple dwelling buildings to have grease basins. All waste from sinks, garbage grinders, dishwashers, discharge from kitchens and all process waste must be intercepted before reaching the combined sewer system. Further, lint basins are required when washing machines are used commercially or in multi-residential buildings with more than 15 commercial washing units in a dedicated area. Such clauses are intended to reduce lint, oil and grease in released in CSOs in Chicago. Chicago's Stormwater Management Ordinance also recognizes the important of green infrastructure, and, Section 4.2 provides minimum design requirements for bioinfiltration systems, drainage swales, green roofs, permeable paving, stormwater trees, rain barrels and cisterns, vegetated filter strips, and natural landscaping. These BMPs reduce nonpoint loadings from the watershed and support this management measure.

Removal of pet excrement is required under local ordinances. For example, the **City of Chicago Ordinance (7-12-420 - Removal of excrement)** states that no person shall fail to remove any excrement deposited by their pet. Similarly, the City of Evanston's ordinance requiring removal of pet excrement is in their ordinance at **9-4-12 – Control of Defecation**. The Village of Winnetka's similar requirement is encoded at **Section 6.08.020 - Responsibilities of dog owner**, and, the City of Waukegan's is found at **Section 4-48 Proper Cleanup**.

The **Illinois Pesticide Act (415 ILCS 60)** requires that all pesticide dealers and applicators obtain a license with the Illinois Department of Agriculture. An exam is required for each license, which includes questions on proper use, storage, and disposal of pesticides. The statute also makes it unlawful to use, dispose of, discard or store pesticides in a manner that endangers public health, the environment, or pollutes water supplies. Violations are subject to criminal or administrative penalties. Fees collected from this fund are required by statutes to be used for the purposes of conducting public educational programs on the proper use of pesticide and for other activities related to the enforcement of this act and related legislation. http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1596&ChapterID=36

Education, Public Outreach and Technical and Financial Assistance

IEPA has developed pollution prevention strategies for its programs. The Agency distributes numerous publications to inform and educate citizens regarding pollution prevention strategies, programs, and practices. Pollution prevention educational publications and programs designed to reduce nonpoint pollutants are also integrated into NPDES Phase 2 stormwater management, solid water management and other environmental programs throughout the state.

Since 1989, the IEPA has coordinated household hazardous wastes collections in Lake and Cook counties and statewide. Acceptable wastes includes oil-based paints, household batteries, paint thinners, used motor oil, herbicides, drain cleaners, insecticides, lawn chemicals, pesticides, solvents, old gasoline, antifreeze, pool chemicals, hobby chemicals, cleaning products, aerosol paints, products containing mercury, fluorescent lamp bulbs, double bagged and wetted asbestos, old and outdated medicines and pharmaceuticals. Collection dates and sites are advertised on IEPA and partner organization websites, through social media, and through other outlets and are free. The Illinois Department of Public Health also has the authority to conduct voluntary programs to collect and dispose of unwanted pesticides from pest control businesses for a nominal fee **(415 ILCS 60/19.1)** http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1596&ChapterID=36.

The **City of Chicago's Green Stormwater Infrastructure Strategy** addresses nonpoint pollution in the City and supports the implementation of this management measure. Chicago supports green stormwater infrastructure and the myriad of stormwater best management practices that reduce nonpoint pollution. The City also has special **requirements for disposal of lawn and garden wastes**, with biweekly pickup by the Department of Streets and Sanitation (http://www.cityofchicago.org/city/en/depts/streets/provdrs/streets_san/svcs/yard_waste.html).

Enforcement Mechanisms

The Illinois Pollution Control Board (IPCB) has the authority to act for the State in regard to the adoption of standards for submission to the United States under any federal law respecting environmental protection (415 ILCS §5/5(c)). To enforce these standards the IPCB has authority to promulgate permit standards and any rules necessary to implement and participate in NPDES. Section 31 of the Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). The IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance

standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

Pet owners found to violate municipal ordinances requiring removal of excrement may be fined for each offense by the local enforcement authority.

All programs used to implement this measure are listed in Table 4-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

4.3.10 Management Measures; Planning, Siting, & Developing Roads & Highways

This management measure is intended to plan transportation corridors around and away from sensitive ecosystems, including highly erodible areas. Development of road and highways should involve minimal land disturbance, minimal changes to impervious area, and preservation of natural vegetation and drainage features. In fact, federal guidelines specify that planning, siting, and developing roads and highways should meet these three basic criteria:

- Protect areas that provide important water quality functions, or, are particularly susceptible to erosion or sediment loss
- Limit disturbance, such as clearing, grading, and cut and fill, to reduce erosion and sediment loss
- Limit disturbance of natural drainage features and vegetation.

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to site development and land disturbing activities for new, relocated and reconstructed roads (including residential streets) and highways in order to reduce the generation of NPS pollutants and to mitigate the impacts of urban runoff and associated pollutants from such activities.

Existing Programs or Practices

Programs and activities that are being implemented nationally, statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 4-1.

Regulatory

Transportation projects that are located in or near waterbodies and natural drainage systems have the potential to discharge materials to waters of the United States, thereby triggering the “dredge and fill” permitting process **(Joint Permitting)**. This nationwide regulation is implemented by the State of Illinois

through environmental reviews and approvals that support the three above criteria for this management measure. Regulations for **401 Water Quality Certifications** by the IEPA are listed in **35 IAC 395**. The IEPA performs a water quality review that evaluates many factors, including potential violation of water quality standards, point and nonpoint source pollutant loading, and erosion potential and sediment loads. Their antidegradation review under 35 IAC 302.105 evaluates deterioration of water quality, water uses, and existing aquatic communities. The Agency is authorized to place conditions on its certification (or waiver of certification) of activities under the IAC rules. Such conditions relate to the characteristics of the specific road or highway site, the nature of the intended activities, and the resources requiring protection. The IDNR is involved in a parallel review under its **authority (17 IAC 3700 et seq.)** to protect threatened or endangered species or their critical habitat, natural areas, waterways, floodplains, and wetlands. The DNR's approvals of permits for developing roads and highways may also concern special provisions to protect natural resources.

IEPA's **General NPDES Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit NO. ILR10)** is required for road and highway construction statewide, provided one or more acres is disturbed. ILR10 requires submittal of a stormwater pollution prevention plan (SWPPP) that identifies potential sources of pollution to stormwater discharges from the site. In addition, the SWPPP is required to describe and ensure the implementation of best management practices to reduce the pollutants in storm water discharges from construction site activity. ILR10 directly implements the activities of this management measure.

The **Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq.*)** is administered by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The purpose of the Cook County Watershed Management Ordinance is to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments, including rods and highways. Article 4 of the Ordinance mandates that new developments must meet certain erosion and sediment control requirements and references the Illinois Urban Manual as well as MWRD's WMO Technical Guidance Manual. The Ordinance mandates that all developments incorporate erosion and sediment control practices into their initial site plans, placing primary emphasis on erosion control practices as preventative source controls, while sediment control practices are secondary measures designed to contain eroded soil after it is in transport. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood elevations or decrease conveyance capacity on other property. Developments also cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices such as streambank stabilization and native vegetation planting are required. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of

floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.

The **Lake County Watershed Development Ordinance (55 ILCS §5.5-1062)** is administered and enforced by the Lake County Stormwater Management Commission (SMC), as well as authorized communities in Lake County. The purposes of the Lake County Ordinance are, among others, to prevent flood damages to life and property, to assure that development does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. This Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. In fact, any development which hydrologically disturbs 5,000 square feet or more is required at a minimum to meet the soil erosion and sediment control performance standards of the Ordinance. Stormwater management systems and erosion and sediment control measures must be functional before building permits are issued or construction begins, again emphasizing the preventative nature of erosion controls. Section B of Article 4 of Lake County's Ordinance pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, NRCS, et al., (as amended) as a minimum standard. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation wetlands are required, and, mitigation is not allowed within detention facilities. These and other requirements mandated by the Lake County Watershed Development Ordinance meet the requirements of this management measure.

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (IUM, available at http://www.aiswcd.org/ium) is a technical resource containing a myriad of stormwater best management practices, ranging from planning guides to practice standards and design specifications, including soil erosion and control practices. Appendix B is Urban Technical Note No. 1, Erosion and Sedimentation on Construction Sites. This practice, and others in the IUM, is used statewide to mitigate effects of watershed development. It is regularly updated by the Illinois Association of Soil and Water Conservation Districts.

The **Cook County Technical Guidance Manual** is available to help assistance with interpreting the regulations and proper planning and installation of construction BMPs. The LCSMC also has a **Technical Reference Manual (TRM)** for use by the public to meet the objectives of their Watershed Development Ordinance. The TRM contains guidance on preservation of natural resources and drainageways (Sections 3.4A, 3.4B), maintaining the water quality benefits of streams and channels (Sections 3.7B), and design performance of soil erosion and sediment controls (Section 3.10).

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act gives the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties. 17 Ill. Adm. Code 3704. If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515)

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

At the local level, MS4 Permit Holders have the authority to enforce their local ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, technical assistance with erosion control plans, etc.

All programs used to implement this measure are listed in Table 4-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

4.3.11 Management Measure for Bridges

This management measure requires that runoff from bridges be assessed and that appropriate stormwater quality measures and treatment are utilized to protect critical habitat, wetlands, fisheries, and water supplies. This issue, like planning of roads and highways in general, is best addressed during planning and design phases. Bridges that utilize deck drains are a particular concern because they likely discharge directly into the water below. Federal guidelines specify that while planning, siting, and developing bridges, sensitive aquatic habitats and areas that have important water quality functions should be protected.

Applicability

The Illinois CNPCP addresses this management measure. This management measure is applicable to new, relocated, and rehabilitated bridge structures for control of erosion, streambed scouring, and surface runoff.

Existing Programs or Practices

Programs and activities that are being implemented nationally, statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 4-1.

Regulatory

Most bridge projects are located in or near waterbodies and natural drainage systems and have the potential to discharge materials to waters of the United States. In this way, bridges undergo the **Joint Permit review process**. Joint Permits have environmental reviews and approvals that support the three above criteria for this management measure. Regulations for 401 Water Quality Certifications by the IEPA are at **35 IAC 395**. The IEPA performs a water quality review that evaluates many factors, including potential violation of water quality standards, point and nonpoint source pollutant loading, and erosion potential and sediment loads. Their antidegradation review under **35 IAC 302.105** evaluates deterioration of water quality, water uses, and existing aquatic communities. The Agency is authorized to place conditions on its certification (or waiver of certification) of activities under the IAC rules. Such conditions relate to the characteristics of the specific road or highway site, the nature of the intended activities, and the resources requiring protection. The IDNR is involved in a parallel review under its authority **(17 IAC 3700 et seq.)** to protect threatened or endangered species or their critical habitat, natural areas, waterways, floodplains, and wetlands. The DNR's approvals of permits for developing bridges may also concern special provisions to protect natural resources.

IEPA's **General NPDES Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit number ILR10)** is required for bridge construction statewide, provided one or more acres is disturbed. ILR10 requires submittal of a stormwater pollution prevention plan (SWPPP) that identifies potential sources of pollution to stormwater discharges from the site. In addition, the SWPPP is required to describe and ensure the implementation of best management practices to reduce the pollutants in storm water discharges from construction site activity. ILR10 directly implements the activities of this management measure.

The **Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 et. seq.)** is administered by the Metropolitan Water Reclamation District of Greater Chicago (MWRD). The purpose of the Cook County Watershed Management Ordinance is to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments, including bridges. Article 4 of the Ordinance mandates that new developments must meet certain erosion and sediment control requirements and references the Illinois Urban Manual as well as MWRD's WMO Technical Guidance Manual. The Ordinance mandates that all developments incorporate erosion and sediment control practices into their initial site plans, placing primary emphasis on erosion control

practices as preventative source controls, while sediment control practices are secondary measures designed to contain eroded soil after it is in transport. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood elevations or decrease conveyance capacity on other property. Developments also cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices such as streambank stabilization and native vegetation planting are required. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.

The **Lake County Watershed Development Ordinance (55 ILCS §5.5-1062)** is administered and enforced by the Lake County Stormwater Management Commission (SMC), as well as authorized communities in Lake County. The purposes of the Lake County Ordinance are, among others, to prevent flood damages to life and property, to assure that development does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. This Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. In fact, any development which hydrologically disturbs 5,000 square feet or more is required at a minimum to meet the soil erosion and sediment control performance standards of the Ordinance. Stormwater management systems and erosion and sediment control measures must be functional before building permits are issued or construction begins, again emphasizing the preventative nature of erosion controls. Section B of Article 4 of Lake County's Ordinance pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using the native plants. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation wetlands are required, and, mitigation is not allowed within detention facilities. These and other requirements mandated by the Lake County Watershed Development Ordinance meet the requirements of this management measure.

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (IUM, available at http://www.aiswcd.org/ium) is a technical resource containing a myriad of stormwater best management practices, ranging from planning guides to practice standards and design specifications, including soil erosion and control practices. Appendix B is Urban Technical Note No. 1, Erosion and Sedimentation on Construction Sites. This practice, and others in the IUM, are used statewide to mitigate effects of bridge construction and other projects. It is regularly updated by the Illinois Association of Soil and Water Conservation Districts.

The **Cook County Technical Guidance Manual** is available to help assistance with interpreting the regulations and proper planning and installation of construction BMPs. The LCSMC also has a **Technical Reference Manual (TRM)** for use by the public to meet the objectives of their Watershed Development Ordinance. The TRM contains guidance on preservation of natural resources and drainageways (Sections 3.4A, 3.4B), maintaining the water quality benefits of streams and channels (Sections 3.7B), and design performance of soil erosion and sediment controls (Section 3.10).

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act gives the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties. 17 Ill. Adm. Code 3704. If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515)

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

The Chicago River Corridor Design Guidelines and Standards are enforceable through the Zoning Administrator for the City of Chicago. The City of Chicago Zone Administrator has the authority to deny, revoke or withhold permits, stop work, require abatement or remedial action, issue a fine, or seek other penalties as allowed by law.

At the local level, MS4 Permit Holders have the authority to enforce their local ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, technical assistance with erosion control plans, etc.

All programs used to implement this measure are listed in Table 4-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

4.4 Coordination for Urban Sources Pollution Prevention

Administration and implementation of the Illinois CNPCP will be housed within the Illinois Coastal Program (ICMP). This office

- Consults and coordinates within IDNR, and among IEPA and other state agencies, local governments, interstate agencies, and regional agencies within the coastal zone, assuring full participation in carrying out the purposes and management policies as cited in the ICMP
- Administers the Coastal Grants Program, making annual funds available for competitive
- grants
- Coordinates with the IEPA for coastal nonpoint control projects
- Administers Federal Consistency reviews to ensure that federal actions affecting land or water use within the coastal zone are consistent with the ICMP.

The ICMP coordinates with the IDNR Office of Realty and Environmental Planning for reviews under the Comprehensive Environmental Review Process (CERP), including reviews of projects funded through Coastal Grants which include sustainability planning for urban areas.

The ICMP Office also coordinates with the OWR Division of Water Resource Management - Lake Michigan Programs Section, which is responsible for managing the state's interests in Lake Michigan, and issuing permits for work in and along the Lake Michigan shore, waterways, and within floodplains and floodways. OWR is responsible for evaluating joint permitting applications and is aware of permitting decisions and any permitting issues from IEPA or USACE. OWR, as mentioned above, is also responsible for reviewing projects for Federal Consistency.

While ICMP has oversight, coordination and management responsibilities, other agencies may implement many of the rules, regulations, and programs that fulfill the management measures. In Illinois, these Clean Water Act programs are administered by the IEPA Bureau of Water. Two units of IEPA's Watershed Management Section are responsible for carrying out these programs. The Planning Unit implements the TMDL Program. Section 319 is administered by the Nonpoint Source Unit. The entire Bureau of Water implements the Water Quality Management Program. The Household Hazardous Waste Collection Program and NPDES storm water program are also administered by IEPA. The IEPA Bureau of Water administers grants through the authority of the Clean Water Act. These grant programs offer opportunities to coordinate the implementation of coastal NPS management measures and include Section 104 (b) (3), 319 (h), and 205 (j). IEPA also provides support for continued development of the Illinois Urban Manual and conducts a variety of water quality monitoring programs.

ICMP collaborates with MWRD and LCSMC and municipal stakeholders to disseminate information on trainings and funding opportunities. ICMP has attended, participated in, and presented at public

meetings and trainings regarding the Lake County Watershed Development Ordinance and the Cook County Watershed Management Ordinance and will continue coordination activities in the future.

Table 4-1 Management Measure Programs and Practices for Urban Sources

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
401 Water Quality Certification	Environmental Protection Act (415 ILCS 5/) Federal Water Pollution Control Act	35 IAC 395 33 CFR 1251-1387	Illinois Environmental Protection Agency	Issuance of Water Quality Certification. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of 401 certifications	4.3.2, 4.3.3, 4.3.10, 4.3.11
Cook County Watershed Management Ordinance	55 ILCS 5/5-1062.1, 70 ILCS 2605/1 et seq.	70 ILCS 2605/1	Metropolitan Water Reclamation District of Greater Chicago (or authorized municipality)	Issuance of permit Permittees are required to monitor for 5 years post-construction and submit water quality data to MWRD.	MWRD will evaluate data for demonstrated effectiveness	4.3.2, 4.3.3, 4.3.10, 4.3.11
Cook County Technical Guidance Manual			Metropolitan Water Reclamation District of Greater Chicago			4.3.2, 4.3.3, 4.3.10, 4.3.11

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Green Infrastructure for Clean Water Act	Public Act 96-26		Illinois Environmental Protection Agency		Number of green infrastructure projects completed	4.3.2, 4.3.3
Illinois Pesticide Act	415 ILCS 60	8 IAC 250	Illinois Department of Agriculture	Administrative penalties, civil penalties		4.3.9

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Joint Permit Program	Section 404 of the CWA Rivers and Harbors Act Federal Water Pollution Control Act Rivers, Lakes, and Streams Act (615 ILCS 5/) Interagency Wetland Policy Act Of 1989 (20 ILCS 830/) Fish and Wildlife Coordination Act (16 USC 661-664) Illinois Endangered Species Act (520 ILCS 10/)	33 CFR 322 33 CFR 1251-1387 17 IAC 3700 et al. 17 IAC 1010	Partnership of IDNR, IEPA, and USACE	Issuance of permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permits issued	4.3.2

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Lake County Watershed Development Ordinance	55 ILCS 5/5-1062	70 ILCS 2605/1	Lake County Stormwater Management Commission (or authorized municipality)	Issuance of permit. Permittees are required to monitor for 5 years post-construction and submit water quality data to LCSWMC.	Compliance with permit conditions	4.3.2, 4.3.3, 4.3.10, 4.3.11
Lake County Technical Manual			Lake County Stormwater Management Commission			4.3.2, 4.3.3, 4.3.10, 4.3.11
NPDES Stormwater Program	Environmental Protection Act (415 ILCS 5/) Federal Water Pollution Control Act	35 IAC 309 33 CFR 1251-1387	Illinois Environmental Protection Agency	Issuance of permits, technical assistance with pollution prevention, et al., administrative penalties, criminal penalties, civil penalties.	Annual stormwater pollutant loads to receiving waters	4.3.2, 4.3.3, 4.3.9, 4.3.10, 4.3.11

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
City of Chicago's Green Stormwater Infrastructure Strategy			Chicago Department of Water Management			4.3.9
City of Chicago Stormwater Management Ordinance	Title 11 Chicago Municipal Code, Chapter 11-18	City of Chicago Municipal Code	Chicago Department of Water Management	Issuance of permits, technical assistance with pollution prevention, et al., administrative penalties, civil penalties.	Reductions in CSO frequencies, volume, and pollutant loads	4.3.9
Yard Waste Programs			Local municipalities		Mass diverted from landfills	4.3.9
Watershed Improvement Act	505 ILCS 140		Illinois Department of Agriculture			4.3.2
Illinois Urban Manual			Association of Illinois Soil and Water Conservation Districts			4.3.2, 4.3.3, 4.3.10, 4.3.11

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Illinois Environmental Protection Act Pollution Control Board		35 IAC 301	Illinois Pollution Control Board			4.3.9
Removal of Excrement Ordinance		7-12-420	City of Chicago	Civil penalties	Number of violations	4.3.9
Control of Defecation Ordinance		9-4-12	City of Evanston	Civil penalties	Number of violations	4.3.9
Responsibilities of Dog Owner		6.08.020	Village of Winnetka	Civil penalties	Number of violations	4.3.9
Proper Cleanup		4-48	City of Waukegan	Civil penalties	Number of violations	4.3.9

Chapter 5. Marinas and Recreational Boating

5.1. Introduction

Lake Michigan provides Illinois residents with public and industrial water supply, shipping channels, and various aesthetic and recreation amenities, including a boating and fishing industry. Thirty-two marinas are in Illinois' coastal zone, with over 9,300 slips (Table 5-1 and Figure 5-1).

Nonpoint source pollution from marinas and small boat harbors can impair water quality in the coastal zone. Cleaning products and toxic chemicals used in boat maintenance can pollute waterways when they are washed into the water. Improper discharges of bilge water, wastewater, cleaning products, winterizing chemicals, fuels and lubricants from boats likewise impact water quality. The effect of runoff from a single parking lot or building on a water body may seem insignificant, but when multiplied, water quality can suffer. Mismanaged, old or poorly designed marinas or uninformed boat owners can negatively affect coastal water quality. Improved control of nonpoint pollution from marinas and boats will improve and maintain the quality of Illinois' coastal waters.

Table 5-1 Marinas in Illinois' Coastal Zone

Name	City	Number of Slips
31st Street Harbor	Chicago	1013
59th Street Harbor	Chicago	125
A1 Millennium Marina	Chicago	24
Belmont Harbor	Chicago	733
Burnham Harbor	Chicago	1042
Calumet Yacht Club	Chicago	80
Canal Street Marina	Chicago	13
Chicago's Finest Marina	Chicago	26
Croissant Marina	Chicago	54
Crowley's Yacht Yard	Chicago	15
Diversey Harbor	Chicago	693
DuSable Harbor	Chicago	415
Fay's Point Marina	Blue Island	88
Forest Park Beach	Lake Forest	0
Great Lakes Base Marina	Great Lakes	144
Jackson Park Inner Harbor	Chicago	149
Jackson Park Outer Harbor	Chicago	130
Marina City Marina	Chicago	6
Marine Services	Dolton	126
Monroe Harbor	Chicago	773
Montrose Harbor	Chicago	679
North Point Marina	Winthrop Harbor	1517
Park Avenue Boating Facility	Highland Park	0
Pier 11 Marina	Chicago	80
River South Marina	Chicago	12
Riverdale Marina	Riverdale	95
Skipper Bud's River City Marina	Chicago	20
Sunset Bay Marina	Chicago	62
Waukegan Harbor	Waukegan	856
William Tillman Maritime Academy	Chicago	48
Wilmette Harbor	Wilmette	258
Windjammer Enterprises	Chicago	30

5.2. Sources of Nonpoint Pollution from Marinas and Recreational Boating

There are a myriad of potential sources of nonpoint pollution from marinas and boats, many of which may be a direct result of planning and design. Many marinas are older and were developed without the information we have available today on how siting and design can be optimized to prevent and manage nonpoint source pollution. Some marinas can allow pollutants to accumulate to unacceptable levels in the water because of poor circulation and lack of flushing. Resuspension of sediments due to boat traffic in channels with inadequate depth or erosion of shores can adversely affect vegetation beds, spawning habitats or other aquatic resources. Construction and expansion of marinas can affect the shoreline, resulting in erosion problems and redeposition of sediment in undesirable areas of the marina.

Operation and maintenance of marinas can also impact water quality and aquatic habitats. Principal sources of nonpoint pollution at marinas are those reviewed in the Illinois Clean Marina Guidebook (IDNR 2013):

- Stormwater
- Vessel Maintenance and Repair
- Petroleum
- Sewage Handling
- Waste Containment and Disposal

5.2.1 Marina Maintenance and Operation

Marina operating procedures and management policies may affect the quality of runoff from the marina. Roads and parking areas may convey stormwater directly into adjacent waterways. Dredging may resuspend sediments and any associated pollutants such as metals, hydrocarbons, and synthetic organic chemicals. Hazardous chemicals may leach into the water from piers and other similar structures.

5.2.2 Marina Stormwater

Stormwater runoff carries solids, nutrients, oxygen-demanding materials, hydrocarbons, and other materials that impair water quality. Impaired water quality in marinas and other nearshore areas negatively impacts human recreation and aquatic life.

Hard surfaces like buildings, roofs, parking lots, driveways, and roads prevent rain water from infiltrating the ground. The increased runoff from such areas is transported more rapidly and has greater volume than runoff from undeveloped areas. It also transports pollutants from these developed areas. This heavier runoff carrying pollutants can severely degrade receiving water bodies and habitats.

5.2.3 Vessel Maintenance and Repair

Vessel maintenance activities also have the potential to introduce pollutants into the environment. Sanding, blasting, and pressure washing can produce heavy metals, most notably copper and tin. Paints, solvents, thinners, and brush cleaners are generally hazardous, and if released into the aquatic environment, they may harm aquatic life and water quality. Similarly, oil and grease from maintenance

areas degrade water quality and harm aquatic life. Some cleaning products meant for use in boat shops contain caustic, toxic, or corrosive elements. They may also contain phosphates (a nutrient), which can cause algal blooms and degrade habitat quality.

5.2.4 Petroleum

Most marinas have fueling facilities. Petroleum in or on the water is harmful, and, in some cases, fatal to aquatic life. Petroleum products typically contain a wide range of volatile organic compounds. For example, gasoline contains benzene and other aromatic hydrocarbons, alkanes, alkenes, and hundreds of organic compounds. Motor oil contains many of these as well. Both contain traces of zinc, sulfur, and phosphorus. Sources of petroleum products in marinas include maintenance areas, fueling docks, individual boats, and potentially vehicle parking lots.

5.2.5 Sewage Handling

Marinas commonly have pump-out stations for bilge and sanitary wastes. Direct pump-out to waterways is illegal and creates water quality and public health concerns. The nutrients in sewage contribute to excess algal growth. In some cases, the decomposition of raw sewage may result in oxygen deficiency and a fish kill. Raw sewage contains pathogens that are a threat to swimmers and others coming into direct contact with the water.

5.2.6 Waste Containment and Disposal

Marinas also generate solid waste that could threaten human or ecological health. Solid waste must be managed at marinas, or it may be blown or washed into the waterway. Solid waste that washes up on shore impacts aesthetic value and may be costly to remove.

A wide variety of debris and litter is generated by the numerous activities that occur at marinas. Paper towels, cups, plastic bags, bottles and cans, fish netting, fishing line, discarded oil filters, discarded rags, debris from sanding or pressure washing, pet droppings, and other forms of trash all find their way into marina waters if not disposed of properly. These wastes are dangers to aquatic and semi-aquatic animals as well as people visiting the marinas and nearby coasts. Animals may become entangled or accidentally ingest debris; humans may accidentally step on discarded items and injure themselves. Trash and debris are also unnatural and unsightly.

Hazardous waste, materials that are corrosive, reactive, toxic, or ignitable, may be generated at marinas through vessel maintenance. Hazardous materials pose a significant threat to public and environmental health. Proper storage, disposal, and recycling of these materials reduce the threat of harmful chemicals.

5.3. Management Measures for Marinas and Recreational Boating Sources

The following management measures are designed to protect Illinois' coastal waters from nonpoint pollution from marina construction, operation and maintenance, and from recreational boating. Some management measures are intended to guide siting, design and other planning phases, while others focus on marina operations. This section includes 15 management measures organized as presented in USEPA's guidance documents:

1. (5.3.1) Marina Flushing Management Measure
2. (5.3.2) Water Quality Assessment Management Measure
3. (5.3.3) Habitat Assessment Management Measure
4. (5.3.4) Shoreline and Bank Stabilization Management Measure
5. (5.3.5) Stormwater Runoff Management Measure
6. (5.3.6) Fueling Station Design Management Measure
7. (5.3.7) Sewage Facilities Management Measure
8. (5.3.8) Solid Waste Management Measure
9. (5.3.9) Fish Waste Management Measure
10. (5.3.10) Liquid Material Management Measure
11. (5.3.11) Petroleum Control Management Measure
12. (5.3.12) Boat Cleaning Management Measure
13. (5.3.13) Public Education and Outreach Management Measure
14. (5.3.14) Maintenance of Sewage Facilities Management Measure
15. (5.3.15) Boat Operation Management Measure

5.3.1 Marina Flushing Management Measure

The purpose of this management measure is to site and design new or expanded marinas so that currents will aid in flushing of the site or renew its water regularly.

Many factors affect marina hydrodynamics and water quality, including water circulation, flushing, and bottom and slope erosional stability. Siting and design are also among the most significant factors affecting a marina's potential for water quality impacts. Selection of a marina site that has favorable hydrographic characteristics can reduce potential impacts. The orientations of the marina basin and any ports (subsurface openings or 'windows'), in relation to prevailing lake currents and winds, control internal circulation and flushing, and play important roles in the distribution and dilution of potential contaminants in a marina. Design should provide for proper boat capacity, services, and access, while minimizing adverse environmental effects and development costs. Marina siting and design should be done to ensure that marinas and their associated structures do not cause direct or indirect adverse water quality impacts or endanger wildlife and its habitat both during and following marina construction.

In Lake Michigan, wind is the principal driver of water currents, producing cells that have a flushing effect within a marina. Several hours of consistent wind are required to create currents sufficient to flush a marina basin. In many situations wind-driven currents will provide adequate flushing, but this flushing can be aided by consideration of the orientation of the entrance channel or by locating ports in marina walls or breakwaters.

Additional details and guidance for marina siting and design management measures can be reviewed in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas. It is intended to promote marina design that improves water flow and circulation.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for the Marina flushing management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Fish and Wildlife Coordination Act (16 USC 661)** requires a USFWS review of potential effects on fish and wildlife from proposed water resource development projects. The act requires that fish and wildlife resources receive consideration equal to other project features. In addition, it also requires federal agencies that construct, license, or permit water resource development projects, such as USACE, to first consult with USFWS IDNR, IEPA, and local agencies to mitigate impacts on fish and wildlife.

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate

water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a **joint permit** from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the state's water quality standards (33 U.S.C. 1341). For individual permits, certification occurs during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

The **River and Harbors Act (Navigable Waters, 33 USC 403)** governs the use of public waters and gives IDNR the authority to regulate construction activities in state waterways. As part of this authority, **17 IAC 3700-3708** require marinas to obtain a permit from IDNR for any construction project in a public body of water. Permits are usually required for individual projects, although some common construction activities are covered under statewide and regional permits. Work that meets all the specified limits of a statewide or regional permit is automatically approved. Marina projects that may require permits include dredging, control of aquatic nuisance species, placement of docks/piers, bank stabilization, and building of marina breakwater structures. This review ensures that projects are not going to cause permanent degradation of ground or surface water, in addition to protecting habitat and physical and biological features of the air, land or water.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body; most of which can be avoiding through flushing of waters.

The **Lake Michigan and Chicago Lakefront Protection Ordinance**, City of Chicago ordinance sets out to maintain and improve the purity and quality of the waters of Lake Michigan in Chicago through regulating any landfill, excavation, impoundment, mining, drilling, roadway building or construction in the Lakefront Protection District.

Education, Public Outreach, and Technical and Financial Assistance

On pages 18 and 19 of the **Illinois Clean Marina Program Guidebook**, in the Siting and Design of New or Expanding Marinas chapter, there are BMPs for enhancing water circulation within marinas, including sample layouts.

Enforcement Mechanisms – Marina flushing

The USACE and IDNR require permits for construction in navigable waterways. In Illinois, navigable waterways and "dredge and fill" regulations are both processed through the Joint Application, a partnering procedure led by USACE, with IDNR and IEPA. The Permit review process allows these agencies to evaluate the suitability of a proposed marina site and/or expansion as well as compliance with the Fish and Wildlife Coordination Act, Endangered Species Act, sections 401 and 404 of the Clean Water Act, Illinois Water Quality Standards, and any other applicable regulations.

IEPA is responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements.

IEPA also has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). Lake Michigan Basin Water Quality Standards apply to Lake Michigan harbors and waters (as defined in 35 Ill. Adm. Code 301.440) within Illinois jurisdiction within breakwaters, and most waters tributary to Lake Michigan. Marinas within the Chicago River, the North Shore Channel, and the Calumet River are fall under the General Water Quality Provisions.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. The most important of these is Chapter 16-4 of the Chicago Municipal Code, the Lake Michigan and Chicago Lakefront Protection Ordinance, that rigorously regulates development in Lake Michigan in the City and includes clauses specific to protection of water quality. The City is empowered to assess civil penalties if this ordinance is violated.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.2 Water Quality Assessment Management Measure

This management measure specifies that water quality be assessed in the siting and design of both new and expanding marinas. Water quality monitoring can determine the quality of water at the site, as well as aid identification of the extent or causes and sources of a water quality problem. Additionally monitoring can be a measure of the effectiveness of best management practices used in the marina. Monitoring data is frequently needed if water quality modeling is used to compare the effects of alternative marina designs. In areas of known good water quality, monitoring might not be needed for small marina developments.

Examples of practices used in this management measure, together with discussion of the benefits, initial and recurring costs, as well as some case studies are provided in USEPA (2001).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas. It is intended to assess and monitor the water quality in marinas.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a **joint permit** from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the state's water quality standards (33 U.S.C. 1341). For individual permits, certification occurs

during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

Education, Public Outreach, and Technical and Financial Assistance

For inland lakes, rivers and streams, IEPA **Ambient Water Quality Monitoring Programs** collect integrated water column samples on a six week sampling frequency. These samples are analyzed for a minimum of 55 universal parameters including field pH, temperature, specific conductance, dissolved oxygen, suspended solids, nutrients, fecal coliform bacteria, and total and dissolved heavy metals.

The Harbors monitoring component of IEPA's **Lake Michigan Monitoring Program (LMMP)** has 1-4 sample sites in each harbor on Lake Michigan based on size and are monitored on a 5-year rotational basis with 2-3 harbors monitored per year. These sites are sampled in May, July, and September at a sample depth of 1.5 foot. In addition to in-situ surface measurements (temperature, DO, pH, conductivity, and turbidity), chemical parameters analyzed include chloride, fluoride, metals (total), nutrients (total), solids (total, dissolved, and volatile), and sulfate. Furthermore, at a subset of sites (5/year or 20%) an expanded suite of parameters are also collected and analyzed. These include full temperature/DO profiles, additional chemical parameters (cyanide, dissolved nutrients and metals, phenols, total organic carbon, and pesticides), and near bottom (total depth – 2 feet) water chemistry samples. Chlorophyll and phytoplankton samples are taken at these expanded sites as well. The data from this program in addition to the near shore and the public water supply survey programs is used to monitor and assess the overall water quality of the Illinois portion of Lake Michigan. These assessments are conducted on a biannual basis and are contained in the IEPA's Illinois Integrated Water Quality Report and Section 303(d) List.

Enforcement Mechanisms- Water Quality Assessment

IEPA is responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements.

Water Quality Certification is part of regulatory approvals under the Joint Permit process through sections 401 and 404 of the Clean Water Act, and is issued by the IEPA Bureau of Water. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. The most important of these is Chapter 16-4 of the Chicago Municipal Code, the Lake Michigan and Chicago Lakefront Protection Ordinance, that rigorously regulates development in Lake Michigan in the City and includes clauses specific to protection of water quality.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.3 Habitat Assessment Management Measure

The purpose of this management measure is to encourage marinas to be designed and located so as to eliminate or minimize adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, and other important habitat areas. This management measure also focuses on marina siting and design and extends to assessments so that marinas can incorporate natural habitats into their siting and design. Marinas can be compatible with, and provide a valuable habitat for, plants and animals that are adapted to quiet, sheltered waters. Siting or expanding a marina where its development or operation will diminish the biological or economic value of the surrounding habitats should be very carefully considered. Such habitats might be fish spawning areas, designated wetlands or beds of submerged aquatic vegetation, or areas important to threatened or endangered species.

Older marinas that have an operating history often provide sheltered, quiet waters for plants and animals that prefer this type of environment or for animals that need this type of environment during specific life stages, such as spawning. Where the surrounding environment has been developed and offers little natural habitat, such as the hardened shoreline along much of Chicago's coast, a marina might provide a refuge for many species.

Details on practices, benefits, costs and case studies for this management measure can be reviewed in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas where site changes may impact on wetlands, shellfish beds, submerged aquatic vegetation (SAV), or other important habitats. The habitats of nonindigenous nuisance species, such as some clogging vegetation or zebra mussels, are not considered important habitats

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Fish and Wildlife Coordination Act (16 USC 661)** requires a USFWS review of potential effects on fish and wildlife from proposed water resource development projects. The act requires that fish and wildlife resources receive consideration equal to other project features. In addition, it also requires federal agencies that construct, license, or permit water resource development projects, such as USACE, to first consult with USFWS IDNR, IEPA, and local agencies to mitigate impacts on fish and wildlife.

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a **joint permit** from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the state's water quality standards **(33 U.S.C. 1341)**. For individual permits, certification occurs during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

The **River and Harbors Act (Navigable Waters, 33 USC 403)** governs the use of public waters and gives IDNR the authority to regulate construction activities in state waterways. As part of this authority, **17 IAC 3700-3708** require marinas to obtain a permit from IDNR for any construction project in a public body of water. Permits are usually required for individual projects, although some common construction activities are covered under statewide and regional permits. Work that meets all the specified limits of a statewide or regional permit is automatically approved. Marina projects that may require permits include dredging, control of aquatic nuisance species, placement of docks/piers, bank stabilization, and building of marina breakwater structures. This review ensures that projects are not going to cause permanent degradation of ground or surface water, in addition to protecting habitat and physical and biological features of the air, land or water.

Education, Public Outreach, and Technical and Financial Assistance

On pages 25-32 of the **Illinois Clean Marina Program Guidebook**, in the Marina Maintenance and Operation chapter, there are BMPs for protecting and creating habitats within and around marinas. The Stormwater Management chapter also provides BMPs that would create habitat, while reducing stormwater runoff, such as a rain garden.

Enforcement Mechanisms- Habitat Assessment

IEPA is responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements.

The USACE and IDNR require permits for construction in navigable waterways. In Illinois, navigable waterways and "dredge and fill" regulations are both processed through the Joint Application, a partnering procedure led by USACE, with IDNR and IEPA. The Permit review process allows these agencies to evaluate the suitability of a proposed marina site and/or expansion as well as compliance with the Fish and Wildlife Coordination Act, Endangered Species Act, sections 401 and 404 of the Clean Water Act, Illinois Water Quality Standards, and any other applicable regulations.

IEPA also has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit. Lake Michigan Basin Water Quality Standards apply to Lake Michigan harbors and waters (as defined in 35 Ill. Adm. Code 301.440) within Illinois jurisdiction within breakwaters, and most waters tributary to Lake Michigan. Marinas within the Chicago River, the North Shore Channel, and the Calumet River are fall under the General Water Quality Provisions.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. Chicago's Lake Michigan and Chicago Lakefront Protection Ordinance regulates development in Lake Michigan in the City and includes clauses specific to protection of areas of ecological and water quality importance. The City is empowered to assess civil penalties if this Ordinance is violated.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.4 Shoreline and Stream Bank Stabilization Management Measure

Where shoreline erosion is a nonpoint source pollution problem, shorelines and/or stream banks should be stabilized. Vegetative methods are strongly recommended over structural methods, where cost-effective, considering the severity of wave and wind erosion, off shore bathymetry, and the potential adverse impact on shorelines and off shore areas. The purpose of this management measure is to protect shorelines and streambanks from erosion due to runoff, wind and boat-generated waves or currents.

In a marina, structures are intended to protect boats, piers, and other elements from waves and currents. The marina basin is designed and built to be a calm, non-eroding environment. Erosion can still occur along the perimeter or outside a marina. Wave energy reflected off a structure such as a breakwater or from boat wakes may cause bank erosion where it is not desirable. Scour along the bottom of a structure such as a breakwater or at the abrupt junction of two unlike materials, such as river bottom sediments and a cement boat ramp, can also be a problem. Bank erosion and scour can result in sediment filling in a marina basin (and the need for maintenance dredging) or erosion at the edges of a boat ramp. Minimizing shoreline erosion will protect marina shorelines and can reduce the need for or frequency of maintenance dredging.

A vegetated shoreline can minimize the reflection of wave energy to other locations. Vegetation is also a relatively low-cost means to stabilize a shoreline, and it can add an attractive element to an otherwise engineered environment. Used by itself, vegetation is most effective where waves or currents are low in energy, the soil is stable enough for plant growth, and banks have shallow slopes. Where wave or current energy is too strong for vegetation to establish itself, temporary structures can be used to protect vegetation until it can get going, or permanent structures might be necessary. Permanent protective structures could be needed where wave or current energy is too great for establishing and maintaining vegetation. Vegetation can often be added at the edges of structural elements to soften the structure and serve as a landscaping element.

Details on practices, benefits, costs and case studies for this management measure can be reviewed in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas where site changes may result in shoreline erosion. It is intended to prevent and reduce shoreline and stream bank erosion.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Fish and Wildlife Coordination Act (16 USC 661)** requires a USFWS review of potential effects on fish and wildlife from proposed water resource development projects. The act requires that fish and wildlife resources receive consideration equal to other project features. In addition, it also requires federal agencies that construct, license, or permit water resource development projects, such as USACE, to first consult with USFWS IDNR, IEPA, and local agencies to mitigate impacts on fish and wildlife.

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and

issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a **joint permit** from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the state's water quality standards (33 U.S.C. 1341). For individual permits, certification occurs during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

The **River and Harbors Act (Navigable Waters, 33 USC 403)** governs the use of public waters and gives IDNR the authority to regulate construction activities in state waterways. As part of this authority, 17 IAC 3700-3708 require marinas to obtain a permit from IDNR for any construction project in a public body of water. Permits are usually required for individual projects, although some common construction activities are covered under statewide and regional permits. Work that meets all the specified limits of a statewide or regional permit is automatically approved. Marina projects that may require permits include dredging, control of aquatic nuisance species, placement of docks/piers, bank stabilization, and

building of marina breakwater structures. This review ensures that projects are not going to cause permanent degradation of ground or surface water, in addition to protecting habitat and physical and biological features of the air, land or water.

The **Lake Michigan and Chicago Lakefront Protection Ordinance**, City of Chicago ordinance sets out to maintain and improve the purity and quality of the waters of Lake Michigan in Chicago through regulating any landfill, excavation, impoundment, mining, drilling, roadway building or construction in the Lakefront Protection District.

Education, Public Outreach, and Technical and Financial Assistance

On page 23 of the **Illinois Clean Marina Program Guidebook**, in the Marina Maintenance and Operation chapter, there are BMPs for marina facilities and structures, including employing nonstructural shore erosion control measures.

Enforcement Mechanisms – Streambank Stabilization

The USACE and IDNR require permits for construction in navigable waterways. In Illinois, navigable waterways and "dredge and fill" regulations are both processed through the Joint Application, a partnering procedure led by USACE, with IDNR and IEPA. The Permit review process allows these agencies to evaluate the suitability of a proposed marina site and/or expansion as well as compliance with the Fish and Wildlife Coordination Act, Endangered Species Act, sections 401 and 404 of the Clean Water Act, Illinois Water Quality Standards, and any other applicable regulations.

IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. Chicago's Lake Michigan and Chicago Lakefront Protection Ordinance regulates development in Lake Michigan in the City and includes clauses specific for protection of areas of ecological and water quality importance. The City is empowered to assess civil penalties if this Ordinance is violated.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.5 Marinas: Stormwater Runoff Management Measure

This management measure, which applies to runoff from the marina sites only, specifies implementation of storm runoff controls. Among the most important practices are the ones involving pollution prevention activities and the proper design of hull maintenance areas. At least 80% of total suspended solids must be removed from stormwater runoff coming from the hull maintenance areas. Marinas

which obtain a NPDES permit for their hull maintenance areas are not required to conform to this hull maintenance area provision.

Storm runoff in marinas can carry small particles and soluble substance from various surfaces into Lake Michigan. Hull maintenance generates sanding dust, paint dust and chips, copper and other heavy metals, and other such solids. Substances such as oils, grease, solvents, paint drippings, and fuel are frequently used at marinas and can easily be spilled. These pollutants can contaminate storm runoff if they are not managed while maintaining, repairing or cleaning a boat. Unless the runoff is collected for treatment, all of these pollutants end up in the marina basin, where they degrade water quality for aquatic life, create unsightly surface films or float until they adhere to surfaces like boat hulls or docks.

The National Pollutant Discharge Elimination System (NPDES) was established to control pollutant discharges, including those from storm water runoff. The 1987 amendments to the Clean Water Act mandated USEPA to develop a tiered implementation strategy to for previously unregulated storm water discharges. USEPA initially developed Phase I of the NPDES Storm Water Program in 1990. Phase I requires NPDES permits for storm water discharges from

- "Medium" and "large" municipal separate storm sewer systems (MS4s) that serve or are located in incorporated places or counties with populations of 100,000 or more people.
- Eleven categories of industrial activity, one of which is construction activity that disturbs 5 acres or more of land. The 11 categories of industrial activities for which storm water discharge permits are required are include marinas, boatyards and boat builders that repair, clean, and/or fuel boats.

Subsequently Phase II of the NPDES Storm Water Program went into effect and brought many municipal separate storm sewer systems serving fewer than 100,000 people, census districts in counties with population densities greater than 1,000 per square mile, and small construction sites of between 1 and 5 acres into the NPDES permitting program by March 2003.

Examples of practices used in this management measure, together with discussions of pollutant removal efficiencies, other benefits, initial and recurring costs, as well as case studies are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas, and to existing marinas for at least the hull maintenance areas. If boat bottom scraping, sanding, and/or painting is done in areas other than those designated as hull maintenance areas, the management measure applies to those areas as well. This measure is not applicable to runoff that enters the marina property from upland sources. It is intended to reduce the amount of runoff and the pollution in the runoff from entering the surface water.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a **joint permit** from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the state's water quality standards **(33 U.S.C. 1341)**. For individual permits, certification occurs during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

The **Lake Michigan and Chicago Lakefront Protection Ordinance**, City of Chicago ordinance sets out to maintain and improve the purity and quality of the waters of Lake Michigan in Chicago through regulating any landfill, excavation, impoundment, mining, drilling, roadway building or construction in the Lakefront Protection District.

Education, Public Outreach, and Technical and Financial Assistance

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA's **Illinois Green Infrastructure Study** reports on the effectiveness of bioinfiltration, permeable pavement, filtration, green roof, constructed wetlands. It also describes funding sources available, current practices, recommendations, habitat improvement through green infrastructure and has a list of example successful green infrastructure projects in northeastern Illinois. All of this is available to the general public and can be found here: http://www.epa.state.il.us/green-infrastructure/docs/draft-final-report.pdf

IDNR released an **Addendum on Green Infrastructure** to expand the definition of green infrastructure to include the ecological services provided beyond stormwater benefits. This includes examples of application on a federal, state/regional, and local/county/municipal scale. The Addendum can be found here: http://www.epa.state.il.us/green-infrastructure/docs/idnr-report-addendum.pdf

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach. **Section 305(b) of the CWA** is the primary assessment of

state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

On pages 33-37 of the **Illinois Clean Marina Program Guidebook**, in the Stormwater Management chapter, there are BMPs for reducing and filtering stormwater runoff such as minimizing impervious surfaces, cultivating vegetated areas and stenciling storm drains.

Chicago Metropolitan Agency for Planning has put out a **Stormwater Management Strategy Paper** that provides guidance on creating a stormwater management plan using a variety of BMPs on different scales.

Enforcement Mechanisms

IEPA is responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements.

Water Quality Certification is part of regulatory approvals under the Joint Permit process, and is issued by the IEPA Bureau of Water. This covers section 401 and 404 of the Clean Water Act and the Illinois Water Quality Standards. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. The most important of these is Chapter 16-4 of the Chicago Municipal Code, the Lake Michigan and Chicago Lakefront Protection Ordinance, that rigorously regulates development in Lake Michigan in the City and includes clauses specific to protection of water quality.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.6 Fueling Station Design Management Measure

This management measure specifies that fueling stations at marinas be located and designed to allow for ease in cleanup of spills. Fueling stations should also be provided with fuel containment and cleanup equipment and a spill contingency plan.

Spillage is always possible during boat fueling operations, and spills of gasoline and diesel fuel are a common source of pollution in marina waters. Most fuel dock spills are small and result from overfilling fuel tanks or drips from the nozzle as it is removed from the boat and returned to the fuel dock. A rare but damaging form of fuel loss that occurs is when fuel leaks from fuel pipes and hoses between the fuel

storage tank and the pump. This leakage can result from dock damage from a major storm or a boat collision.

Marinas should have equipment that minimizes these types of spills and equipment that is available to contain, absorb, and minimize the spread of petroleum products spilled during fueling. Diesel and gasoline are less dense than water and therefore float on the surface. In this way, fuel spills can be relatively easy to identify and capture, particularly if containment and absorption equipment is readily available and deployed quickly.

The most effective way to minimize pollution from fuel spills at a marina is to locate, design, build, and operate a fuel dock so that most spills are prevented and those that do occur are quickly contained and cleaned up. A good preventive measures at fuel docks is to identify and locate sources of leaks or spills, such as at joints in piping systems or between pipes and storage tanks, and to address each one in the facility's Spill Prevention, Control, and Countermeasures (SPCC) Plan. An SPCC plan is a federal requirement (40 CFR Part 112) for any marina that has more than 660 gallons of fuel storage in a single aboveground container; an aggregate of 1,320 gallons above ground; or more than 42,000 gallons underground. Also, the Occupational Safety and Health Act (OSHA) has various regulations governing employee involvement in spill cleanups, including requiring training for such activities. Facilities are encouraged to have employees attend hazardous materials handling training or other appropriate training.

Examples of these and other practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas where fueling stations are to be added or moved. It is intended to promote designs of fueling stations that will reduce the risk of fuel entering the water.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Illinois Gasoline Storage Act (430 ILCS 15)** gives the Office of the State Fire Marshal (OSFM) the authority to regulate above ground and below ground gasoline storage tanks in addition to the dispensing of fuel in order to insure the safety and welfare of the general public.

OSFM Rules for Aboveground Bulk Storage Tanks (41 IAC 160) are to insure the safety and welfare of the general public. These rules also address preventing and containing spills to keep the petroleum product from reaching surface or groundwater.

It is illegal under the **Petroleum Dispensing and Fueling Rules (41 IAC 175.250)** for boaters to fuel their own vessels at a marina. Marinas must ensure that an attendant is always available to fuel vessels for customers. This rule also requires that emergency shutoff switches be installed at each fueling facility in case of fire or physical damage.

The **Lake Michigan and Chicago Lakefront Protection Ordinance**, City of Chicago ordinance sets out to maintain and improve the purity and quality of the waters of Lake Michigan in Chicago through regulating any landfill, excavation, impoundment, mining, drilling, roadway building or construction in the Lakefront Protection District.

Education, Public Outreach, and Technical and Financial Assistance

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

On pages 51-61 of the **Illinois Clean Marina Program Guidebook**, in the Petroleum Control chapter, there are BMPs for preventing spills at the source and spill response planning, including avoiding wakes and waves when siting a fueling station and installing and maintaining petroleum storage tanks properly.

OSFM Technical Services Division will review plans and applications submitted for installation or modification of above ground storage tanks. Architectural drawings of new construction, renovations and additions can also be reviewed for compliance with state fire codes.

Enforcement Mechanisms

A number of Federal, State and Local programs apply to marina fueling station design. The State Fire Marshal's Office has regulations concerning marine service stations, as well as technical and engineering review assistance for a variety of subjects including: Life Safety Code enforcement, aboveground tank storage regulation, and countless other fire prevention and petroleum and chemical safety related issues. OSFM inspects fueling stations annually to ensure there are no violations of the Gasoline Storage Act. All fueling stations must display the current year's green decal to indicate that the station is in compliance.

At the local level, municipalities have the authority to enforce their ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, and technical assistance. The most important of these is Chapter 16-4 of the Chicago Municipal Code, the Lake Michigan and Chicago Lakefront Protection Ordinance, that rigorously regulates development in Lake Michigan in the city and includes clauses specific to protection of water quality.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.7 Sewage Facilities Management Measure

This management measure is intended to prevent the release of sewage to surface waters from boats through design of marinas with proper sewage management facilities, including pumpout, dump station, and adequate restroom facilities. These facilities are to be designed to allow for ease of access and signage should be used to promote use by the boating public.

Boat sewage is an ecological and public health threat when it is discharged into surface waters without pretreatment. Sewage from boats is more concentrated than traditional sanitary wastewater because marine heads use little water for flushing and the sewage in marine heads is not diluted by water from bathing, dishwashing, or rain. Sewage contains nutrients that can stimulate growth of aquatic plants and pathogens that can directly cause health problems. Boaters and marinas have a vested interest in clean water because of the recreational benefits boaters derive from clean water.

Installations of pumpouts and boater education programs have reduced discharge of boat sewage in recent years (EPA 2001). Marinas can play an important role in continuing progress on this issue by installing pumpout facilities and restrooms at new and existing marinas. Most states encourage the installation and use of pumpouts through the federal Clean Vessel Act (CVA) Grant Program and boater education.

It is illegal under federal law (33 CFR Part 159) for any person to operate a vessel with an installed toilet facility unless it meets approved marine sanitation device (MSD) standards, Type I and II MSDs are used to pretreat boat sewage before discharging it overboard (except in a no discharge zone) if not prohibited by local ordinances. In an area designated as a no discharge zone, MSDs of all types must be configured to prevent discharge to surface waters and all sewage must be pumped out. Type III MSDs are holding tanks. They must be discharged to sewage treatment systems.

Two of the most important factors in for preventing sewage discharge from boats are providing adequate pumpout facilities and boater education program. The Clean Vessel Act (CVA) provides federal funding for the installation of adequate pumpout facilities, and grants are available to both private and public marinas for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities. The Clean Marina Program can provide technical assistance to marinas seeking CVA funds.

This management measure applies to new and expanding marinas in the Illinois coastal zone where adequate marine sewage collection facilities do not exist. Marinas that do not provide services for vessels that have MSDs do not need to have pumpouts, although dump stations for portable toilets and restroom facilities should be available. This measure does not address direct discharges from vessels covered under Section 312 of the CWA. Examples of practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas in areas where adequate marine sewage collection facilities do not exist. Marinas that do not provide services for vessels that have marine sanitation devices (MSDs) do not need to have pumpouts, although dump stations for portable toilets and restrooms should be available. This measure does not address direct discharges from vessels covered under CWA section 312. It is intended to ensure marinas have an appropriate sewage facility to accommodate their patrons.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

It is illegal under the **Boater Registration and Safety Act (625 ILCS 45/4-9)** to discharge sewage into state waterways. Required measures for preventing illegal discharge are outlined in the CWA. Any vessel with an installed toilet must be equipped with a USCG-certified Type I, Type II, or Type III marine sanitation device (MSD). Vessels 65 feet and under may have any of the three types of MSDs. Vessels over 65 feet must have a Type II or III system. Additionally, Type I and Type II systems must display a certification label affixed by the manufacturer. This label is not required on Type III systems.

The **Sewage Management Rule (77 IAC 800.1300)** requires marinas to provide pump-out stations wherever boats equipped with toilets are allowed to dock in recreational areas. Shoreside restrooms for

both men and women are also required if marinas provide docking facilities for overnight sleeping. Restrooms must be located within 500 feet of recreational areas.

Education, Public Outreach, and Technical and Financial Assistance

The **Clean Vessel Act (CVA, 50 CFR 85)** provides grant funds to IDNR to distribute for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage. Under this act, marinas can receive up to $12,500 in grant funding to install a pump-out system. In exchange for grant funding, marina owners agree to maintain pump-out systems in good operating condition for a minimum of 10 years and not to charge more than $5 per pump-out. The pump-out system must be able to accept waste from portable toilets, as well as holding tanks, and must be available to the public during reasonable business hours.

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach.

On pages 62-68 of the **Illinois Clean Marina Program Guidebook**, in the Sewage Handling chapter, there are BMPs for waste containment and disposal, including managing fish waste such as building cleaning stations large enough to accommodate the volume of fish waste generated at the marina.

Enforcement Mechanisms

IEPA can assess civil penalties for illicit discharges of sewage to surface waters and violations of NPDES requirements. IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302).

IDNR is responsible for enforcing the Boater Registration and Safety Act. Conservation Police Officers, sheriffs, deputy sheriffs and other police officers will arrest any boaters violating this Act and their boats can be impounded.

The Illinois Department of Public Health ensures marinas are following the Recreational Area Code, including the section on sewage management (77 IAC 800.1300) at boating facilities, through regular inspections.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.8 Solid Waste Management Measure

This management measure specifies that solid wastes produced by the operation, cleaning, maintenance, and repair of boats should be properly disposed of so that these wastes do not enter marina waters. This management measure focuses on controlling the solid waste that can collect at marinas and boat ramps if waste receptacles are not conveniently provided or sufficient attention is not given to controlling waste from boat cleaning, maintenance, and repair.

Many of the management practices that are useful for reducing solid waste production during boat maintenance activities are those of the Storm Water Runoff Management Measure because much of the solid waste produced during boat maintenance activities could potentially be carried to surface waters in storm water runoff.

Cleanliness at a marina can also lead to public recognition and to less trash in slips and common areas. Substantial aquatic cleanup costs can be replaced by smaller investments in trash collection and preventive practices. Providing sufficient waste receptacles, separating wastes into classes of recyclables, and preventing litter are all accepted practices today and are part of customer service and environmentally friendly management at public facilities.

Examples of practices used in this management measure, together with discussions of pollutant removal efficiencies, other benefits, initial and recurring costs, as well as case studies are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to new and expanding marinas. It is intended to reduce the amount of solid waste entering the water.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage (35 IAC 309). Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

The **Marine Plastic Pollution Research and Control Act of 1987 (33 USC 1914-1915)** restricts the overboard discharge of garbage. Under this law, it is illegal to dump plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food into any U.S. lake, river, and bay. Ports and terminals, including recreational marinas, must provide adequate and convenient receptacles for their customers, including transients. All boats over 40 feet must also have a written waste management plan on board.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

General Solid Waste Management Regulations (35 IAC 807-810) establish procedures for the storage, transport, and disposal of solid waste, including special waste. Solid waste management requirements differ depending on the material and quantity.

Education, Public Outreach, and Technical and Financial Assistance

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

The Alliance for the Great Lakes coordinates the **Adopt-a-Beach™ program**, which includes litter removal and tracking. It is a way for members of the local community to get involved with a regional program. Despite its name, the program applies to more than just beaches. For example, groups have "adopted" Burnham Harbor, the North Pond and South Pond in Lincoln Park, and other water bodies that connect to Lake Michigan. The group that has adopted Burnham Harbor is made up of divers who bring litter and debris up from the bottom of the harbor. In addition to litter removal and monitoring, volunteers can complete a beach health assessment form using science-based sampling and observation. The litter monitoring form can be found here: http://www.greatlakes.org/document.doc?id=1444.

On pages 70-84 of the **Illinois Clean Marina Program Guidebook**, in the Waste Containment and Disposal chapter, there are BMPs for proper waste containment and disposal, including managing pet waste and recycling. The guidebook recommends using wind screens around dumpsters to prevent litter in addition to picking up litter around the harbor twice a day.

Enforcement Mechanisms

Marine Plastic Pollution Research and Control Act restricts the overboard discharge of garbage and makes it is illegal to dump plastic, paper, rags, glass, metal, ceramic, etc. into any waterbody. The law is typically enforced by marine police (IDNR, City of Chicago, other local law enforcement authorities).

Water Quality Certification is part of regulatory approvals under the Joint Permit process, and is issued by the IEPA Bureau of Water. This covers section 401 of the Clean Water Act and the Illinois Water Quality Standards. Additionally, IEPA is responsible for the enforcement of NPDES rules for activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements. IEPA also has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302).

The Illinois Pollution Control Board enforces the General Solid Waste Management regulations. Violators can be ordered to cease and desist from further violations, take pollution abatement measures, clean up contamination, reimburse cleanup costs, or pay substantial fines.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.9 Fish Wastes Management Measure

In sufficient quantity, wastes from catching and cleaning fish can result in the depletion of dissolved oxygen in water and odor problems on land. To address this concern, this management measure is intended to promote sound fish waste management through a combination of fish cleaning restrictions, public education, and proper disposal.

Fish waste can create water quality problems at marinas where fish are landed and cleaned. This might be the case at any marina during the fishing season. The waste from fish cleaning should not be disposed of into a marina basin. This creates water quality problems and impacts aesthetic value. Fish waste also attracts nuisance species, such as gulls, raccoons, and rats that can also contribute to localized animal waste and aesthetics issues. Fish waste should be treated like any other organic material and deposited in trash containers or designated receptacles. Fish cleaning stations provide convenient places for marina patrons to clean fish and dispose of their waste material, and they help to keep the rest of the marina clean.

This management measure is applicable to marinas where fish waste is determined to be a source of water pollution.

Examples of practices used in this management measure, together with discussions of pollutant removal efficiencies, other benefits, initial and recurring costs, as well as case studies are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to marinas where fish waste is determined to be a source of water pollution. It is intended to promote the proper disposal of fish waste.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage (35 IAC 309). Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

Education, Public Outreach, and Technical and Financial Assistance

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning

and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

On pages 77 and 78 of the **Illinois Clean Marina Guidebook**, in the Waste Containment and Disposal chapter, there are BMPs for managing fish waste such as building cleaning stations large enough to accommodate the volume of fish waste generated at the marina. The guidebook recommends that marinas prohibit boaters from dumping fish waste into the water and to designate an area within the marina for fish cleaning.

Enforcement Mechanisms

IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

Additionally, IEPA is responsible for the enforcement of NPDES rules for activities regulated under 40 CFR 122.26 and for evaluating MS4 compliance with their general permit. IEPA can assess civil penalties for violations of NPDES requirements. IEPA also has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302).

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.10 Liquid Material Management Measure

This management measure ensures the availability of appropriate storage, transfer, containment, and disposal facilities for liquid materials commonly used in boat maintenance. It encourages the recycling of these materials whenever possible.

Marinas store a variety of liquids for boat and facility operation and may generate liquid wastes on marina property. Adequate storage and disposal facilities are important if these materials are to be kept out of the environment. Proper storage is also important to ensure that liquid materials do not become contaminated while in storage and have to be disposed of prematurely. Marina patrons and employees are more likely to properly dispose of liquid wastes if adequate and safe disposal facilities are provided.

Liquid materials for sale or use at the marina, such as fuels, oils, solvents, and paints, should be stored in a manner that minimizes the chance of a spill and contains a spill if one occurs. Liquid wastes, such as waste fuel, used oil, spent solvents, and spent antifreeze, should be similarly stored until they can be recycled or disposed of properly. Small quantities of many liquid wastes, including antifreeze, waste oil, pesticides, cleaners, solvents, and paints, can be harmful or even deadly.

There are many regulations for control of liquid wastes. Regardless of whether a liquid waste material is eventually recycled or disposed of, careful documentation of how much material is collected, how it is removed from the facility, and where it is ultimately going is extremely important. These records are invaluable if there is ever any question from state or federal authorities regarding the marina's hazardous waste collection and disposal practices. Marina staff and boaters should be informed about safe storage and disposal of liquid wastes. If a marina collects waste oil for recycling or disposal, precautions need to be taken to prevent contamination of waste types. Contaminated or mixed liquid wastes can be expensive to dispose of because commercial removal companies charge their highest rates for unknown mixtures. Holding tanks for liquid wastes should be kept locked, and a staff person should be responsible for moving waste from a collection site to the storage facility.

Examples of practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to marinas where liquid materials used in the maintenance, repair, or operation of boats are stored. It is intended to promote the proper storage and disposal of liquid wastes.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit,

grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification.

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage (35 IAC 309). Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

The **Illinois Gasoline Storage Act (430 ILCS 15)** gives the Office of the State Fire Marshal (OSFM) the authority to regulate above ground and below ground gasoline storage tanks in addition to the dispensing of fuel in order to insure the safety and welfare of the general public.

Hazardous Waste Management Rules (35 IAC 720-729) expand upon the federal Resource Conservation and Recovery Act and outline requirements for hazardous waste management in Illinois. Requirements under these laws differ depending on the amount of hazardous waste generated on site.

Education, Public Outreach, and Technical and Financial Assistance

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of

new technology and education and outreach. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

On pages 38-50 in the **Illinois Clean Marina Guidebook**, in the Vessel Maintenance and Repair chapter, there are BMPs for handling liquid materials such as antifreeze, bilge water and paint. Additionally, in the Waste Containment and Disposal chapter on pages 75-77, there are BMPs for collection, disposal, and recycling of liquid wastes, including recycling used oil, proper disposal of antifreeze and methods for handling other liquid waste from boat owners.

Enforcement Mechanisms

Water Quality Certification is part of regulatory approvals under the Joint Permit process through section 401 of the Clean Water Act, and is issued by the IEPA Bureau of Water. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

OSFM inspects fueling stations annually to ensure there are no violations of the Gasoline Storage Act. All fueling stations must display the current year's green decal to indicate that the station is in compliance.

Hazardous Waste Management Rules (35 IAC 720-729) establish standards for handling, transporting, and disposing of materials that are ignitable, corrosive, reactive, or toxic in Illinois. Facilities that generate these materials, known as hazardous waste, are categorized according to the quantity of waste generated on-site. Some requirements laid out in this law apply to all hazardous waste generators, but most are specific to the amount of waste being generated.

Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.11 Petroleum Control Management Measure

This management measure aims to reduce the amount of fuel and oil from boat bilges and fuel tank air vents entering marina and surface waters. Fueling stations should have fuel containment and cleanup equipment and a spill contingency plan.

Overfilling a boat's fuel tank can release gasoline or diesel into marina waters from the fuel tank air vent; oil is easily discharged during bilge pumping. A small fuel sheen on the water surface near docked

boats is an all-too-common sight and can be caused by a spill of only a few drops. Small amounts of oil spilled from multiple boats can accumulate to create large oil sheens. Gasoline spills can be a safety problem because of gasoline's flammability. Hydrocarbons are dangerous to aquatic plants and animals. Further, petroleum spills can cause structural damage at marinas: discoloration on boat hulls, woodwork and paint, and, deterioration of styrofoam in floats and docks.

Petroleum control practices as presented in detail in USEPA (2001) are used in many marinas. Their purpose is to minimize the entry of petroleum from fueling and bilge pumping into surface waters. Technologies such as air/fuel separators, oil-absorbing pads, and bioremedial pads and socks have been developed in response to a growing recognition of the cumulative ecological damage that can be done by even small spills of petroleum products into surface waters. These small spills escape the attention of many people, and marina owners and operators can play an important role in bringing the importance of controlling this form of pollution to the attention of their patrons.

Examples of these and other practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to boats that have inboard fuel tanks. It is intended to reduce the number and volume of incidental fuel spills.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Illinois Gasoline Storage Act (430 ILCS 15)** gives the Office of the State Fire Marshal (OSFM) the authority to regulate above ground and below ground gasoline storage tanks in addition to the dispensing of fuel in order to insure the safety and welfare of the general public.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

OSFM Rules for Aboveground Bulk Storage Tanks (41 IAC 160) are to insure the safety and welfare of the general public. These rules also address preventing and containing spills to keep the petroleum product from reaching surface or groundwater.

OSFM Rules for Aboveground Fuel Dispensing Storage Tanks (41 IAC 180) makes it illegal to pour liquids of Classes I, II and III, or solutions containing these liquids, into any sewer or into any drain which connects with a sewer system.

It is illegal under the **Petroleum Dispensing and Fueling Rules (41 IAC 175.250)** for boaters to fuel their own vessels at a marina. Marinas must ensure that an attendant is always available to fuel vessels for customers. This rule also requires that emergency shutoff switches be installed at each fueling facility in case of fire or physical damage.

Under the **Oil Spill Reporting and Response rules (41 IAC 176.300-176.360)**, owners or operators of petroleum storage tanks are required to immediately report the spill or release of petroleum to Illinois Emergency Management Agency (IEMA) at (800) 782-7860. Spills must also be reported to the National Response Center at (800) 424-8802. Failure to report any spill may result in substantial fines. Owners and operators are also required to immediately clean up any petroleum spill or overfill of 25 gallons or less.

Education, Public Outreach, and Technical and Financial Assistance

Through IEPA's **Voluntary Site Remediation Program (35 IAC 740)**, the agency will review, provide technical assistance and make no further remediation determinations for any persons seeking to perform investigative or remedial activities. IEPA is authorized to issue No Further Remediation (NFR) letters to the Remedial Applicants who have successfully demonstrated, through proper investigation and, when warranted, remedial action, that environmental conditions at their remediation site do not present a significant risk to human health or the environment. The NFR letter signifies a release from further responsibilities under the Illinois Environmental Protection Act. This program's activities are paid by the parties requesting the IEPA's oversight.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

On pages 51-61 of the **Illinois Clean Marina Program Guidebook**, in the Petroleum Control chapter, there are BMPs for preventing spills at the source and spill response planning, including maintaining a Spill Prevention, Control and Countermeasure (SPCC) Plan and training employees on proper fueling techniques and spill response.

OSFM Technical Services Division will review plans and applications submitted for installation or modification of above ground storage tanks. Architectural drawings of new construction, renovations and additions can also be reviewed for compliance with state fire codes.

Enforcement Mechanisms

Water Quality Certification, to the Illinois Water Quality Standards, is part of regulatory approvals under the Joint Permit process, and is issued by the IEPA Bureau of Water. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

IEPA has authority under the Clean Water Act over discharges into waters of the State. Also under 35 IAC 740, the Voluntary Site Remediation Program, the Bureau of Land is authorized to administer the voluntary cleanup of contaminated property.

The State Fire Marshal's Office has regulations concerning marine service stations, as well as technical and engineering review assistance for a variety of subjects including: Life Safety Code enforcement, aboveground tank storage regulation, and countless other fire prevention and petroleum and chemical safety related issues. OSFM inspects fueling stations annually to ensure there are no violations of the Gasoline Storage Act. All fueling stations must display the current year's green decal to indicate that the station is in compliance.

Under the Oil Spill Reporting and Response rules (41 IAC 176.300-176.360), failure to report any spill may result in substantial fines. Owners and operators are also required to immediately clean up any petroleum spill or overfill of 25 gallons or less.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.12 Boat Cleaning Management Measure

This management measure minimizes, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) paint from hull cleaning for boats that are in the water. Preventing the entry of chemicals from boat cleaners, cleaning solvents, and antifoulant paint into marina waters is the best way to prevent harm to the aquatic environment from these products. The management practices associated with this management measure are easily implemented, can be practiced by both boat owners and marina managers, and do not interfere with the need to keep boats clean. A variety of boat cleaners, such as teak cleaners, fiberglass polishers, and detergents are available for cleaning boats. Boats are typically cleaned while in the water. If cleaned onshore, some of the cleaning chemicals ultimately end up in the water. Additionally, when boat bottoms are cleaned aggressively, antifouling paint can be abraded off.

Many cleaners contain chlorine, ammonia, phosphates, and other caustic chemicals that can harm fish and other aquatic life. If a product's label warns about potential harm to human skin or eyes, the product is most likely harmful to aquatic life. NPDES storm water regulations defines boat wash water as "processed water" and discharge by a marina or boatyard is illegal nationwide without a permit. This permit requirement does not apply to boat owners who are cleaning their own boats, but it does apply to anyone who professionally cleans boats in a marina.

This management measure primarily concerns the actions of boat owners and the practices are to be implemented primarily by them. Marina managers can help educate boat owners about the importance of these measures in maintaining a clean marina, and marina stores can stock ecologically-friendly cleaning products for sale.

Examples of practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems. It is intended to promote proper cleaning techniques that will not pollute the marina waters.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body.

Education, Public Outreach, and Technical and Financial Assistance

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning

and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan; development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach.

On pages 40-42 of the **Illinois Clean Marina Guidebook**, in the Vessel Maintenance and Repair chapter, there are BMPs for boat and equipment washing such as using cleaning products that are non-toxic and phosphate free and directing water containing solids and particulates to a seepage area.

Enforcement Mechanisms

Water Quality Certification, to the Illinois Water Quality Standards, is part of regulatory approvals under the Joint Permit process, and is issued by the IEPA Bureau of Water. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.13 Public Education Management Measure

Public education/outreach/training programs should be instituted for boaters, as well as marina operators, to prevent improper disposal of polluting materials. Public education is one of the most effective management measures to reduce pollution in and around marinas. One of the primary factors in the success of any pollution prevention program is widespread support for the program by an educated public. This management measure is not costly and is proven to be effective at improving and reinforcing environmentally conscious behavior in all segments of the public.

A variety of public education materials is available and makes this management measure easy to implement. Many marina owners, most notably those certified under Illinois' Clean Marinas Program, are using public education as a tool for maintaining water quality. Numerous examples of public education materials are available from national organizations like the National Marine Manufacturers Association, the National Clean Boating Campaign organized by the Marine Environmental Education Foundation, Inc. (www.cleanboating.org), Illinois-Indiana Sea Grant program (www.iisgcp.org), and USEPA's Office of Water (www.epa.gov/OW).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to all environmental control authorities in areas where marinas are located. It is intended to increase the public awareness about nonpoint pollution in marinas.

Existing Programs or Practices

The **Clean Vessel Act (CVA, 50 CFR 85)** provides grant funds to IDNR to distribute for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage. Under this act, marinas can receive up to $12,500 in grant funding to install a pump-out system. In exchange for grant funding, marina owners agree to maintain pump-out systems in good operating condition for a minimum of 10 years and not to charge more than $5 per pump-out. The pump-out system must be able to accept waste from portable toilets, as well as holding tanks, and must be available to the public during reasonable business hours.

In the Marina Management chapter (pages 91-99) of the **Illinois Clean Marina Guidebook**, there are BMPs for public awareness such as incorporating BMPs into contracts and distributing Clean Boater Tip Sheets. The Clean Boater Tip Sheets are included in the Guidebook. The Illinois Clean Marina Program also provides a "Clean Boating Tip of the Week" on most Wednesdays via the program's Facebook page.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 305(b) of the CWA** is the primary assessment of state water quality which can be used for the development of water quality management plans. This assessment is updated annually.

The **IDNR Boating Education and Safety Program** provides a Boating Education Certificate of Competency to boaters that complete the course, either in person or online. This course is aimed at boaters under the age of 18, to prevent reckless driving of a motorized boat. Various course components relate to reducing nonpoint pollution, including fueling a boat and proper disposal of waste, oil, and trash.
(http://www.dnr.illinois.gov/safety/pages/boatingsafety.aspx)

Illinois-Indiana Sea Grant and the Northeast Illinois Invasive Plant Partnership have come together to form a **Clean Boats Crew**. This program stations members of the Clean Boats Crew at various public launches along Lake Michigan to engage recreational boaters in preventing the spread of invasive species and practicing good stewardship while on the Lake. This program is partially funded by the Illinois Coastal Management Program's competitive grant program from October 1, 2013 through September 30, 2014 and has partnered with the Illinois Clean Marina Program to expand its reach.

5.3.14 Maintenance of Sewage Facilities Management Measure

This management measure specifies that pumpout facilities be maintained in operational condition and that their use be encouraged to reduce untreated sewage discharges to surface waters. Sewage collection facilities, including sewage pumpout stations and portable toilet dump stations, are required if the release of sewage into marina and surface waters is to be prevented. However, nonfunctioning sewage collection and disposal facilities present an obstacle to boaters whose holding tanks are full, and leave boaters with few choices for sewage disposal. An inoperable pumpout or dump station at one marina can create an excessive demand at stations in nearby marinas that are operating. Long lines at the pumpouts can discourage boaters from proper sewage management and tempt them to discharge illegally.

This management measure is applicable to marinas with sewage disposal facilities.

Examples of practices used in this management measure are provided in USEPA (2001) and IDNR (2013).

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to marinas where marine sewage disposal facilities exist. It is intended to promote proper maintenance of marine sewage disposal facilities.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **NPDES Storm Water Management Program (Clean Water Act, 33 USC 1342)**, created in an amendment to the Federal Clean Water Act, regulates stormwater discharge from construction sites, industrial facilities, and selected municipalities. IEPA is in charge of implementing the program and issuing general permits in Illinois. Most marinas and boatyards are considered Tier II industries, and are required to have a Storm Water Permit for Industrial Activities if they allow boat maintenance, mechanical repair, painting, cleaning, fueling, lubrication, or provide outdoor boat storage **(35 IAC 309)**. Some marinas, such as those managed by the Chicago Parks District, may be covered by a MS4 permit. Under 35 IAC 309, marinas are also required to have a General Storm Water Permit for Construction Activity before beginning projects that will disturb one acre or more of land. Landowners need to submit an application called a Notice of Intent (NOI) to request coverage under these permits. As a condition of stormwater permits, each marina must develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that stormwater leaving the marina property will not harm the surrounding water quality.

Under **Section 404 of the Clean Water Act**, the majority of marina development and expansion projects along the Great Lakes, including dredging, will require a joint permit from USACE, IDNR, and IEPA. Before a Section 404 permit can be issued, IEPA must certify that the proposed project is in compliance with the

state's water quality standards **(33 U.S.C. 1341)**. For individual permits, certification occurs during the application review. In order for nationwide permits and other general permits issued by USACE to be valid in Illinois, IEPA must have already certified that the activities they permit will meet water quality standards. Applications that fail to meet water quality standards can be denied even if the proposed activity complies with all other Section 404 provisions.

Through **Illinois Water Quality Standards (35 IAC 302)**, IEPA protects the State's aquatic life, wildlife, secondary contact use and most industrial uses and ensure the aesthetic quality of the State's aquatic environment. Primary contact uses are protected for all general use waters whose physical configuration permits such use. Waters are to remain free of sludge or bottom deposits, floating debris, visible oil, odor, plant or algal growth, and color or turbidity different than the natural water body; most of which can be avoiding through flushing of waters.

The **Sewage Management Rule (77 IAC 800.1300)** requires marinas to provide pump-out stations wherever boats equipped with toilets are allowed to dock in recreational areas. Shoreside restrooms for both men and women are also required if marinas provide docking facilities for overnight sleeping. Restrooms must be located within 500 feet of recreational areas.

Education, Public Outreach, and Technical and Financial Assistance

The **Clean Vessel Act (CVA, 50 CFR 85)** provides grant funds to IDNR to distribute for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage. Under this act, marinas can receive up to $12,500 in grant funding to install a pump-out system. In exchange for grant funding, marina owners agree to maintain pump-out systems in good operating condition for a minimum of 10 years and not to charge more than $5 per pump-out. The pump-out system must be able to accept waste from portable toilets, as well as holding tanks, and must be available to the public during reasonable business hours.

IEPA's **Phase II MS4 stormwater program** requires permit holders to conduct public education and outreach on storm water impacts. This can include distributing educational materials and performing outreach to inform citizens about the impacts polluted stormwater runoff discharges can have on water quality. Permit holders are also required to provide opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a stormwater management panel.

IEPA is responsible for carrying out the financial and technical assistance sections of the Clean Water Act. **Section 104(b)(3) of the CWA** provides financial assistance for training, surveys, studies, investigations, and demonstration projects to support water quality improvement, watershed planning and management, nonpoint source planning, wetlands protection, coastal and estuarine planning, treatment technologies, water efficiency, and environmental management systems. **Section 319(h) of the CWA** provides grant funds for projects that prevent, eliminate, or reduce water quality impairments caused by NPS pollution. Projects can be implementation of an approved watershed-based plan;

development of a watershed based plan or total maximum daily load (TMDL) implementation plan; best management practice (BMP) implementation; information and outreach; monitoring development and implementation TMDLs and watershed implementation plans; technical assistance demonstration of new technology and education and outreach.

On pages 62-68 of the **Illinois Clean Marina Program Guidebook**, in the Sewage Handling chapter, there are BMPs for pump-out facilities including testing the efficiency of the pump weekly and keeping extra nozzles in stock to replace broken ones.

Enforcement Mechanisms

The Water Quality Certification is part of regulatory approvals under the Joint Permit process, and is issued by the IEPA Bureau of Water. Additionally, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

IEPA can assess civil penalties for illicit discharges of sewage to surface waters and violations of NPDES requirements. IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the state water quality standards (under 35 IAC 302).

The Illinois Department of Public Health ensures marinas are following the Recreational Area Code, including the section on sewage management (77 IAC 800.1300) at boating facilities, through regular inspections.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.3.15 Boat Operation Management Measure

This management measure deals with ecological problems resulting from boating operations outside marinas. In shallow areas, intense boating activities may contribute to shoreline and lake bottom erosion. The management measure is designed to decrease turbidity and physical destruction of shallow-water habitat resulting from boating activities.

No wake zones, motorized craft restrictions, signage and buoys are practices used for protecting shallow-water habitats. Important aquatic vegetation should be protected from damage due to boat and personal watercraft propellers because of its ecological importance and value in preventing shoreline erosion. This management measure presents effective, easily implemented practices for protecting aquatic vegetation as well as shorelines. Motorized boat traffic (including personal watercraft) through shallow-water areas and in nearshore areas at wake-producing speeds can resuspend bottom sediment, uproot submerged aquatic vegetation, erode shorelines and increase turbidity. Turbid waters do not support submerged aquatic vegetation to the same depths as clear waters due to decreased sunlight penetration. Fish that locate prey primarily by sight are impaired at finding prey in turbid waters. Plant

leaves can become coated with fine sediment, and bottom-dwelling organisms are continually covered by resettling sediment. Uprooted aquatic vegetation can no longer provide habitat for fish and shellfish or food for waterfowl nor reduce wave energy at shorelines.

This management measure applies only to boating on non-marina surface waters where evidence indicates that boating activities are adversely affecting shallow-water habitats.

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to non-marina surface waters where evidence indicates that boating activities are impacting shallow-water habitats. It is intended to aid in the reduction of shallow-water habitat disturbances.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure. Details on each program which will be used to implement this measure are summarized in Table 5-2.

Regulatory

The **Boat Registration and Safety Act (625 ILCS 45, Article V)** requires boaters to obey posted restrictions, such as no wake zone or no entry. These restrictions allow for shallow-water habitats to not be subjected to increased turbidity or physical destruction from boat operations. It is also illegal under this Act to discharge sewage into state waterways. Required measures for preventing illegal discharge are outlined in the Federal Clean Water Act. Any vessel with an installed toilet must be equipped with a USCG-certified Type I, Type II, or Type III marine sanitation device (MSD). Vessels 65 feet and under may have any of the three types of MSDs. Vessels over 65 feet must have a Type II or III system. Additionally, Type I and Type II systems must display a certification label affixed by the manufacturer. This label is not required on Type III systems.

Education, Public Outreach, and Technical and Financial Assistance

The **IDNR Boating Education and Safety Program** provides a Boating Education Certificate of Competency to boaters that complete the course, either in person or online. This course is aimed at boaters under the age of 18, to prevent reckless driving of a motorized boat. Various course components relate to reducing nonpoint pollution, including fueling a boat and proper disposal of waste, oil, and trash.
(http://www.dnr.illinois.gov/safety/pages/boatingsafety.aspx)

Illinois Clean Marina Program Guidebook Clean Boater Tip Sheets provide marina operators with educational materials on best management practices for recreational boaters. The Illinois Clean Marina Program also provides a “Clean Boating Tip of the Week” on most Wednesdays via the program’s Facebook page.

Enforcement Mechanisms

Boating operation laws, including the Boater Registration and Safety Act, are enforced by marine police (IDNR, City of Chicago, other local law enforcement authorities). Violating this Act will result in monetary fines and the potential for suspension of watercraft operation privileges.

All programs used to implement this measure are listed in Table 5-2. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

5.4 Coordination for Marina and Recreational Boating Source Pollution Prevention

Illinois' Clean Marina Program was formalized in 2013 by the IDNR. A guidebook has been published that includes proper nonpoint source pollution controls (IDNR 2013). The program encompasses all management measures necessary to implement effective nonpoint source pollution controls in marinas in the coastal zone, and it is essentially equivalent to management measures described in USEPA (2001). The guidebook contains the following sections:

- Siting and Design Considerations for New and Expanding Marinas
- Marina Maintenance and Operation
- Stormwater Management
- Vessel Maintenance and Repair
- Petroleum
- Sewage Handling
- Waste Containment and Disposal
- Safety and Emergency Preparedness
- Marina Management
- Laws and Regulations

The guidebook also contains informative Tip Sheets and appendices.

The Clean Marina Program is voluntary and incentive-based; the program encourages marina operators and recreational boaters to protect coastal water quality by engaging in environmentally sound operating and maintenance procedures. The Illinois Clean Marina Program offers information, guidance, and technical assistance to marina operators, local governments, and recreational boaters on Best Management Practices (BMPs) that can be used to prevent or reduce pollution. Marinas that participate in the Clean Marina Program are recognized for their environmental stewardship.

The lead agency for the Illinois Clean Marina Program is the Illinois Department of Natural Resources. This new program protects water quality, and the fish, plant, and wildlife that depend upon it. The Illinois Clean Marina Program provides marinas with a best practices guidebook, expands outreach and education and implements a formal certification and training process.

Under the Clean Marina Program, marinas voluntarily adopt sufficient best management practices and are certified by the State of Illinois to meet the environmental standards laid out by the Program. During the first year, one marina has been certified and five additional marinas have pledged to keep Illinois' waterways free of harmful chemicals, excess nutrients and debris and commit to actively pursue certification. Marinas are recertified after their first three years, and then every fifth year after that. Each year, the marina managers have to commit in writing that they are still following the program between recertification.

Other regulatory programs share responsibility among agencies. In Illinois, waterways, floodplains and wetlands construction projects often require both State and Federal authorization. The state has a joint permit application process designed to simplify the approval process for the applicant seeking project authorizations from the USACE, IDNR, the Office of Water Resources and IEPA. The joint permit review process allows these agencies to evaluate the suitability of a proposed marina site and/or expansion. Consideration of marina flushing in the siting and design of new and expanded marinas in the coastal zone is part of the joint agency review process.

Many ancillary federal, state and local agencies apply to marina development and provide the requisite assurance that management measures will be implemented.

- Federal Agencies: USACE, NOAA, USFWS, USCG
- State Agencies: IDNR, IEPA
- Local: MWRD, Cook and Lake Counties, municipalities

The Rivers and Harbors Appropriation Act of 1899, the oldest federal environmental law, prohibits the discharge of any material into navigable waters, or the excavation, filling, or altering of the course, condition, or capacity of any harbor or navigable channel without a permit. This Act is administered by the USACE through Illinois' joint permit program. Although many activities covered by the Rivers and Harbors Act are also regulated under the Water Pollution Control Act, the 1899 Act is independent.

The Clean Vessel Act Grant Program (CVA) provides grant funds to the states for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters, and, for educational programs that inform boaters of the importance of proper disposal of their sewage.

The Water Pollution Control Act, also known as the Clean Water Act, further regulates the discharge of dredge or fill materials into navigable waters, including wetlands. Nearly all marina development and expansion projects, including dredging or breakwater construction or repair, will require authorization under the Clean Water Act. USACE is the lead agency and administers permit decisions. USEPA enforces the Act, and further, has authorized the state to issue certifications under Section 401 for consistency with State water quality standards. This is also done through the joint permit program, as marina plans are reviewed by IEPA and as appropriate, Illinois' Section 401 Water Quality Certification can be issued to authorize marina projects.

IDNR also reviews projects under the joint permit program to see that the planned marina would not impair the navigability of the waterway, cause significant harm to the environment or cultural resources, or pose a hazard to life or property. The proposed marina's impact on other facilities is also evaluated.

The joint permit process also includes compliance with the Fish and Wildlife Coordination Act. This Act requires a U.S. Fish and Wildlife Service (USFWS) review of potential effects on fish and wildlife, including federally listed threatened and endangered species, from marina development projects. The act requires that adverse effects on fish and wildlife resources be identified and receive appropriate mitigation.

As part of the Phase II stormwater permitting program, IEPA coordinates with ICMP and other partners to provide training opportunities that may include planning principles, erosion control, and stormwater quality measures that can be utilized to address issues associated with the Watershed Protection Management Measure, Pollution Prevention Management Measure, and other management measures.

Public Act 96-26, the Green Infrastructure for Clean Water Act, directed the IEPA to assess and evaluate using green infrastructure to help manage stormwater in Illinois. The Illinois Green Infrastructure Grant Program for Stormwater Management (IGIG) was established in 2011 to assist local government and other organizations fund the implementation of green infrastructure BMPs for stormwater management that are designed to protect or improve water quality in CSO areas and MS4 areas in Illinois.

The IEPA conducts a wide variety of water quality monitoring programs which have sampled approximately 3,300 stream stations, many of which are in the coastal zone. At least 850 of these stations are sampled for biological, chemical and instream habitat data as well as stream flow. Water quality monitoring programs consist of a combination of fixed station networks and intensive or facility-related stream surveys in specific watersheds. The Agency's monitoring programs include:

- Ambient Water Quality Monitoring Network
- Pesticide Monitoring Subnetwork
- Facility-Related Stream Surveys
- Intensive River Basin Surveys
- Toxicity Testing Program
- Fish Contaminant Monitoring - Rivers and Streams
- Lake Michigan Sampling Program

The Voluntary Site Remediation Program provides persons or organizations seeking to perform investigative or remedial activities, on brownfield or other contaminated sites, the opportunity to receive review, technical assistance and no further remediation determinations from the IEPA. This program is designed to be flexible and responsive to the needs of the remediation applicants.

The IEPA Bureau of Water administers several grant programs through the authority of the federal Clean Water Act. One such grant program offers additional opportunities to coordinate with ICMP's NPS goals. Section 319 (h) provides funding for various projects that reduce nonpoint source water pollution. Funds

may be used to conduct assessments, develop and implement TMDLs and watershed management plans, provide technical assistance, demonstrate new technology and provide education and outreach.

The Technical Services Division of the Office of the State Fire Marshal serves to support other operating divisions within the agency as well as the fire service and regulated public with technical and engineering expertise on petroleum storage and other issues within their purview.

The Chicago Metropolitan Agency for Planning (CMAP) has a Local Technical Assistance (LTA) program that provides assistance to communities across the Chicago metropolitan region to undertake planning projects that advance the principles of GO TO 2040, the regional plan. CMAP has initiated 112 LTA projects with local governments, nonprofits, and intergovernmental organizations to address local issues at the intersection of transportation, land use, and housing, including the natural environment, economic growth, and community development.

Table 5-2 Management Measure Programs and Practices for Marina and Recreational Boating Sources

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
401 Water Quality Certification	Environmental Protection Act (415 ILCS 5/)	35 IAC 302.105 Section 401 of the CWA	IEPA	Issuance of Water Quality Certification. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of 401 certifications	5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.3.9, 5.3.10

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Aboveground Fuel Storage and Dispensing Rules	Illinois Gasoline Storage Act (430 ILCS 15)	Rules for Aboveground Bulk Storage Tanks (41 IAC 160) Petroleum Dispensing and Fueling Rules (41 IAC 175.250) Rules for Aboveground Fuel Dispensing Storage Tanks (41 IAC 180)	OSFM	Issuance of and suspension of licenses, fines assessed for violations	Number of violations	5.3.6, 5.3.10, 5.3.11
Adopt-a-Beach			The Alliance for the Great Lakes	Voluntary	Amount of litter removed	5.3.8
Ambient Water Quality Monitoring	Federal Water Pollution Control Act	33 CFR 1251-1387	IEPA	Monitoring program	Section 305(b) and 303(d) water body assessment information	5.3.2

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Clean Boats Crew			IISG and NIIPP	Voluntary	Data on boaters understanding of laws collected by volunteers	5.3.13
Clean Water Act Public Education and Technical Assistance Programs	40 CFR 122 Sections 104(b)(3), 305(b), 319(h) of the CWA	415 ILCS 5/13, 13.3 and 27	IEPA	Voluntary		5.3.5, 5.3.6, 5.3.7, 5.3.8, 5.3.9, 5.3.10, 5.3.11, 5.3.12, 5.3.13, 5.3.14
Cost Assistance for Marina Sewage Improvement Program, and to Marina Owners for Pump-Out/Dump Stations and Educ. Programs	Clean Vessel Act		IDNR	Voluntary	Grant funds dispersed	5.3.7, 5.3.13, 5.3.14
General Solid Waste Management		35 IAC 807-810	Illinois Pollution Control Board	Issuance of cease and desist orders, orders requiring cleanup costs to be reimbursed and fines assessed	Number of violations	5.3.8

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Green Infrastructure Study	Public Act 96-26		IEPA	Resource	Number of green infrastructure projects completed in Coastal Zone	5.3.5
Hazardous Materials Management	Resource Conservation and Recovery Act (42 USC 6921-6939)	Hazardous Waste Management Rules 35 IAC 720-729	IEPA	Issuance of Permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permits issued	5.3.10
IDNR Boating Education and Safety Program			IDNR	Voluntary		5.3.13, 5.3.15
Illinois Clean Marinas Program			IDNR	Voluntary	Percentage of Illinois Coastal Zone marinas certified	5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.3.7, 5.3.8, 5.3.9, 5.3.10, 5.3.11, 5.3.12, 5.3.13, 5.3.14, 5.3.15

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Illinois Water Quality Standards	Section 27 of the Environmental Protection Act [415 ILCS 5/13 and 27]	35 IAC 302	IEPA	Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of violations	5.3.1, 5.3.2, 5.3.3, 5.3.5, 5.3.7, 5.3.8, 5.3.9, 5.3.10, 5.3.11, 5.3.12, 5.3.13, 5.3.14
Illinois Vehicle Code	Boat Registration and Safety Act (625 ILCS 45/5)	17 IAC 2010	IDNR (or local marine police units)	Criminal penalties.		5.3.7, 5.3.15

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Joint Permit Program	Section 404 of the CWA Rivers and Harbors Act Federal Water Pollution Control Act Rivers, Lakes, and Streams Act (615 ILCS 5/) Interagency Wetland Policy Act Of 1989 (20 ILCS 830/) Fish and Wildlife Coordination Act (16 USC 661-664) Illinois Endangered Species Act (520 ILCS 10/)	33 CFR 322 33 CFR 1251-1387 17 IAC 3700 et al. 17 IAC 1010	Partnership of IDNR, IEPA, and USACE	Issuance of permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permits issued	5.3.1, 5.3.3, 5.3.4

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Lake Michigan and Chicago Lakefront Protection Ordinance		Chicago Municipal Code Chapter 16-4	City of Chicago, Chicago Plan Commission	Approval of projects, assessment of civil and/or criminal penalties	Number of projects approved	5.3.1, 5.3.4, 5.3.5, 5.3.6
Lake Michigan Monitoring Program	Federal Water Pollution Control Act	33 CFR 1251-1387	IEPA	Monitoring program	Section 305(b) and 303(d) water body assessment information	5.3.2
Marine Plastic Pollution	33 USC 1914-1915		IDNR and other law enforcement agencies	Violators will be ticketed	Number of violations	5.3.8
NPDES Stormwater Program	40 CFR 122.26	415 ILCS 5/13, 13.3 and 27	IEPA	Issuance of Permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permit violations	5.3.1, 5.3.2, 5.3.3, 5.3.4, 5.3.5, 5.3.6, 5.3.7, 5.3.8, 5.3.9, 5.3.10, 5.3.13, 5.3.14
Oil Spill Reporting and Response Rules	40 CFR 109.5	41 IAC 176.300-176.360	IEMA, U.S. Coast Guard	Failure to report any spill may result in substantial fines.	Annual amount spilled	5.3.11

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
OSFM Technical Assistance			OSFM	Voluntary		5.3.6, 5.3.11
Phase II MS4	33 CFR 1342 (p)(3)(B)	35 IAC 309	IEPA	Issuance of permits.	Number of public education events	5.3.7, 5.3.8, 5.3.9, 5.3.12, 5.3.14
Sewage Collection and Treatment Permits	Environmental Protection Act [415 ILCS 5/] Federal Water Pollution Control Act (33 USC 1251 et seq.)	35 IAC 300-399	IEPA	Issuance of Permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permits issued	5.3.11, 5.3.12
Sewage Management	Campground Licensing and Recreational Area Act (210 ILCS 95/)	Recreational Area Code (77 IAC 800.1300)	Illinois Department of Public Health	Suspend or revoke permits or licenses, order emergency closures.	Number of violations	5.3.7, 5.3.14
Spill Contingency Planning and Emergency Response	Illinois Environmental Protection Act, as amended (415 ILCS 5/)	35 IAC 750	IEPA	Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of spills	5.3.7, 5.3.8

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Voluntary Site Remediation Program			IEPA	Voluntary		5.3.11

Chapter 6. Hydromodification

6.1.Introduction

This chapter specifies management measures to protect coastal waters from sources of nonpoint pollution related to hydromodification activities. Illinois' 61,769-acre coastal zone has undergone tremendous and permanent hydrologic and hydraulic modifications. Much of the coastal shorelines and riparian areas have been modified and hardened. The purposes of these monumental changes have been to protect urban infrastructure, to manage wastewater and floods, and to provide for navigation. The hydromodifications of the inland Chicago Area Waterway System (CAWS), much of which is included in the coastal zone, is described in detail in MWRD (2008).

Much of the Lake Michigan shoreline is hardened to protect infrastructure.. The original revetments were built between 1910 and 1931 and suffered deterioration. Between 1974 and 1994, the Chicago District office of the United States Army Corps of Engineers (USACE) conducted a feasibility study to investigate solutions which would protect Lake Shore Drive and manage erosion problems along the entire Illinois Lake Michigan shoreline. From the Feasibility Report, issued in 1994, the eight most critical miles of lakefront were designated for reconstruction. Starting in the late 1990's, USACE's $300 million Chicago Shoreline Reconstruction Project was undertaken which replaced the revetments and stabilized beaches along long reaches of the lakefront.

This section includes 6 management measures organized in the manner presented in USEPA's guidance documents:

- Physical and Chemical Characteristics of Surface Water for Channelization and Channel Modification Management Measure
- Instream and Riparian Habitat Restoration for Channelization and Channel Modification Management Measure
- Management Measure for Erosion and Sediment Control for Dams
- Chemical and Pollutant Control for Dams Management Measure
- Protection of Surface Water Quality and Instream and Riparian Habitat for Dams Management Measure
- Streambank and Shoreline Erosion Management Measure

USEPA and NOAA have concurred that there are certain hydromodification management measures that are no longer subject to requirements of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) Section 6217 Coastal Nonpoint Pollution Control Program due to their coverage in the National Pollutant Discharge Elimination System (NPDES) Stormwater Program (Phases I and II). USEPA and NOAA have identified that the following two measures specified in the 6217(g) guidance for hydromodification management overlap in part or in full with the NPDES storm water regulations:

- Hydromodification, Erosion and Sediment Control for Dams
- Hydromodification, Chemical and Pollutant Control for Dams

These two management measures are therefore excluded from this plan.

6.2.Effects of Hydromodification

This section discusses the general environmental problems of hydromodification and the effects of existing and new hydromodification on Lake Michigan and its tributaries.

6.2.1. Effects of Channelization and Channel Modification Activities

Channelization or channel modification, used interchangeably here, is a form of hydromodification describing river and stream channel engineering undertaken for the purpose of flood control, navigation, and drainage and includes activities like channel straightening, widening, deepening, or relocating. Clearing or snagging operations, which involve the removal of vegetation along the bank or selective removal of logs and dead trees, are included as well. Channelization usually results in more uniform channel cross sections, steeper stream gradients, reduced average pool depths, and decreased physical habitat diversity. Levees along a stream or river channel are also included as channel modifications. A levee is an embankment for flood control. Channel modification activities have greatly impacted floodplains, riverine ecosystems, and wetlands in this country. Channelization can alter water quality, habitat quality, and sediment characteristics, as well as the rates and paths of sediment erosion, transport, and deposition. A frequent result of channelization is a diminished suitability of instream and riparian habitat for fish and wildlife. Hardening of banks along waterways eliminates instream and riparian habitat, decreases the quantity of organic matter entering aquatic systems, and increases the movement of nonpoint source pollutants from the upper reaches of watersheds into downstream waters. Channelization increases water velocity, reducing the ability of natural systems to absorb hydraulic energy and filter pollutants from surface waters. Channelization is implicated as a source of impairment in 10 stream segments in the Illinois Coastal Zone (Table 8-1, Page 229).

Channel modification projects undertaken in the CAWS have straightened, enlarged, and relocated stream channels. Within the Illinois Coastal Zone there are four named stream segments which are part of the CAWS, the main branch of the Chicago River, The North Shore Channel (NSC), the South Branch of the Chicago River (SBCR), and the South Fork of the South Branch of the Chicago River, often called Bubbly Creek. Today there is very little in-stream habitat or canopy cover along the main branch of the Chicago River, or the SBCR. Both of these branches have steep vertical sheet piling walls. There are no shallow areas and very little canopy cover. The NSC is a 7.7 mile long man-made channel. It is mostly straight and has steep earthen side slopes. In-stream habitat is present along partially-shaded banks along some of the channel. Bubbly Creek has steep earthen or riprap banks with vertical sheet piling walls along several reaches (MWRD 2008). The CAWS now requires dredging by MWRD to preserve and maintain this artificial flow structure. Such maintenance activities result in a repeated disturbance and removal of instream and riparian habitat.

6.2.2. Effects of Dams and Flow Alterations (Requested for Exclusion)

Dams are built for flood control, power generation, irrigation, navigation, water supply and other purposes. Impoundments may also be used for recreation and water sports, for fish and wildlife propagation, and for augmentation of low flows. Dams can change a river's hydraulic and hydrologic regimes, water quality, and physical habitat.

Dams can inundate wetlands, riparian areas, and uplands. Dams reduce downstream flooding of structures, but this same flooding is important to some wetlands and riparian forests. Dams can block migration of fish.

Dams with capacity for storage can change the timing and volume of downstream flows and lead to reduced flushing, altered loads of carbon, phosphorus, and nitrogen, and changes in streambed substrates. Lowered discharge and lower peak flows from dams change downstream sediment characteristics. Together, these changes impact a wide variety of aquatic resources.

Four impoundments were identified within the Illinois Coastal Zone through a review of the National Inventory of Dams (USACE 2013) and consultation with the IDNR's Office of Water Resources (Figure 6-1). These dams are part of the infrastructure built to protect Lake Michigan from untreated wastewater. Flows from Lake Michigan through the Chicago River Controlling Works (CRCW), O'Brien Lock and Dam and Wilmette Pumping Station are limited by a US Supreme Court Decree and federal regulations to support commercial navigation and maintain water quality. IDNR Office of Water Resources (OWR) regulates the annual diversion for the State of Illinois from Lake Michigan to comply with these federal limits. The management measures for dams only apply to constructed impoundments that meet one of the following sets of criteria: (1) 25 feet or more in height and greater than 15 acre-feet in capacity, or, (2) 6 feet or more in height and greater than 50 acre-feet in capacity (USEPA 2001).

The Wilmette Pumping Station controls flow between Lake Michigan and the NSC. It is located at Sheridan Road between Central Avenue and Linden Avenue and consists of several pumps and an open channel with a sluice gate. During most times, lake water is brought into the NSC to augment low flows, either by gravity or pumping, depending on lake and NSC water levels. During large storms, water can be released from the NSC to Lake Michigan to prevent flooding in Wilmette, Evanston and areas south. The hydraulic height of this dam is less than 6 feet. This structure does not meet NOAA's requirements for height or storage to be classified under USEPA and NOAA's rules (2001).

The North Branch of the Chicago River has a grade control structure at its confluence with the NSC. The North Branch Dam has a stepped overflow spillway. If there are no flows in the North Branch Chicago River then there is no storage pool behind the dam. Based on the best available data, the lowest elevation of the stepped spillway is 579.00 feet and the channel upstream of the dam is 578.79 and quickly rises to 579.40 feet. The hydraulic height of this dam is less than 6 feet. This structure does not meet NOAA's requirements for height or storage to be classified under USEPA and NOAA's rules (2001).

The CRCW regulates flows from Lake Michigan and the Chicago River. There is a navigation lock, a pumping station, and two sets of sluice gates. Flow regulation is through the sluice gates, which under

normal lake and river levels, allow gravity flow from Lake Michigan to the Chicago River. During large storms, flood water can be released from the CAWS to Lake Michigan to prevent flooding in Chicago. The hydraulic height of this dam is less than 6 feet. This structure does not meet NOAA's requirements for height or storage to be classified under USEPA and NOAA's rules (2001).

O'Brien Lock and Dam is located on the Calumet River and controls flow from Lake Michigan to the Calumet River and Cal-Sag Channel (CSC). There are four submersed sluice gates controlling flow from the lake. Normal hydraulic lift at the lock is two feet, depending on lake and river levels. During large storms, flood water can be released from the CAWS to Lake Michigan to prevent flooding. The hydraulic height of this dam is less than 6 feet. This structure does not meet NOAA's requirements for height or storage to be classified under USEPA and NOAA's rules (2001). The CRCW, the O'Brien Lock and Dam, and the North Branch Dam do not have sufficient height nor large enough constructed impoundments and are therefore excluded in accordance with the definitions of dams in USEPA (2001). These structures regulate diversions from Lake Michigan and provide for commercial navigation. In urbanized areas covered by NPDES Phase II regulations, two of the three management measures for dams are excluded, as mentioned in section 6.1. Therefore, we request that this source be excluded from Illinois' CNPCP.

6.2.3 Effects of Streambank Erosion

The force of flowing water can cause erosion of a streambank. The eroded material is carried and redeposited downstream. Currents can sort the coarser-grained sands and gravels from finer silt particles, depositing them in different locations downstream. Erosion is a natural process influencing creation and maintenance of riparian habitats. Sands and gravels eroded from streambanks are deposited in the channel and provide habitat for various life stages of many benthic organisms and fish. The finer-grained silts and clays carried further downstream until quiescent conditions allow for settling of the fine materials.

Hydromodification increases the depth and velocity of stream flow and increases erosion, bank undercutting and sloughing. Consequently, fine material including silt and sand is suspended in the water column, increasing turbidity and negatively impacting aquatic communities. Excessively high sediment loads can smother submersed aquatic vegetation beds, cover shellfish beds, fill in pools, and contribute to increased levels of turbidity and nutrients. Legacy pollutants including DDT, PCBs, and heavy metals which had been buried get churned up and can enter the food chain.

6.3. Management Measures for Hydromodification Sources

This section addresses management measures for hydromodification. Management measures are economically achievable means to control pollution of coastal waters, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives (USEPA 1993).

1. (6.3.1) Physical and Chemical Characteristics of Surface Water for Channelization and Channel Modification Management Measure

2. (6.3.2) Instream and Riparian Habitat Restoration for Channelization and Channel Modification Management Measure
3. (6.3.3) Management Measure for Erosion and Sediment Control for Dams (Excluded)
4. (6.3.4) Chemical and Pollutant Control for Dams Management Measure (Excluded)
5. (6.3.5) Protection of Surface Water Quality and Instream and Riparian Habitat for Dams Management Measure (Exclusion Requested)
6. (6.3.6) Streambank and Shoreline Erosion Management Measure

6.3.1 Physical and Chemical Characteristics of Surface Water for Channelization and Channel Modification Management Measure

This management measure is intended to be applied to public and private channelization and channel modification activities in order to prevent the degradation of physical and chemical characteristics of surface waters from such activities, evaluate potential changes in surface water characteristics, and target opportunities to improve conditions for fish and wildlife. Implementation of this management measure is intended by USEPA (2001) to occur concurrently with implementation of Management Measure for Instream and Riparian Habitat Restoration. For existing projects, this management measure guides operation and maintenance programs to use any opportunities available to improve the physical and chemical characteristics of the surface waters.

Channelization and channel modification have a measurable impact on total suspended solids, turbidity, salinity, temperature, nutrients, dissolved oxygen, oxygen demand, and contaminants in surface waters. USEPA (2001) summarizes the implementation of this management measure:

- Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in coastal areas
- Plan and design channelization and channel modification to reduce undesirable impacts
- Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels

USEPA recommends the use of models and past experience with similar projects to examine the physical and chemical effects of hydromodification of surface water systems. Models can simulate many physical, chemical, and biological processes and can be used to identify practices to mitigate adverse effects. When properly applied, models are used in conjunction with expert professional judgment to predict and mitigate for the effects of channelization and channel modification projects.

In cases where existing channel modification impacts can be reversed or mitigated to enhance instream or streamside characteristics, several practices can be included as a part of regular operation and maintenance programs. In the Illinois Coastal Zone, this is most applicable to the City of Chicago, which contains the vast majority of channelized shoreline within the Illinois Coastal Zone.

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to any proposed channelization or channel modification projects, including levees, as well as to existing modified channels. It is intended to reduce the effects of existing and future hydromodifications on physical and chemical characteristics of surface water in Illinois' coastal management area.

Existing Programs or Practices

Programs and activities that are being implemented nationally, statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 6-1.

Regulatory

Several permitting processes apply to channelization projects in the Illinois Coastal Zone. Together, these permits evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters and ensure that projects are planned and designed to reduce undesirable impacts. These permits also apply to modifications and repairs to existing channelization structures, many of which are 50 to 100 years old, and encourage modifications which minimize the impacts of existing channels. The Cook County and Lake County Watershed Ordinances and Chicago River Corridor Design Guidelines and Standards in the Chicago Zone Ordinance encourage identification and implementation of opportunities to improve the physical and chemical characteristics of modified channels.

Permitting

The USACE requires **Section 404 permits** for channel modification projects **(33 CFR 323)**. USACE rules require an evaluation of all potential impacts, and projects must be designed to avoid, minimize and mitigate impacts. Section 404 applies to the discharge of dredged or fill materials into the waters of the United States. Water quality certification for these projects is provided by the IEPA under Section 401 of the Clean Water Act. The USACE cannot issue a permit without water quality certification from the IEPA. http://www.gpo.gov/fdsys/pkg/CFR-2012-title33-vol3/pdf/CFR-2012-title33-vol3-part323.pdf

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit,

grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification. http://www.epw.senate.gov/water.pdf

The **Rivers and Harbors Act of 1899 (Navigable Waters, 33 USC 403)** prohibits unauthorized obstruction or alteration of any navigable Water of the United States (WOUS). This includes structures in or over a navigable WOUS or excavation from or deposition of material into a navigable WOUS affecting the course, location, condition, or capacity of such waters. A Section 10 Permit is issued by the US Army Corps of Engineers. Common permitted activities include shoreline protection, construction of marinas, construction of bulkheads, dredging, beach nourishment, private docks and overhead powerlines. Section 10 permits are subject to Section 401 certification by IEPA.
http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap9-subchapI-sec403.pdf

Projects in or along Lake Michigan or which are not within a regulatory floodway are regulated under **Part 3704 of the Rivers, Lakes, and Streams Act (17 IAC 3704)**. The purposes of this Part include regulating construction to prevent the impairment of the rights, interests, or uses of any public body of water or in the natural resources thereof. The routine maintenance of existing structures is exempt. Permits are required. If a proposed project is determined to likely cause an impairment to the natural resources in any public body of water or will cause bank or shoreline instability on other properties, the applicant is required to provide a discussion of the measures that will be included in the project design to minimize or mitigate the negative impacts and an analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. No activity which would result in bank or shoreline instability on other properties will be permitted.

For existing channelized waterways, the law requires that "Maintenance and repair of improved channels, ditches or levees shall follow accepted practices to reduce, as practical, scour, erosion, sedimentation, escape of loose material and debris, disturbance of adjacent trees and vegetation, and obstruction of flood flows." **615 ILCS 5/29a(a) (2012)**.

Consequences of violation of this Part, including unauthorized activity or permit violations will be sought as determined by the IDNR to be necessary and appropriate and may include requiring the removal of the structure, fill or deposit. http://www.dnr.illinois.gov/adrules/documents/17-3704.pdf

Part 3708 of the Rivers, Lakes, and Streams Act (17 IAC 3708) governs construction and filling in the regulatory floodway of rivers, lakes and streams in northeastern Illinois. Regional Permit No. 3 "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" is in effect which authorizes certain types of shoreline and streambank protection with limits on the size of shoreline and streambank protection efforts, limits on the types of materials used and their placement, requirements that the disturbance of vegetation shall be kept to a minimum during construction to minimize erosion and sedimentation, and requirements that disturbed areas be seeded or stabilized

upon completion of construction. Projects within Illinois Coastal Zone waterways, floodplains or wetlands which do not meet the requirements to fall under the regional permit are required to apply for a permit. The joint permit application requires detailed information about fill material which will be discharged into waterways and a description of avoidance, minimization and compensatory activities. This information is available to OWR staff during their portion of the permit review process. http://www.dnr.illinois.gov/adrules/documents/17-3708.pdf .

Lake County Stormwater Management Commission (LCSMC) has delegated authority from the OWR to issue permits for development in regulatory floodplain and floodway through an agreement with the OWR. OWR retains regulatory authority over all developments that impact Public Bodies of Water, development in streams with over 1-square mile of drainage area and without a regulatory floodway, and in those cases where detailed studies or the proposed development have changed the regulatory floodway boundary. LCSMC is the primary contact to determine if LCSMC or OWR will be the regulatory authority. http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/TRM/DrftTRM_Sec2.pdf

Additional Regulatory Programs

The **Comprehensive Environmental Review Process (CERP)** is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Channelization activities which fit any of the three criteria above are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities in channelized streams such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover, increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. http://dnr.state.il.us/orep/docs/CERPmanual.pdf

The **Cook County Watershed Management Ordinance**, administered by MWRD, applies to channelization projects within the Illinois Coastal Zone in Cook County, IL. It requires that whenever practicable, the existing functions of a riparian environment should be protected and impacts to natural streams and channels should be avoided. It requires mitigation for disturbed channels and riparian environments in the following conditions: (1) modification or relocation of streams or channels, (2) significant changes to the quantity, quality, or distribution of flows draining to any adjacent wetlands or waters, or (3) damage to the vegetation that overhangs, stabilizes or provides overland flow filtration, or shades stream channels, wetlands or impoundments. Mitigation must include meandering, pools and riffles for relocated channels and erosion and sedimentation control practices for all modified channels. Mitigated channels shall be greater than or equal to the length of the disturbed channel and shall be able to withstand all events up to the base flood without increased erosion. Stabilization practices shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased. Hard armoring of banks with concrete bulkheads, riprap, or other man-made

materials shall be avoided where practicable. Hard armoring shall only be used where erosion cannot be prevented by use of bioengineering techniques or gradual slopes and shall not have adverse impacts on other properties or on existing land use. Disturbed areas must be replanted with native vegetation where appropriate, and as soon as possible. The Technical Guidance Manual prepared in conjunction with the ordinance provides examples of native vegetation that is appropriate in riparian environments. https://www.mwrd.org/irj/portal/anonymous/managementordinance

The **Lake County Watershed Development Ordinance**, enforced by Lake County Stormwater Management Commission (LCSMC), requires a watershed development permit for all projects, including repair and modification projects, in Lake County, IL which do not meet the criteria for exemption. Under the ordinance, natural stream channels shall be preserved or conserved. Projects which disturb a streambank require permanent structural or vegetative stabilization. The ordinance further requires that permit applicants chose strategies to minimize stormwater runoff volumes and address water quality impairments through a site development plan which incorporates stormwater infiltration, evapotranspiration, reuse, and other green infrastructure practices and best management techniques. The preferred strategy to meet this requirement is the preservation and enhancement of the stormwater management benefits of natural resources of the development, including floodplains, WOUS, Isolated Waters of Lake County, channels, and natural areas. Runoff volume reductions are required to mitigate for new impervious surface. Up to 100% of the runoff volume reduction required by the ordinance can be achieved through native vegetation. (see **ArticleIV.B.1.d.(2)(b)(ii)**)
http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/WDO%202012/WDO%2006-11-13_0713.pdf

Chicago River Corridor Design Guidelines and Standards, Chicago Zoning Ordinance (**Municipal Code of Chicago, Title 17 Section 8-0912**, outline the requirements for planned development in and adjacent to the setback area along the Chicago River and its branches within the city limits of Chicago. Specific requirements are in place regarding maximum riverbank steepness, appropriate bank stabilization techniques, native vegetation. There is also a prohibition of new structures within the riverbank buffer that are not required by river-dependent uses. Best management practices are encouraged. This manual includes requirements that riverfront property owners maintain riverbanks, seawalls, and other attached structures on their property from deterioration that may endanger the health or safety of individuals or impair river navigation. This required maintenance is expected to have the added benefit of reducing nonpoint source pollution from failing channelization structures. In addition, repair of excessively steep slopes near Bubbly Creek requires recontouring to achieve a 3H:1V slope and stabilization using native vegetation and bioengineered solutions. Guidelines are provided on the repair and modification of seawalls along Bubbly creek with the goal of reducing channelization and retrofitting with sloped naturally vegetated embankments. (Authorized by **65 ILCS 5/11-13-1**)
http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Chicago_River_Plan_Design_Guidelines/ChicagoRiverGuidelines.pdf

Education, Public Outreach and Technical and Financial Assistance

Numerous Education, Public Outreach, and Technical and Financial Assistance resources exist to minimize the impacts of nonpoint source pollution due to channelization in the Illinois Coastal Zone

through evaluation of potential impacts and smart planning, design, operation, and maintenance. The CNPCP will play a role, whenever prudent, in educating and encouraging participation in these programs.

The mission of the **Watershed and Water Quality Modeling Technical Support Center** is to provide assistance to USEPA Regions, State, and Local Governments, and their contractors in their efforts to improve water quality. This can include creation and application of mathematical models and analysis of data to describe sediment transport, erosion and deposition and surface water quality processes impacted by channelization. Significant technological improvements have been made in computer modeling since the USEPA and NOAA guidance was completed for CNPCP, and the tools provided by the Center are designed to meet the needs of the state and local regulatory community and reduce the need for local entities to invest in model development. http://www.epa.gov/athens/wwqtsc/

The **Illinois Urban Manual** was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical reference on best management practices for soil erosion and sediment control, stormwater management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual covers numerous best management practices which could be applied to meet the goals of planning and designing channelization and channel modification to reduce undesirable impacts and identifying and implementing opportunities to improve physical and chemical characteristics of surface waters in those channels. http://www.aiswcd.org/ium/

According to the **IEPA Phase II MS4 Stormwater Program** , MS4 permit holders are required to engage in pollution prevention/good housekeeping for municipal operations. One training priority that MS4 permit holders could focus on is pollution prevention education for park and open space maintenance and landscaping staff. Many of the riparian corridors along channelized streams within the Illinois Coastal Zone are public parkland. Local MS4 permit holders are encouraged to train municipal employees to engage in openspace maintenance in ways which maintain and promote native vegetation, including along streambanks and in riparian corridors.
http://cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_regulatory.cfm#minmeasure6

Floodplain Management in Illinois Quick Guide, available from the OWR, was written to encourage "smart" development to minimize flood damage. The intended audience is landowners and developers interested in completing projects within floodplains. The guidebook provides visual examples of the hazards of developing within floodplains, including flooding risk and the impacts of adding fill on the upper bank or within the floodplain. Although the main goal is preventing flood damage, a peripheral benefit of the best management practices within the guidebook is reduced streambank modification. http://www.dnr.illinois.gov/waterresources/documents/resman_ilfpmquickguide.pdf

The following types of projects can be funded through **Section 319(h) of the federal Clean Water Act** through IEPA: hydrologic modification projects to implement best management practices for water quality protection, hydrologic studies and planning projects are eligible for funding to assess current conditions and prepare to implement best management practices for water quality protection, and in-stream restoration and monitoring projects are eligible for funding to re-establish original streambed meanders and riparian zones to promote improved water quality and support designated water body uses. http://www.epw.senate.gov/water.pdf

The **Streambank Stabilization and Restoration Program**, administered by IDOA and USDA NRCS, is a cost-share program designed to demonstrate effective, inexpensive vegetative and bio-engineering techniques for limiting streambank erosion. Program monies fund demonstration projects at suitable locations statewide and provide cost-share assistance to landowners with severely eroding streambanks. The Illinois Department of Agriculture (IDOA), Illinois' soil and water conservation districts and the Natural Resources Conservation Service of the U.S. Department of Agriculture (USDA NRCS) serve as partners in implementing the program. Urban streams, such as those within the Illinois Coastal Zone, are eligible for funding. http://dnr.state.il.us/OREP/pfc/Incentives.htm#SSRP

The **Cook County Technical Guidance Manual**, created by the Metropolitan Water Reclamation District (MWRD) is a companion to the Cook County Watershed Management Ordinance (WMO). It intended to provide information required in support of a Watershed Management Permit, provide guidance to best achieve the WMO's requirement and provide examples to meet the requirements of the WMO. It builds upon the guidance provided in the Illinois Urban Manual. To that end, it provides detailed information on best management practices and requirements, including practices relevant to streambank stabilization and instream sediment controls.
https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf

The **Lake County Technical Reference Manual**, provided by LCSMC, is a companion to the Lake County Watershed Development Ordinance (WDO). It is intended to assist applicants who are seeking to comply with the WDO. It includes technical background and reference information, direction to assist in uniform and comprehensive permit applications, design guidelines, information as a useful resource for planning purposes, and interpretation for the WDO. To that end, it provides detailed information on best management practices and requirements, including practices which minimize erosion due to channelization.
http://www.lakecountyil.gov/Stormwater/FloodplainStormwaterRegulations/WDOandTRM/Pages/TechnicalReferenceManual.aspx

New in 2013, the **Chi-Cal Rivers Fund** is a grant program through a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses. www.nfwf.org/chi-cal

In addition to the Technical Reference Manual, LCSMC has produced a **Streambank and Shoreline Protection Manual** for practitioners which includes detailed information on planning and selecting streambank protection measures to protect channels and shorelines agains scour and erosion. Vegetative stabilization techniques using native plants, soil bioengineering, and structural practices are covered.
http://www.lakecountyil.gov/Stormwater/Publications/BMPs/Streambank%20Stabilization%20Manual%20(Lake%20County%202002).pdf

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act gives the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act,

illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties. 17 Ill. Adm. Code 3704. If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515)

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

The Chicago River Corridor Design Guidelines and Standards are enforceable through the Zoning Administrator for the City of Chicago. The City of Chicago Zone Administrator has the authority to deny, revoke or withhold permits, stop work, require abatement or remedial action, issue a fine, or seek other penalties as allowed by law.

At the local level, MS4 Permit Holders have the authority to enforce their local ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, technical assistance with erosion control plans, etc.

All programs used to implement this measure are listed in Table 6-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

6.3.2 Instream and Riparian Habitat Restoration for Channelization and Channel Modification Management Measure

The purpose of this management measure is to correct or prevent detrimental changes to instream and riparian habitat from the adverse effects of hydromodification. Implementation of this management measure is intended to occur concurrently with the implementation of Management Measure for Physical and Chemical Characteristics of Surface Waters, presented in section 6.3.1.

Intermittent overbank flooding, in combination with low base flows, over the long term provides for aquatic habitat in lotic systems. Woody debris in riparian areas is moved by floods to create physical habitat. Leaf litter enters the system to provide food for macroinvertebrates. Hydromodification projects by their very nature eliminate the forces that create and renew instream and riparian habitat.

For existing projects, this management measure guides operations and maintenance of hydromodifications to use any opportunities available to improve or restore in-stream and riparian habitat. USEPA (2001) summarizes the implementation of this management measure:

- Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;
- Plan and design channelization and channel modification to reduce undesirable impacts; and
- Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

Applicability

The Illinois CNPCP addresses this management measure. This management measure applies to any proposed channelization or channel modification projects, including levees, as well as to existing modified channels. This management measure is intended to evaluate changes to instream and riparian habitat and evaluate possible improvements

Existing Programs or Practices

Programs and activities that are being implemented nationally, statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 6-1.

Regulatory

Several permitting processes apply to channelization projects in the Illinois Coastal Zone. Together, these permit reviews evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitats and ensure that projects are planned and designed to reduce undesireable impacts. These permits also apply to modifications and repairs to existing channelization structures, many of which are 50 to 100 years old, and encourages modifications which minimize the impacts of existing channels.

Permitting

The **USACE Regional Permit 5: Aquatic Habitat Restoration, Establishment, and Enhancement Activities** is the USACE federal authorization on a regional basis for commonly recurring activities that have minimal individual and cumulative adverse impacts to the environment. This permit authorizes activities in the waters of the United States associated with restoration, enhancement, and establishment of habitats such as riparian areas and wetlands, provided the activities result in a net increase in aquatic resource functions and services. This permit has gone through a federal consistency determination and is consistent with the policies of ICMP. Activities which fall under this permit meet criteria for planning and design which ensure that the activity has been evaluated for potential effects on riparian and instream habitat and is expected to minimize undesirable impacts. The regional permit reduces the bureaucratic paperwork required to complete beneficial projects. http://www.nwd.usace.army.mil/Missions/CivilWorks/RegulatoryProgram/NationwidePermits.aspx#NWP_27

The USACE requires **Section 404 permits** for channel modification projects **(33 CFR 323)**. USACE rules require an evaluation of all potential impacts, and projects must be designed to avoid, minimize and mitigate impacts. Section 404 applies to the discharge of dredged or fill materials into the waters of the United States. Water quality certification for these projects is provided by the IEPA under Section 401 of the Clean Water Act. The USACE cannot issue a permit without water quality certification from the IEPA. http://www.gpo.gov/fdsys/pkg/CFR-2012-title33-vol3/pdf/CFR-2012-title33-vol3-part323.pdf

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification. http://www.epw.senate.gov/water.pdf

The **Rivers and Harbors Act of 1899 (Navigable Waters, 33 USC 403)** prohibits unauthorized obstruction or alteration of any navigable WOUS. This includes structures in or over a navigable WOUS or excavation from or deposition of material into a navigable WOUS affecting the course, location, condition, or capacity of such waters. A Section 10 Permit is issued by the US Army Corps of Engineers. Common permitted activities include shoreline protection, construction of marinas, construction of bulkheads, dredging, beach nourishment, private docks and overhead powerlines.
http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap9-subchapI-sec403.pdf

Projects in or along Lake Michigan or which are not within a regulatory floodway are regulated under **Part 3704 of the Rivers, Lakes, and Streams Act (17 IAC 3704)**. The purposes of this Part include regulating construction to prevent the impairment of the rights, interests, or uses of any public body of water or in the natural resources thereof. The routine maintenance of existing structures is exempt. Permits are required. If a proposed project is determined to likely cause an impairment to the natural resources in any public body of water or will cause bank or shoreline instability on other properties, the applicant is required to provide a discussion of the measures that will be included in the project design to minimize or mitigate the negative impacts and an analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. No activity which would result in bank or shoreline instability on other properties will be permitted. Consequences of violation of this Part, including unauthorized activity or permit violations will be sought as determined by the IDNR to be necessary and appropriate and may include requiring the removal of the structure, fill or deposit. http://www.dnr.illinois.gov/adrules/documents/17-3704.pdf

Part 3708 of the Rivers, Lakes, and Streams Act (615 ILCS 5) governs construction and filling in the regulatory floodway of rivers, lakes and streams in northeastern Illinois. Regional Permit No. 3 "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" is in effect which authorizes certain types of shoreline and streambank protection with limits on the size of shoreline and streambank protection efforts, limits on the types of materials used and their placement, requirements that the disturbance of vegetation shall be kept to a minimum during construction to minimize erosion and sedimentation, and requirements that disturbed areas be seeded or stabilized upon completion of construction. Projects within Illinois Coastal Zone waterways, floodplains or wetlands which do not meet the requirements to fall under the regional permit are required to apply for a permit. The joint permit application requires detailed information about fill material which will be discharged into waterways and a description of avoidance, minimization and compensatory activities. This information is available to IDNR OWR staff during their portion of the permit review process. http://www.dnr.illinois.gov/adrules/documents/17-3708.pdf .

LCSMC has delegated authority from the OWR to issue permits for development in regulatory floodplain and floodway. The OWR retains regulatory authority over all developments that impact Public Bodies of Water, development in streams with over 1-square mile of drainage area and without a regulatory floodway, and in those cases where detailed studies or the proposed development have changed the regulatory floodway boundary. LCSMC is the primary contact to determine if LCSMC or OWR will be the regulatory authority.
http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/TRM/DrftTRM_Sec2.pdf

CERP is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Channelization activities which fit any of the three criteria above

are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities in channelized streams such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. http://dnr.state.il.us/orep/docs/CERPmanual.pdf

The **Cook County Watershed Management Ordinance**, administered by MWRD, applies to channelization projects within the Illinois Coastal Zone in Cook County, IL. It requires that whenever practicable, the existing functions of a riparian environment should be protected and impacts to natural streams and channels should be avoided. It requires mitigation for disturbed channels and riparian environments in the following conditions: modification or relocation of streams or channels, significant changes to the quantity, quality, or distribution of flows draining to any adjacent wetlands or waters, or damage to the vegetation that overhangs, stabilizes or provides overland flow filtration, or shades stream channels, wetlands or impoundments. Mitigation must include meandering, pools and riffles for relocated channels, erosion and sedimentation control practices for all modified channels. Mitigated channels shall be greater than or equal to the length of the disturbed channel and shall be able to withstand all events up to the base flood without increased erosion. Stabilization practices shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased. Hard armoring of banks with concrete bulkheads, riprap, or other man-made materials shall be avoided where practicable. Hard armoring shall only be used where erosion cannot be prevented by use of bioengineering techniques or gradual slopes and shall not have adverse impacts on other properties or on existing land use. Disturbed areas must be replanted with native vegetation where appropriate, and as soon as possible. The Technical Guidance Manual prepared in conjunction with the ordinance provides examples of native vegetation that is appropriate in riparian environments. https://www.mwrd.org/irj/portal/anonymous/managementordinance

The **Lake County Watershed Development Ordinance**, enforced by LCSMC, requires a watershed development permit for all projects in Lake County, IL which do not meet the criteria for exemption. Under the ordinance, natural stream channels shall be preserved or conserved. Projects which disturb a streambank require permanent structural or vegetative stabilization. The ordinance further requires that permit applicants chose strategies to minimize stormwater runoff volumes and address water quality impairments through a site development plan which incorporates stormwater infiltration, evapotranspiration, reuse, and other green infrastructure practices and best management techniques. The preferred strategy to meet this requirement is the preservation and enhancement of the stormwater management benefits of natural resources of the development, including floodplains, Waters of the United States, Isolated Waters of Lake County, channels, and natural areas. Runoff volume reductions are required to mitigate for new impervious surface. Up to 100% of the runoff volume reduction required by the ordinance can be achieved through native vegetation.
http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/WDO%202012/WDO%2006-11-13_0713.pdf

The **Chicago River Corridor Design Guidelines and Standards, Chicago Zoning Ordinance (Municipal Code of Chicago, Title 17 Section 8-0912)** outlines the requirements for planned development in and adjacent to the setback area along the Chicago River and its branches within the city limits of Chicago. Specific requirements are in place regarding maximum riverbank steepness, appropriate bank stabilization techniques, native vegetation. There is also a prohibition of new structures within the riverbank buffer that are not required by river-dependent uses. Best management practices are encouraged. This manual includes requirements that riverfront property owners maintain riverbanks, seawalls, and other attached structures on their property from deterioration that may endanger the health or safety of individuals or impair river navigation. This required maintenance is expected to have the added benefit of reducing nonpoint source pollution from failing channelization structures. In addition, repair of excessively steep slopes near Bubbly Creek requires recontouring to achieve a 3H:1V slope and stabilization using native vegetation and bioengineered solutions. Guidelines are provided on the repair and modification of seawalls along Bubbly creek with the goal of reducing channelization and retrofitting with sloped naturally vegetated embankments. (Authorized by **65 ILCS 5/11-13-1**) http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Chicago_River_Plan_Design_Guidelines/ChicagoRiverGuidelines.pdf

Education, Public Outreach and Technical and Financial Assistance

Numerous Education, Public Outreach, and Technical and Financial Assistance resources exist to minimize the impacts of nonpoint source pollution due to channelization in the Illinois Coastal Zone through evaluation of potential impacts and smart planning, design, operation, and maintenance. CNPCP will play a role, whenever prudent, in educating and encouraging participation in these programs.

The mission of the USEPA's **Watershed and Water Quality Modeling Technical Support Center** is to provide assistance to USEPA Regions, State, and Local Governments, and their contractors in their efforts to improve water quality. This can include creation and application of mathematical models and analysis of data to describe sediment transport, erosion and deposition and surface water quality processes. Significant technological improvements have been made in computer modeling since the guidance was completed for CNPCP, and the tools provided by the Center are designed to meet the needs of the state and local regulatory community and reduce the need for local entities to invest in model development. http://www.epa.gov/athens/wwqtsc/

The **IEPA Quality Assurance and Field Methods Manual- Section D: Special Stream Surveys**, revised in 1996, was used by IEPA through 2008. It provides information on a standardized Stream Habitat Assessment Methodology (SHAM). SHAM has been replaced in Illinois by the Qualitative Habitat Evaluation Index (QHEI), developed by the Ohio Environmental Protection Agency. http://www.epa.state.il.us/water/water-quality/methodology/special-stream-surveys.pdf and http://www.epa.state.oh.us/portals/35/documents/qheimanualjune2006.pdf

The **Illinois Urban Manual** was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical reference on best management practices

for soil erosion and sediment control, stormwater management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual covers numerous best management practices which could be applied to meet the goals of planning and designing channelization and channel modification to reduce undesirable impacts and identifying and implementing opportunities to improve instream and riparian habitats. http://www.aiswcd.org/ium/

IEPA Phase II MS4 Stormwater Program requires MS4 permit holders are required to engage in pollution prevention/good housekeeping for municipal operations. The most important component related to channelization is employee training programs for park and open space maintenance and landscaping aimed at reducing stormwater pollution. Many of the riparian corridors along channelized streams within the Illinois Coastal Zone are public parkland. It is the responsibility of the local MS4 permit holder to train municipal employees to engage in openspace maintenance in ways which maintain and promote native vegetation, including along streambanks and in riparian corridors. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_regulatory.cfm#minmeasure6

The following types of projects can be funded through **Section 319(h) of the federal Clean Water Act** through IEPA: hydrologic modification projects to implement best management practices for water quality protection, hydrologic studies and planning projects are eligible for funding to assess current conditions and prepare to implement best management practices for water quality protection, in-stream restoration and monitoring projects are eligible for funding to re-establish original streambed meanders and riparian zones to promote improved water quality and support designated water body uses, and watershed assessments. Projects which primarily protect wildlife habitat are **NOT** eligible. http://www.epw.senate.gov/water.pdf

The **Floodplain Management in Illinois Quick Guide**, OWR, was written to encourage "smart" development to minimize flood damage. The intended audience is landowners and developers interested in completing projects within floodplains. The guidebook provides visual examples of the hazards of developing within floodplains, including flooding risk and the impacts of adding fill on the upper bank or within the floodplain. Although the main goal is preventing flood damage, a peripheral benefit of the best management practices within the guidebook is reduced streambank modification. http://www.dnr.illinois.gov/waterresources/documents/resman_ilfpmquickguide.pdf

Units of local government can apply for grant funding through **Park and Recreational Facility Construction Grant Program (PARC), Public Act 096-0820**, to acquire land to protect floodplains, wetlands, natural areas, wildlife habitat, and unique geologic and biologic features. https://dnr.state.il.us/ocd/newparc1.htm

The IDNR Office of Resource Conservation's Division of Wildlife Resources administers the four **Special Wildlife Funds Grant Programs** that are funded by Illinois sportsmen through the purchase of Habitat

Stamps and Migratory Waterfowl Stamps. Eligible projects include those seeking to preserve, protect, acquire or manage habitat (all wetlands, woodlands, grasslands, and agricultural lands, natural or altered) in Illinois that have the potential to support populations of wildlife in any or all phases of their life cycles. https://dnr.state.il.us/grants/special_funds/wildgrant.htm

Acres for Wildlife is an IDNR Landowner Assistance Program. Through "Acres for Wildlife," landowners receive help in protecting, improving, or developing lasting wildlife habitat on their property. Key provisions include: the program is strictly voluntary, landowners retain complete property control (trespass for any reason is prohibited without landowner permission), there is no cost for IDNR services (or payments for participation). In return for IDNR assistance, landowners pledge their willingness to protect and improve habitat on their land as they are able. Protecting a minimum of one acre of habitat for at least one year is required. Landowners, including riparian land owners, will receive a management plan which may suggest changes to land management including the use of prescribed fire, the control of invasive species, etc. Free native plant seeds or plugs may be provided, and biologists advise land owners on available funding. https://dnr.state.il.us/orc/Wildliferesources/AFW/

The University of Illinois Extension provides information on **land use planning and riparian corridor and habitat management** for local communities. They provide guidance on cost-sharing incentive programs available through federal, state, and some local governments help reduce the expenses of restoration or protection. http://urbanext.illinois.edu/lcr/environmental.cfm

New in 2013, the **Chi-Cal Rivers Fund** is a grant program through a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses. www.nfwf.org/chi-cal

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https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf

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extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties. 17 Ill. Adm. Code 3704. If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515)

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

The Chicago River Corridor Design Guidelines and Standards are enforceable through the Zoning Administrator for the City of Chicago. The City of Chicago Zone Administrator has the authority to deny, revoke or withhold permits, stop work, require abatement or remedial action, issue a fine, or seek other penalties as allowed by law.

At the local level, MS4 Permit Holders have the authority to enforce their local ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, technical assistance with erosion control plans, etcAll programs used to implement this measure are listed in Table 6-1. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

6.3.3 Management Measure for Erosion and Sediment Control for Dams (Excluded)

The purpose of this management measure is to prevent sediment from entering surface waters during the construction or maintenance of dams.

Applicability

State coastal nonpoint control programs are not required to include this management measure because the NPDES storm water regulations for industrial activities on construction sites apply to this source of pollution.

6.3.4 Management Measure for Chemical and Pollutant Control for Dams (Excluded)

The purpose of this management measure is to prevent downstream contamination from pollutants associated with dam construction activities.

Applicability

State coastal nonpoint control programs are not required to include this management measure because the NPDES storm water regulations for industrial activities on construction sites apply to this source of pollution.

6.3.5 Management Measure for Protection of Surface Water Quality and Instream and Riparian Habitat for Dams (Exclusion Requested)

The purpose of this management measure is to protect the quality of surface waters and aquatic habitat in reservoirs and in the downstream portions of rivers and streams that are influenced by the quality of water contained in the releases (tailwaters) from reservoir impoundments. Impacts from the operation of dams to surface water quality and aquatic and riparian habitat should be assessed and the potential for improvement evaluated. Additionally, new upstream and downstream impacts to surface water quality and aquatic and riparian habitat caused by the implementation of practices should also be considered in the assessment.

Applicability

Management measures and practices for dams are restricted to constructed impoundments that are either (1) 25 feet or more in height and greater than 15 acre-feet in capacity, or, (2) 6 feet or more in height and greater than 50 acre-feet in capacity (USEPA 2001). As noted in section 6.2.2, none of the impoundments within the Illinois Coastal Zone fit the minimum requirements. New dam construction within the Illinois Coastal Zone, fitting the minimum criteria for inclusion in the CNPCP, is incredibly unlikely.

The stream gradients of waterways within the Illinois Coastal Zone are very low; therefore a dam for hydroelectric power would need a very large reservoir to create adequate hydraulic head for power generation. The undeveloped land available in this region is not sufficient to create a large enough reservoir to power a hydroelectric dam. Likewise, a reservoir large enough for flood control would require more land than is available. The costs of mitigating for the environmental impacts and population displacement, along with meeting permitting requirements which would result from building a large dam and reservoir, are out of proportion with the anticipated benefits for either hydroelectric

power or flood control. In addition, there is a lack of political will for dam construction. IDNR has been working with USACE on a project to remove 16 lowhead dams statewide. Therefore, we request that this management measure be excluded from the CNPCP.

6.3.6 Streambank and Shoreline Erosion Management Measure

This management measure is intended to be applied by States to eroding coast lines and streambanks in coastal rivers and creeks. The measure does not imply that all shoreline and streambank erosion must be controlled. Some amount of natural erosion is necessary to provide the sediment for beaches in estuaries and coastal bays, for point bars and channel deposits in rivers, and for substrate in tidal flats and wetlands. The measure, however, applies to eroding shorelines and streambanks that constitute an NPS problem in surface waters.

There are numerous streambank and shoreline stabilization techniques that are effective in controlling coastal erosion wherever it is a source of nonpoint pollution. Bioengineering techniques involving marsh creation and vegetative bank stabilization may be effective in locations with limited exposure to strong currents or wind-generated waves. In other cases, the use of traditional engineering approaches, including beach nourishment or coastal structures, may be more appropriate. In addition to controlling those sources of sediment input to surface waters which are causing NPS pollution, these techniques can halt the destruction of wetlands and riparian areas located along the shorelines of surface waters. Once these features are protected, they can serve as a filter for surface water runoff from upland areas, or as a sink for nutrients, contaminants, or sediment already present as NPS pollution in surface waters.

Stabilization practices involving vegetation or coastal engineering should be properly designed and installed. These techniques should only be applied where there will be no adverse effects to aquatic or riparian river habitat or to the stability of adjacent shorelines. This management measure is also intended to promote institutional measures that establish minimum set-back requirements or measures that allow a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

USEPA (2001) summarizes the management measure as follows:

- Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost-effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
- Protect streambank and shoreline features with the potential to reduce NPS pollution.
- Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Applicability

The Illinois CNPCP addresses this management measure. This management measure is intended to be applied by States to eroding shorelines in coastal bays, and to eroding streambanks in coastal rivers and

creeks. The measure does not imply that all shoreline and streambank erosion must be controlled. Some amount of natural erosion is necessary to provide the sediment for beaches in estuaries and coastal bays, for point bars and channel deposits in rivers, and for substrate in tidal flats and wetlands. The measure, however, applies to eroding shorelines and streambanks that constitute an NPS problem in surface waters. It is not intended to hamper the efforts of any States or localities to retreat rather than to harden the shoreline.

Existing Programs or Practices

Programs and activities that are being implemented nationally, statewide or in Cook and Lake Counties for this management measure are listed below. Details on each program which will be used to implement this measure are summarized in Table 6-1.

Regulatory

Streambank and shoreline stabilization projects are subject to a number of different permitting requirements. Together, these regulations ensure that streambanks and shoreline features are protected from erosion due to adjacent landuse and stabilization projects are planned and implemented in a way that prefers vegetative methods over structural methods and reduces adverse impacts to other streambanks, shorelines, and offshore areas.

Permitting

USACE Regional Permit 10- Bank Stabilization, Clean Water Act Section 404(e) are the federal authorization on a regional basis for commonly recurring activities that have minimal individual and cumulative adverse impacts to the environment. This permit allows bank stabilization to be authorized under a streamlined permit if it meets 7 criteria related to the extent of the activity and methods used. This permit has gone through a federal consistency determination and is consistent with the policies of ICMP. The regional permit reduces the bureaucratic paperwork required to complete beneficial projects. http://www.usace.army.mil/Portals/2/docs/civilworks/nwp/2012/NWP_13_2012.pdf

The USACE requires **Section 404 permits (33 CFR 323)** for bank stabilization projects. USACE rules require an evaluation of all potential impacts, and projects must be designed to avoid, minimize and mitigate impacts. Section 404 applies to the discharge of dredged or fill materials into the waters of the United States. Water quality certification for these projects is provided by the IEPA under Section 401 of the Clean Water Act. The USACE cannot issue a permit without water quality certification from the IEPA. http://www.gpo.gov/fdsys/pkg/CFR-2012-title33-vol3/pdf/CFR-2012-title33-vol3-part323.pdf

Section 401 of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterized the current

physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Section 401 certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards. IEPA has the option to waive the Section 401 certification, grant the permit, grant the permit with conditions, or deny the permit. IEPA may require monitoring or mitigation as a condition for certification. http://www.epw.senate.gov/water.pdf

The **Rivers and Harbors Act of 1899 (Navigable Waters, 33 USC 403)** prohibits an unauthorized obstruction or alteration of any navigable WOUS. This includes structures in or over a navigable WOUS or excavation from or deposition of material into a navigable WOUS affecting the course, location, condition, or capacity of such waters. A Section 10 Permit is issued by the USACE. Common permitted activities include shoreline protection, construction of marinas, construction of bulkheads, dredging, beach nourishment, private docks and overhead powerlines. http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap9-subchapI-sec403.pdf

Projects in or along Lake Michigan or which are not within a regulatory floodway are regulated under **Part 3704 of the Rivers, Lakes, and Streams Act (17 IAC 3704)**. The purposes of this Part include regulating construction to prevent the impairment of the rights, interests, or uses of any public body of water or in the natural resources thereof. The routine maintenance of existing structures is exempt. Permits are required. If a proposed project is determined to likely cause an impairment to the natural resources in any public body of water or will cause bank or shoreline instability on other properties, the applicant is required to provide a discussion of the measures that will be included in the project design to minimize or mitigate the negative impacts and an analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. No activity which would result in bank or shoreline instability on other properties will be permitted. Consequences of violation of this Part, including unauthorized activity or permit violations will be sought as determined by the IDNR to be necessary and appropriate and may include requiring the removal of the structure, fill or deposit. http://www.dnr.illinois.gov/adrules/documents/17-3704.pdf

Rivers, Lakes, and Streams Act (615 ILCS 5): Floodway Construction in Northeastern Illinois, 17 IAC 3708 governs construction and filling in the regulatory floodway of rivers, lakes and streams in northeastern Illinois. Regional Permit No. 3 "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" is in effect which authorizes certain types of shoreline and streambank protection with limits on the size of shoreline and streambank protection efforts, limits on the types of materials used and their placement, requirements that the disturbance of vegetation shall be kept to a minimum during construction to minimize erosion and sedimentation, and requirements that disturbed areas be seeded or stabilized upon completion of construction. Projects within Illinois Coastal Zone waterways, floodplains or wetlands which do not meet the requirements to fall under the regional permit are required to apply for a permit. The joint permit application requires detailed information

about fill material which will be discharged into waterways and a description of avoidance, minimization and compensatory activities. This information is available to IDNR OWR staff during their portion of the permit review process. http://www.dnr.illinois.gov/adrules/documents/17-3708.pdf .

LCSMC has delegated authority from the OWR to issue permits for development in regulatory floodplain and floodway. OWR retains regulatory authority over all developments that impact Public Bodies of Water, development in streams with over 1-square mile of drainage area and without a regulatory floodway, and in those cases where detailed studies or the proposed development have changed the regulatory floodway boundary. LCSMC is the primary contact to determine if LCSMC or OWR will be the regulatory authority.
http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/TRM/DrftTRM_Sec2.pdf

Additional Regulatory Programs

CERP is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Streambank stabilization activities which fit any of the three criteria above are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities in channelized streams such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. http://dnr.state.il.us/orep/docs/CERPmanual.pdf

The **Cook County Watershed Management Ordinance**, enforced by MWRD, applies to development projects within the Illinois Coastal Zone in Cook County, IL. It requires that whenever practicable, the existing functions of a riparian environment should be protected and impacts to natural streams and channels should be avoided. It requires mitigation for disturbed channels and riparian environments in the following conditions: modification or relocation of streams or channels, significant changes to the quantity, quality, or distribution of flows draining to any adjacent wetlands or waters, or damage to the vegetation that overhangs, stabilizes or provides overland flow filtration, or shades stream channels, wetlands or impoundments. Mitigation must include meandering, pools and riffles for relocated channels, erosion and sedimentation control practices for all modified channels. Mitigated channels shall be greater than or equal to the length of the disturbed channel and shall be able to withstand all events up to the base flood without increased erosion. Stabilization practices shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased. Hard armoring of banks with concrete bulkheads, riprap, or other man-made materials shall be avoided where practicable. Hard armoring shall only be used where erosion cannot be prevented by use of bioengineering techniques or gradual slopes and shall not have adverse impacts on other properties or on existing land use. Disturbed areas must be replanted with native vegetation where appropriate, and as soon as possible. The Technical Guidance Manual prepared in conjunction with the ordinance

provides examples of native vegetation that is appropriate in riparian environments. https://www.mwrd.org/irj/portal/anonymous/managementordinance

The **Lake County Watershed Development Ordinance**, enforced by LCSMC, is applicable to Lake County, IL. It requires permits for proposed development in floodplains and flood-prone areas or which create wetland impacts or modify to the flood-prone area of a channel. Under the ordinance, natural stream channels shall be preserved or conserved. Projects which disturb a streambank require permanent structural or vegetative stabilization. Permit applicants must choose strategies to minimize stormwater runoff and address water quality impairments. The preferred strategy is preserving and enhancing the stormwater management benefits of the natural resources features of the development site, which includes streams. Other options for minimizing runoff include using best management practices to enhance the infiltration and storage characteristics of the development site, using open channels with native vegetation to convey runoff, structural solutions to provide water quality and volume reduction benefits. All development must meet the following performance standards: 1) conserve natural streams and channels, 2) limit removal of riparian vegetation to one side of the channel, 3) limit clearing of channel vegetation to that which is essential for construction, 4) submit for review and approval a 5) seed or otherwise stabilize all disturbed areas associated with channel modification using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois as a minimum standard. http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/WDO%202012/WDO%2006-11-13_0713.pdf

The **Chicago River Corridor Design Guidelines and Standards, Chicago Zoning Ordinance (Municipal Code of Chicago, Title 17 Section 8-0912)** outlines the requirements for planned development in and adjacent to the setback area along the Chicago River and its branches within the city limits of Chicago. Specific requirements are in place regarding maximum riverbank steepness, appropriate bank stabilization techniques, native vegetation. There is also a prohibition of new structures within the riverbank buffer that are not required by river-dependent uses. Best management practices are encouraged. This manual includes requirements that riverfront property owners maintain riverbanks, seawalls, and other attached structures on their property from deterioration that may endanger the health or safety of individuals or impair river navigation. This required maintenance is expected to have the added benefit of reducing nonpoint source pollution from failing channelization structures. In addition, repair of excessively steep slopes near Bubbly Creek requires recontouring to achieve a 3H:1V slope and stabilization using native vegetation and bioengineered solutions. Guidelines are provided on the repair and modification of seawalls along Bubbly creek with the goal of reducing channelization and retrofitting with sloped naturally vegetated embankments. (Authorized by **65 ILCS 5/11-13-1**) http://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Chicago_River_Plan_Design_Guidelines/ChicagoRiverGuidelines.pdf

Education, Public Outreach and Technical and Financial Assistance

Numerous Education, Public Outreach, and Technical and Financial Assistance resources exist to minimize the impacts of nonpoint source pollution due to streambank and shoreline erosion in the Illinois Coastal Zone.

The USACE currently has a **Great Lakes Restoration Initiative (GLRI) grant** to re-grade part of the Chicago River riverbank at Horner Park and plant native species to stop erosion. This funding source could be used for similar projects within the Illinois Coastal Zone in the future.
http://www.lrc.usace.army.mil/Missions/CivilWorksProjects/HornerPark.aspx

The **Illinois Urban Manual** was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical reference on best management practices for soil erosion and sediment control, stormwater management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual covers numerous best management practices which use vegetative methods instead of structural methods to protect streambank and shoreline features from erosion. http://www.aiswcd.org/ium/

The **IEPA Phase II MS4 Stormwater Program** requires MS4 permit holders to engage in pollution prevention/good housekeeping for municipal operations. The most important component related to streambank and shoreline erosion is employee training programs for park and open space maintenance and landscaping aimed at reducing stormwater pollution. Many of the riparian corridors along channelized streams within the Illinois Coastal Zone are public parkland. It is the responsibility of the local MS4 permit holder to train municipal employees to engage in openspace maintenance in ways which maintain and promote native vegetation, including along streambanks and in riparian corridors. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_regulatory.cfm#minmeasure6

The **Floodplain Management in Illinois Quick Guide**, OWR, was written to encourage "smart" development to minimize flood damage. The intended audience is landowners and developers interested in completing projects within floodplains. The guidebook provides visual examples of the hazards of developing within floodplains, including flooding risk and the impacts of adding fill on the upper bank or within the floodplain. Although the main goal is preventing flood damage, a peripheral benefit of the best management practices within the guidebook is reduced streambank modification. http://www.dnr.illinois.gov/waterresources/documents/resman_ilfpmquickguide.pdf

Section 319(h), IEPA- The following types of projects can be funded through Section 319(h) of the federal Clean Water Act: hydrologic modification projects to implement best management practices for water quality protection, hydrologic studies and planning projects are eligible for funding to assess current conditions and prepare to implement best management practices for water quality protection, in-stream restoration and monitoring projects are eligible for funding to re-establish original streambed meanders and riparian zones to promote improved water quality and support designated water body uses, and watershed assessments. http://www.epw.senate.gov/water.pdf

The University of Illinois Extension provides information on **land use planning and riparian corridor and habitat management** for local communities. They provide guidance on cost-sharing incentive programs available through federal, state, and some local governments help reduce the expenses of restoration or protection.. http://urbanext.illinois.edu/lcr/environmental.cfm

The **Streambank Stabilization and Restoration Program**, administered by IDOA and USDA NRCS, is a cost-share program designed to demonstrate effective, inexpensive vegetative and bio-engineering techniques for limiting streambank erosion. Program monies fund demonstration projects at suitable locations statewide and provide cost-share assistance to landowners with severely eroding streambanks. The Illinois Department of Agriculture (IDOA), Illinois' soil and water conservation districts and the Natural Resources Conservation Service of the U.S. Department of Agriculture (NRCS) serve as partners in implementing the program. Urban streams, such as those within the Illinois Coastal Zone, are eligible for funding. http://dnr.state.il.us/OREP/pfc/Incentives.htm#SSRP

New in 2013, the **Chi-Cal Rivers Fund i**s a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses. www.nfwf.org/chi-cal

The **Cook County Technical Guidance Manual**, MWRD, is a companion to the Cook County Watershed Management Ordinance (WMO). It intended to provide information required in support of a Watershed Management Permit, provide guidance to best achieve the WMO's requirement and provide examples to meet the requirements of the WMO. It builds upon the guidance provided in the Illinois Urban Manual. To that end, it provides detailed information on best management practices and requirements, including practices relevant to streambank stabilization and instream sediment controls.
https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf

The **Lake County Technical Reference Manual**, LCSMC, is a companion to the Lake County WDO. It is intended to assist applicants who are seeking to comply with the WDO. It includes technical background and reference information, direction to assist in uniform and comprehensive permit applications, design guidelines, information as a useful resource for planning purposes, and interpretation for the WDO. To that end, it provides detailed information on best management practices and requirements, including practices which minimize erosion due to channelization.
http://www.lakecountyil.gov/Stormwater/FloodplainStormwaterRegulations/WDOandTRM/Pages/TechnicalReferenceManual.aspx

In addition to the Technical Reverence Manual, LCSMC has produced a **Streambank and Shoreline Protection Manual** for practitioners which includes detailed information on planning and selecting streambank protection measures to protect channels and shorelines against scour and erosion. Vegetative plantings using native plants, soil bioengineering, and structural practices are covered. http://www.lakecountyil.gov/Stormwater/Publications/BMPs/Streambank%20Stabilization%20Manual%20(Lake%20County%202002).pdf

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act give the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorizes the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

For any structure or fill in Lake Michigan, IDNR must evaluate the potential of the activity to result in bank or shoreline instability on other properties. 17 Ill. Adm. Code 3704. If it is determined that the activity would likely cause shoreline erosion or other negative impacts, the applicant is required to submit the supplemental information about the measures to be provided in the project design, construction and operation which would minimize and/or mitigate those impacts.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515)

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. They also have technical experience in water quality monitoring and modeling.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

The Chicago River Corridor Design Guidelines and Standards are enforceable through the Zoning Administrator for the City of Chicago. The City of Chicago Zone Administrator has the authority to deny, revoke or withhold permits, stop work, require abatement or remedial action, issue a fine, or seek other penalties as allowed by law.

At the local level, MS4 Permit Holders have the authority to enforce their local ordinances for new development construction and may take the form of issuing citations, stop work orders, denying the issuance of building or occupancy permits, technical assistance with erosion control plans, etc.

6.4 Coordination for Hydromodification Sources

Administration and implementation of the Coastal Nonpoint Source Program will be housed within the Illinois Coastal Program. This office:

- Consults and coordinates within IDNR, and among IEPA and other state agencies, local governments, interstate agencies, and regional agencies within the coastal zone, assuring full participation in carrying out the purposes and management policies as cited in the ICMP
- Administers the Coastal Grants Program, making annual funds available for competitive grants
- Coordinates with the IEPA for coastal nonpoint source pollution control projects
- Administers Federal Consistency reviews, in cooperation with the OWR, to ensure that federal actions affecting land or water use within the coastal zone are consistent with the ICMP.

The ICMP coordinates with the IDNR Office of Realty and Environmental Planning for reviews under the Comprehensive Environmental Review Process (CERP), including reviews of projects funded through Coastal Grants which include planning to mitigate the impacts of hydromodification.

The ICMP Office also coordinates with the OWR Division of Water Resource Management - Lake Michigan Programs Section, which is responsible for managing the state's interests in Lake Michigan, and issuing permits for work in and along the Lake Michigan shore, waterways, and within floodplains and floodways. The Section also monitors technical studies related to the lake level, bank erosion, and sediment movement. OWR is responsible for evaluating joint permitting applications and is aware of permitting decisions and any permitting issues from IEPA or USACE. OWR, as mentioned above, is also involved in Federal Consistency determinations regarding hydromodification projects within the Illinois Coastal Zone.

Implementation of the CNPCP is coordinated with the IEPA Bureau of Water Nonpoint Source Unit, which administers the statewide Illinois Nonpoint Source Management Program and the Section 319 grant program. Section 319 (h) provides funding for various projects that reduce nonpoint source water pollution. Funds may be used to conduct assessments, develop and implement watershed management plans, provide technical assistance, demonstrate new technology and provide education and outreach. Projects which mitigate the impacts of hydromodification and which are implementing a watershed management plan can be funded through the 319 program. The monitoring programs which ensure that the CNPCP is effective at preventing and mitigating nonpoint source pollution related to channelization are incorporated into the statewide Illinois Nonpoint Source Management Program.

ICMP collaborates with MWRD and LCSMC and municipal stakeholders to disseminate information on trainings and funding opportunities. ICMP has attended, participated in, and presented at public meetings and trainings regarding the Lake County Watershed Development Ordinance and the Cook County Watershed Management Ordinance and will continue coordination activities in the future.

Table 6-1 Management Measure Programs and Practices for Hydromodification Sources

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
401 Water Quality Certification	Environmental Protection Act (415 ILCS 5/) Federal Water Pollution Control Act	35 IAC 302.105 33 CFR 1251-1387	Illinois Environmental Protection Agency	Issuance of Water Quality Certification. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of 401 certifications	6.3.1, 6.3.2, 6.3.5
Acres for Wildlife Program			Illinois Department of Natural Resources			6.3.2
Chi-Cal Rivers Fund			National Fish and Wildlife Foundation			6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Chicago River Corridor Design Guidelines and Standards, Chicago Zoning Ordinance	65 ILCS/11-13-1	Municipal Code of Chicago, Title 17 Section 8-0912	City of Chicago	Civil penalties, fines		6.3.1, 6.3.2, 6.3.5
Cook County Technical Guidance Manual			Metropolitan Water Reclamation District of Greater Chicago			6.3.1, 6.3.2, 6.3.5
Cook County Watershed Management Ordinance	55 ILCS 5/5-1062.1, 70 ILCS 2605/1 et seq.	70 ILCS 2605/1	Metropolitan Water Reclamation District of Greater Chicago (or authorized municipality)	Issuance of permit. Permittees are required to monitor for 5 years post-construction and submit water quality data to MWRD.	MWRD will evaluate data for effectiveness	6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
"Dredge and Fill", Section 404	Federal Water Pollution Control Act	33 CFR 323	US Army Corps of Engineers	Issuance of permits, administrative compliance orders, civil penalties, criminal penalties		6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Environmental review of projects	Rivers, Lakes, and Streams Act (615 ILCS 5/) Interagency Wetland Policy Act Of 1989 (P.A. 86-157) Fish and Wildlife Coordination Act (16 USC 661-664) Regulation of Public Waters Act National Environmental Policy Act (40 CFR 1500-1508) Lake Michigan Shoreline Act (615 ILCS 55/1)	17 IAC 3704 17 IAC 3704	Illinois Department of Natural Resources	Issuance of permits and approvals. Issuance of orders requiring remediation administrative penalties, criminal penalties, civil penalties.	Number of permits issued	6.3.1, 6.3.2, 6.3.5
Floodplain Management in Illinois Quick Guide			Illinois Department of Natural Resources Office of Water Resources			6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Great Lakes Restoration Initiative			United States Environmental Protection Agency			6.3.5
Habitat assessment technical assistance			Illinois Environmental Protection Agency			6.3.2
Illinois Urban Manual			Association of Illinois Soil and Water Conservation Districts			6.3.1, 6.3.2, 6.3.5
Lake County Technical Reference Manual			Lake County Stormwater Management Commission			6.3.1, 6.3.2, 6.3.5
Lake County Watershed Development Ordinance	55 ILCS 5/5-1062	70 ILCS 2605/1	Lake County Stormwater Management Commission (or authorized municipality)	Issuance of permit. Permittees are required to monitor for 5 years post-construction and submit water quality data to LCSMC.	LCSWMC will evaluate data for effectiveness	6.3.1, 6.3.2, 6.3.5
Local Zoning	65 ILCS/11-13-1		Local Governments	Civil penalties, fines		6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Monitoring and modeling technical assistance			Illinois Environmental Protection Agency US Environmental Protection Agency			6.3.1
NPDES Stormwater Program	Environmental Protection Act (415 ILCS 5/) Federal Water Pollution Control Act	35 IAC 309 33 CFR 1251-1387	Illinois Environmental Protection Agency	Issuance of permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Annual stormwater pollutant loads to receiving waters	6.3.1, 6.3.2, 6.3.5
Park and Recreational Facility Construction Grant Program (PARC)	Public Act 96-820		Illinois Department of Natural Resources			6.3.2

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Regulation of Public Waters / Floodway Construction in Northeastern Illinois	Rivers Lakes and Streams Act (615 ILCS 5)	17 IAC 3704 17 IAC 3708	Illinois Department of Natural Resources Office of Water Resources	Issuance of permits. Issuance of cease and desist orders requiring remediation, criminal penalties	Number of permits issued	6.3.1, 6.3.2, 6.3.5
Riparian Corridor and Habitat Management			University of Illinois Extension			6.3.2
Section 10 Permit	River and Harbors Act (33 USC 403)	33 CFR 322 33 CFR 1251-1387	US Army Corps of Engineers	Issuance of permits. Issuance of cease and desist orders, administrative penalties, criminal penalties, requirement of remedial measures		6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Section 319 Grant Program	Federal Water Pollution Control Act		Illinois Environmental Protection Agency			6.3.1, 6.3.2, 6.3.5
Special Wildlife Funds Grant Program			Illinois Department of Natural Resources			6.3.2
Stream Habitat Monitoring Manuals			Illinois Environmental Protection Agency			6.3.2
Streambank and Shoreline Protection Manual			Lake County Stormwater Management Commission			6.3.1, 6.3.2, 6.3.5
Streambank Stabilization and Restoration Program			Illinois Department of Agriculture, United States Department of Agriculture Natural Resources Conservation Service			6.3.1, 6.3.2, 6.3.5

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measures
Watershed and Water Quality Modeling Technical Support			United States Environmental Protection Agency			6.3.1, 6.3.2

Chapter 7. Wetlands, Riparian Areas, and Vegetated Treatment Systems

7.1 Introduction

Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands, which do not fall under the definition of isolated wetlands, are regulated as waters of the United States and are protected under the Clean Water Act. In Lake County, IL, additional protection is provided for "Isolated Wetlands of Lake County" through the Lake County Watershed Development Ordinance.

Riparian areas are vegetated ecosystems along a waterbody through which energy, materials, and water pass. Riparian areas are characterized by a high water table, are subject to periodic flooding. Riparian areas encompass wetlands, uplands, or some combination of the two. They will not always have all the characteristics necessary for them to be classified as wetlands.

Those riparian areas falling outside wetland boundaries may provide many of the same important water quality functions that wetlands provide. In addition, upland buffers play a valuable role in protecting sensitive wetlands or riparian areas from excessive nonpoint source pollution impacts by removing pollutants from inflowing waters.

Vegetated treatment systems (VTS) include vegetated filter strips and constructed wetlands. Vegetated filter strips (VFS) are vegetated areas designed and constructed to remove sediment and other pollutants from surface water runoff by filtration, deposition, infiltration, adsorption, absorption, decomposition, and volatilization. A vegetated filter strip maintains soil aeration (in contrast to wetlands that, at times, have anaerobic soil conditions). . Constructed wetlands are designed to simulate natural wetlands for the purposes of water purification or other functions. Constructed wetlands consist of former upland environments that have been modified to create poorly drained soils and wetland areas for pollutant removal from wastewaters or runoff. Constructed wetlands are essentially wastewater treatment systems and are designed and operated as such.

In areas where naturally occurring wetlands or riparian areas do not exist, VTS can be designed and constructed to perform some of the same functions. When such engineered systems are installed for a specific purpose, such as pollutant removal or flood control, they may not offer the same range of functions that naturally occurring wetlands or riparian areas offer.

Since the development of this management measure, vegetated green infrastructure has expanded to include a range of bioinfiltration installations ranging from tree infiltration boxes to VTS to rain gardens

to bioswales to constructed wetlands, all of which are increasingly promoted and implemented as alternatives to expanding gray infrastructure and improving water quality.

7.2. Wetlands in the Illinois Coastal Zone

Significant effort has been spent classifying and mapping wetlands and riparian areas in the coastal zone (Figure 7-1, Table 7-1). Fifty-four percent of wetlands and riparian acreage in the Illinois coastal zone is in protected status, i.e. owned by a park district, forest preserve, IDNR, etc.(Figure 7-2, Table 7-2).

Table 7-1 Wetland Acreage in the Coastal Zone

Status	Acreage
Protected Wetlands	5785.3
Unprotected Wetlands	4933.6
Total Wetlands	10718.9

Table 7-2 Breakdown of Protected Wetlands by Owner

Owner	Acreage
Forest Preserves	957.8
IDNR	3395.5
Openlands Lakeshore Preserve	8.7
Park Districts	563.2
Port District	860.1

7.3 Management Measures for Wetlands

This section addresses management measures to protect and restore Illinois' coastal wetlands and riparian areas. Management measures are economically achievable measures to control pollution of coastal waters, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives (USEPA 1993). This section includes three management measures organized in the manner presented in USEPA's guidance documents:

1. Protection of Wetlands and Riparian Areas
2. Restoration of Wetlands and Riparian Areas
3. Vegetated Treatment Systems

7.3.1 Management Measure for Protection of Wetlands and Riparian Areas

The purpose of this management measure is to protect the water quality improvement functions of wetlands and riparian areas as a component of nonpoint source control programs. These practices maintain the functions of wetlands and riparian areas and prevent adverse impacts to areas serving a pollution abatement function. This management measure is intended to protect ecosystem and water quality functions of wetlands and riparian areas serving pollution abatement functions.

The nonpoint source pollution abatement functions performed by wetlands and riparian areas are most effective as parts of an integrated land management system that combines nutrient, sediment, and soil erosion control. Wetlands and riparian areas are effective in removing suspended solids, nutrients, and other contaminants from upland runoff. In addition, wetlands and riparian vegetation act as nutrient and carbon sinks. The processes that occur in these areas include sedimentation, microbial and chemical decomposition, organic export, filtration, adsorption, biological assimilation, and nutrient release.

USEPA guidance recommends that practices meeting the following criteria be in place in order to satisfy this management measure:

- Consider wetlands and riparian areas and their NPS control potential on a watershed or landscape scale
- Identify existing functions of those wetlands and riparian areas with significant NPS control potential when implementing NPS management practices. Do not alter wetlands or riparian areas to improve their water quality function at the expense of their other functions.
- Conduct permitting, licensing, certification, and nonregulatory NPS pollution abatement activities in a manner that protects wetland functions.

Applicability

The Illinois CNPCP addresses this management measure. This management measure, nationwide, is intended to be applied to protect wetlands and riparian areas from adverse NPS pollution impacts.

Existing Programs or Practices

Programs and activities that are being implemented for this management measure are described below.

Regulatory

The **Joint Permit application process**, administered in a partnership of the Chicago District of USACE, IEPA, and the IDNR, regulates the discharge of dredged or fill material into waters of the United States, including wetlands, per 33 CFR 323 (Federal Water Pollution Control (Clean Water) Act Section 404 - "Dredge and Fill"). This process mandates an evaluation of all potential impacts and requires that projects be designed to avoid, minimize and mitigate impacts.

Water quality certification for projects under the **Joint Permit process** is provided by the IEPA. The USACE cannot issue a permit without water quality certification from the IEPA.

(http://www.gpo.gov/fdsys/pkg/CFR-2012-title33-vol3/pdf/CFR-2012-title33-vol3-part323.pdf). **Section 401** of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within wetlands or within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterizes the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. IEPA has the option to waive the **Section 401 certification**, grant the permit, grant the permit with conditions, or deny the permit. The IEPA may require monitoring or mitigation as a condition for certification (http://www.epw.senate.gov/water.pdf).

The **Rivers and Harbors Act of 1899** prohibits any unauthorized obstruction or alteration of any navigable water of the United States. This includes structures in or over a navigable waterway or excavation from or deposition of material into a navigable water affecting the course, location, condition, or capacity of such waters. Fish and wildlife conservation, pollution, aesthetics, ecology and general welfare are taken into consideration in the permit review process. A Section 10 Permit is issued by the US Army Corps of Engineers, provide favorable reviews and certification by IDNR and IEPA. Common permitted activities include shoreline protection, construction of marinas, construction of bulkheads, dredging, beach nourishment, private docks and overhead powerlines (http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap9-subchapI-sec403.pdf). Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Water Quality Certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards.

Illinois' Rivers, Lakes, and Streams Act (615 ILCS 5: Regulation of Public Waters, encoded at 17 IAC 3704) regulates projects in or along Lake Michigan or which are not within a regulatory floodway. The purposes of this Part include regulating construction to prevent the impairment of the rights, interests, or uses of any public body of water or in the natural resources thereof. The routine maintenance of existing structures is exempt. Permits are required. If a proposed project is determined to likely cause an impairment to the natural resources in any public body of water or will cause bank or shoreline instability on other properties, the applicant is required to provide a discussion of the measures that will be included in the project design to minimize or mitigate the negative impacts and an analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. No activity which would result in bank or shoreline instability on other properties will be permitted. Consequences of violation of this Part, including unauthorized activity or permit violations will be sought as determined by the IDNR to be

necessary and appropriate and may include requiring the removal of the structure, fill or deposit (http://www.dnr.illinois.gov/adrules/documents/17-3704.pdf).

Illinois Rivers, Lakes, and Streams Act (615 ILCS 5: Floodway Construction in Northeastern Illinois, encoded at 17 IAC 3708) regulates construction and filling in the regulatory floodway of rivers, lakes and streams in northeastern Illinois. Regional Permit No. 3 "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" is in effect which authorizes certain types of shoreline and streambank protection with limits on the size of shoreline and streambank protection efforts, limits on the types of materials used and their placement, requirements that the disturbance of vegetation shall be kept to a minimum during construction to minimize erosion and sedimentation, and requirements that disturbed areas be seeded or stabilized upon completion of construction. This protects wetlands and riparian zones from unnecessary disturbance. Projects within Illinois Coastal Zone waterways, floodplains or wetlands which do not meet the requirements to fall under the regional permit are required to apply for a Joint Permit. The Joint Permit application requires detailed information about fill material which will be discharged into waterways and a description of avoidance, minimization and compensatory activities. This information is available to IDNR OWR staff during their portion of the permit review process (http://www.dnr.illinois.gov/adrules/documents/17-3708.pdf).

Lake County Stormwater Management Commission (SMC) has delegated authority under 615 ILCS 5, Section 5-1062 from IDNR OWR to issue **permits for development in regulatory floodplain and floodway** through an agreement with the Illinois Department of Natural Resources, Office of Water Resources (IDNR/OWR). IDNR/OWR retains regulatory authority over all developments that impact Public Bodies of Water, development in streams with over 1-square mile of drainage area and without a regulatory floodway, and in those cases where detailed studies or the proposed development have changed the regulatory floodway boundary. LCSMC is the primary contact to determine if LCSMC or IDNR/OWR will be the regulatory authority (http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/TRM/DrftTRM_Sec2.pdf).

The **Interagency Wetland Policy Act of 1989** (20 ILCS 830) directs that, where possible, state agencies should "preserve, enhance, and create wetlands." It also sets a goal of zero net loss of existing wetlands, or their value, from State supported activities. It accomplishes this by requiring State agencies to make wetland preservation a priority in all of their construction and land management plans. Where there is no feasible alternative to wetland degradation, that loss must be offset through the implementation of a Wetland Compensation Plan. This act creates an Interagency Wetlands Committee including IDNR, IEPA, Illinois Department of Agriculture, Illinois Department of Transportation, Illinois Historic Preservation Agency, Illinois Department of Commerce and Economic Opportunity, and the Capitol Development Board. The goal of the act is to ensure no net loss in wetlands due to state-supported activities, through the development of agency action plans and establishing a mitigation policy http://www.dnr.illinois.gov/adrules/documents/17-1090.pdf (https://dnr.state.il.us/wetlands/iwc_intro.htm and https://dnr.state.il.us/wetlands/ch6e.htm).

The **Comprehensive Environmental Review Process (CERP)** is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Channelization activities which fit any of the three criteria above are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover, increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. http://dnr.state.il.us/orep/docs/CERPmanual.pdf

The Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq.*) is administered to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments. One of the goals of the ordinance is to protect existing water resources including lakes, streams, floodplains, wetlands and ground water from detrimental and unnecessary modification in order to maintain their beneficial functions. Permits are required for development activities with potential wetland or riparian environment impacts. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood elevations or decrease conveyance capacity on other property. Developments also cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands and riparian environments on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices may include restoration of degraded wetlands or riparian areas. And as such this program supports the requirements of this management measure. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.
(https://www.mwrd.org/pv_obj_cache/pv_obj_id_4985C2CD4FAB1ABFC7726C7E8F2A7E3E199B7200/filename/WMO.pdf)

The **Lake County Watershed Development Ordinance** (55 ILCS §5.5-1062) is administered to prevent flood damages to life and property, to assure that development does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. This Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. Section B of Article 4 of Lake County's Ordinance

pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using native plants. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation wetlands are required, and, mitigation is not allowed within detention facilities. These and other requirements mandated by the Lake County Watershed Development Ordinance meet the requirements of this management measure.
(http://www.lakecountyil.gov/stormwater/floodplainstormwaterregulations/wdoandtrm/Pages/watersheddevelopmentordinance.aspx)

Education, Public Outreach and Technical and Financial Assistance

The **Chicago Wilderness Green Infrastructure Vision** (http://www.cmap.illinois.gov/livability/open-space/green-infrastructure-vision) considers the value of wetlands, riparian corridors, and other natural areas on a landscape scale. IDNR has been heavily involved in the development of this vision, which relies on geospatial data to inform regional land-use planning through the identification of connections between open space areas. Most of the long-distance connections follow riparian corridors.

GO TO 2040 is a regional strategic plan which covers all municipalities within the Illinois Coastal Zone. It was created by Chicago Metropolitan Agency for Planning, a unit of government which is the regional planning agency for northeastern Illinois. This plan is currently being implemented at the local level. High quality natural areas, including wetlands, are called out in the plan for protection for their role in the environment and the ecosystem services they provide on a local and regional scale (http://www.cmap.illinois.gov/about/2040/livable-communities/open-space).

The **Illinois Urban Manual** was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical reference on best management practices for soil erosion and sediment control, stormwater management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and

developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual includes a thorough discussion of wetland enhancement best management practices (See IUM practices standards 997 through 999, http://www.aiswcd.org/ium/practice-standards/) which can be applied to meet the goal of balancing the balancing improvements to wetland water quality functions with their other functions such as providing wildlife habitat. (http://www.aiswcd.org/ium/).

The **Cook County Technical Guidance Manual**, created by MWRD, is a companion to the Cook County WMO. It intended to provide information required in support of a Watershed Management Permit, provide guidance to best achieve the WMO's requirement and provide examples to meet the requirements of the WMO. It builds upon the guidance provided in the Illinois Urban Manual. (https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf). Likewise, the **Lake County Technical Reference Manual** is a companion to the Lake County WDO. It is intended to assist applicants who are seeking to comply with the WDO. It includes technical background and reference information, direction to assist in uniform and comprehensive permit applications, design guidelines, information as a useful resource for planning purposes, and interpretation for the WDO. Both of these manuals provide detailed information on best management practices and requirements, including practices which can be applied to meet the goal of balancing the balancing improvements to wetland water quality functions with their other functions such as providing wildlife habitat.

IDNR has several land acquisition programs which can be used for acquisition and protection of wetlands. The **Park and Recreational Facility Construction Grant Program (PARC**), Public Act 096-0820, provides grants to units of local government to acquire land to protect floodplains, wetlands, natural areas, wildlife habitat, and unique geologic and biologic features. (https://dnr.state.il.us/ocd/newparc1.htm). Additionally, IDNR manages the **Open Space Lands Acquisition and Development Program a**nd the **Land and Water Conservation Fund** grant programs which operate under a joint application process and provide grants to units of local government to acquire new openspace land for recreation and natural resource preservation. (https://dnr.state.il.us/ocd/newoslad1.htm). The IDNR Office of Resource Conservation's Division of Wildlife Resources administers four special grant programs, collectively known **as IDNR Special Wildlife Funds Grants** that are funded by Illinois sportsmen through the purchase of Habitat Stamps and Migratory Waterfowl Stamps. Eligible projects include those seeking to preserve, protect, acquire or manage habitat (i.e. wetlands, woodlands, grasslands, and agricultural lands, natural or altered) in Illinois that have the potential to support populations of wildlife in any or all phases of their life cycles. (https://dnr.state.il.us/grants/special_funds/wildgrant.htm). IDNR has a **Natural Areas Acquisition Fund** which provides funding for the agency's purchase, protection and stewardship of high quality natural areas including wetlands (https://dnr.state.il.us/wetlands/CH5D.HTM).

"Acres for Wildlife" is an IDNR Landowner Assistance Program. Through "Acres for Wildlife," landowners receive help in protecting, improving, or developing lasting wildlife habitat on their property. Key provisions include: the program is strictly voluntary, landowners retain complete property

control (trespass for any reason is prohibited without landowner permission), there is no cost for IDNR services (or payments for participation). In return for IDNR assistance, landowners pledge their willingness to protect and improve habitat on their land as they are able. Protecting a minimum of one acre of habitat for at least one year is required. Landowners, including riparian land owners, will receive a management plan which may suggest changes to land management including the use of prescribed fire, the control of invasive species, etc. Free native plant seeds or plugs may be provided, and biologists advise land owners on available funding. https://dnr.state.il.us/orc/Wildliferesources/AFW/

The **Forest Preserves of Cook County**, with more than 68,000-acres, is the largest forest preserve district in the United States. Its mission is to acquire, restore and manage lands for the purpose of protecting and preserving public open space. Special ecosystems worthy of preservation, including wetlands and riparian corridors, are targeted for acquisition, protection and management. **Lake County Forest Preserves**, with more than 30,000 acres, has a parallel mission in Lake County, IL. **Local park districts**, such as the Chicago Park District, also have funding to acquire, protect and manage wetlands and riparian corridors.

The **Agricultural Conservation Easement Program** (ACEP) is administered through the US Department of Agriculture's Natural Resources Conservation Service. Under the Wetland Reserve Easements component of the program, private property owners with wetlands on their properties may enroll in the program to put in place conservation easements and receive cost-share for restoration costs (http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/acep/).

The **National Coastal Wetlands Conservation Grant Program** was established by P.L. 101-646, Coastal Wetlands Planning, Protection and Restoration Act of 1990 authorizing the U.S. Fish and Wildlife Service to provide matching grants to States for acquisition, restoration, management or enhancement of coastal wetlands.

Established by the Illinois Natural Areas Preservation Act (525 ILCS 30/), **the Illinois Nature Preserves Commission** (INPC) promotes the preservation of significant lands and oversees their stewardship, management, and protection by offering various land protection options designed to assist landowners who wish to voluntarily preserve their land (http://dnr.state.il.us/inpc/Index.htm). Several programs are available for landowners with properties with high-quality natural communities or other significant natural and/or archeological features. The INPC operates within the IDNR.
http://www.ilga.gov/legislation/ilcs/ilcs3.asp?ActID=1739&ChapterID=44

In summary, the criteria for the Wetland and Riparian Area Protection Management Measure are effectively implemented through these primary regulatory and non-regulatory programs:

1. State environmental reviews that are triggered by developers requiring federal permits for any development that has the potential to discharge pollutants to waters, including wetlands, of the US,

2. Lake and Cook County ordinances that require stringent alternatives analysis to avoid adverse impacts to riparian areas and wetlands, and mitigation measures for unavoidable impacts, and,
3. National, state and local agencies have made a number of programs for acquisition, protection and management of wetlands and riparian areas.

All programs used to implement this measure are listed in Table 7-3. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act give the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorize the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review

of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts on wetlands can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515).

Wetlands that are designated Nature Preserves are protected by the Illinois Nature Preserves Commission. The Commission and IDNR implement the Natural Areas Preservation act, which allows for consultation and review of projects that can impact high quality natural areas.

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

7.3.2 Management Measure for Restoration of Wetlands and Riparian Areas

This management measure is applied to restore the full range of wetlands and riparian functions in areas where the systems have been degraded and destroyed and where they can serve a significant nonpoint source abatement function. Restoration of wetlands and riparian areas involves the recovery of a range of functions that formerly existed, by reestablishing the hydrology, vegetation, and structure characteristics. A restoration management measure should be used in conjunction with other management measures addressing the adjacent land use activities.

This management measure generally will be implemented by applying one or more appropriate management practices. Practices that have been found by USEPA to be representative of the types of practices that can be applied successfully to achieve the management measure's objectives are:

- Provide a hydrologic regime similar to that of the type of wetland or riparian area being restored
- Restore native plant species through either natural succession or selected planting
- Plan restoration as part of naturally occurring aquatic ecosystems

Applicability

The Illinois CNPCP addresses this management measure. This management measure, nationwide, is intended to be applied by states to restore the full range of wetlands and riparian functions in areas where the systems have been degraded and destroyed and where they can serve a significant NPS abatement function.

Existing Programs or Practices

Following is a list of programs and activities that are being implemented for this management measure.

Regulatory

The **Joint Permit application process**, administered in a partnership of the Chicago District of USACE, IEPA, and the IDNR, regulates the discharge of dredged or fill material into waters of the United States, including wetlands, per 33 CFR 323 (Federal Water Pollution Control (Clean Water) Act Section 404 - "Dredge and Fill"). This process mandates an evaluation of all potential impacts and requires that projects be designed to avoid, minimize and mitigate impacts.

Water quality certification for projects under the **Joint Permit process** is provided by the IEPA. The USACE cannot issue a permit without water quality certification from the IEPA. (http://www.gpo.gov/fdsys/pkg/CFR-2012-title33-vol3/pdf/CFR-2012-title33-vol3-part323.pdf). **Section 401** of the Clean Water Act requires that any person applying for a federal permit or license which may result in a discharge of pollutants into waters of the United States must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. Projects within wetlands or within the regulatory floodway of rivers, lakes and streams which are not covered under an existing Section 404 permit are required to provide an anti-degradation report which 1) assesses alternatives to the proposed project which will result in reduced pollutant load 2) includes a mitigation plan for unavoidable environmental degradation, 3) identifies and characterizes the current physical, biological and chemical conditions of the waterbody impacted by the proposed project, 4) quantifies the potential increase in pollutant load and potential impacts of the proposed project. IEPA has the option to waive the **Section 401 certification**, grant the permit, grant the permit with conditions, or deny the permit. The IEPA may require monitoring or mitigation as a condition for certification (http://www.epw.senate.gov/water.pdf).

The **Rivers and Harbors Act of 1899** prohibits any unauthorized obstruction or alteration of any navigable water of the United States. This includes structures in or over a navigable waterway or excavation from or deposition of material into a navigable water affecting the course, location, condition, or capacity of such waters. Fish and wildlife conservation, pollution, aesthetics, ecology and general welfare are taken into consideration in the permit review process. A Section 10 Permit is issued by the US Army Corps of Engineers, provide favorable reviews and certification by IDNR and IEPA. Common permitted activities include shoreline protection, construction of marinas, construction of bulkheads, dredging, beach nourishment, private docks and overhead powerlines (http://www.gpo.gov/fdsys/pkg/USCODE-2011-title33/pdf/USCODE-2011-title33-chap9-subchapI-

sec403.pdf). Permits issued under Sections 9 and 10 of the Rivers and Harbors Act also require Water Quality Certification. It is required that the proposed activity be conducted in manner that does not violate water quality standards.

Illinois' Rivers, Lakes, and Streams Act (615 ILCS 5: Regulation of Public Waters, encoded at 17 IAC 3704) regulates projects in or along Lake Michigan or which are not within a regulatory floodway. The purposes of this Part include regulating construction to prevent the impairment of the rights, interests, or uses of any public body of water or in the natural resources thereof. The routine maintenance of existing structures is exempt. Permits are required. If a proposed project is determined to likely cause an impairment to the natural resources in any public body of water or will cause bank or shoreline instability on other properties, the applicant is required to provide a discussion of the measures that will be included in the project design to minimize or mitigate the negative impacts and an analysis of the extent and permanence of the activity's encroachment on the body of water and of any impairment the activity would have on the rights, interests or uses of the public in the body of water and in the natural resources thereof. The analysis shall consider both the activity alone and the combined effects of similar activities which exist and/or could be lawfully undertaken in the locality. No activity which would result in bank or shoreline instability on other properties will be permitted. Consequences of violation of this Part, including unauthorized activity or permit violations will be sought as determined by the IDNR to be necessary and appropriate and may include requiring the removal of the structure, fill or deposit (http://www.dnr.illinois.gov/adrules/documents/17-3704.pdf).

Illinois' Rivers, Lakes, and Streams Act (615 ILCS 5: Floodway Construction in Northeastern Illinois, encoded at 17 IAC 3708) regulates construction and filling in the regulatory floodway of rivers, lakes and streams in northeastern Illinois. Regional Permit No. 3 "Authorizing Construction of Minor Projects in Northeastern Illinois Regulatory Floodways" is in effect which authorizes certain types of shoreline and streambank protection with limits on the size of shoreline and streambank protection efforts, limits on the types of materials used and their placement, requirements that the disturbance of vegetation shall be kept to a minimum during construction to minimize erosion and sedimentation, and requirements that disturbed areas be seeded or stabilized upon completion of construction. Projects within Illinois Coastal Zone waterways, floodplains or wetlands which do not meet the requirements to fall under the regional permit are required to apply for a Joint Permit. The Joint Permit application requires detailed information about fill material which will be discharged into waterways and a description of avoidance, minimization and compensatory activities. This information is available to IDNR OWR staff during their portion of the permit review process (http://www.dnr.illinois.gov/adrules/documents/17-3708.pdf).

Lake County Stormwater Management Commission (SMC) has delegated authority under 615 ILCS 5, Section 5-1062 from IDNR OWR to issue **permits for development in regulatory floodplain and floodway** through an agreement with the Illinois Department of Natural Resources, Office of Water Resources (IDNR/OWR). IDNR/OWR retains regulatory authority over all developments that impact Public Bodies of Water, development in streams with over 1-square mile of drainage area and without a regulatory floodway, and in those cases where detailed studies or the proposed development have

changed the regulatory floodway boundary. LCSMC is the primary contact to determine if LCSMC or IDNR/OWR will be the regulatory authority (http://www.lakecountyil.gov/Stormwater/Documents/Regulatory/TRM/DrftTRM_Sec2.pdf).

The **Interagency Wetland Policy Act of 1989** (20 ILCS 830) directs that, where possible, state agencies should "preserve, enhance, and create wetlands." It also sets a goal of zero net loss of existing wetlands, or their value, from State supported activities. It accomplishes this by requiring State agencies to make wetland preservation a priority in all of their construction and land management plans. Where there is no feasible alternative to wetland degradation, that loss must be offset through the implementation of a Wetland Compensation Plan. This act creates an Interagency Wetlands Committee including IDNR, IEPA, Illinois Department of Agriculture, Illinois Department of Transportation, Illinois Historic Preservation Agency, Illinois Department of Commerce and Economic Opportunity, and the Capitol Development Board. The goal of the act is to ensure no net loss in wetlands due to state-supported activities, through the development of agency action plans and establishing a mitigation policy http://www.dnr.illinois.gov/adrules/documents/17-1090.pdf (https://dnr.state.il.us/wetlands/iwc_intro.htm and https://dnr.state.il.us/wetlands/ch6e.htm).

The **Comprehensive Environmental Review Process (CERP)** is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Channelization activities which fit any of the three criteria above are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover, increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. (http://dnr.state.il.us/orep/docs/CERPmanual.pdf)

The Cook County Watershed Management Ordinance (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq.*) is administered to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments. One of the goals of the ordinance is to protect existing water resources including lakes, streams, floodplains, wetlands and ground water from detrimental and unnecessary modification in order to maintain their beneficial functions. Permits are required for development activities with potential wetland or riparian environment impacts. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood elevations or decrease conveyance capacity on other property. Developments also cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and

quality of all wetlands and riparian environments on site. Development that impacts wetlands is discouraged by the WMO, but mitigation is allowed in some cases. The WMO encourages existing riparian functions to be protected. Mitigation practices may include restoration of degraded wetlands or riparian areas. And as such this program supports the requirements of this management measure. The requirements mandated by Article 5 (erosion and sediment controls) and Article 6 (protection of floodplains, wetlands, wetland buffers, and riparian areas) meet the requirements of this management measure.
(https://www.mwrd.org/pv_obj_cache/pv_obj_id_4985C2CD4FAB1ABFC7726C7E8F2A7E3E199B7200/filename/WMO.pdf)

The **Lake County Watershed Development Ordinance** (55 ILCS §5.5-1062) is administered to prevent flood damages to life and property, to assure that development does not increase flood and drainage hazards to others, or create unstable conditions susceptible to erosion, to conserve the natural hydrologic, hydraulic, water quality and other beneficial functions of flood-prone areas and wetlands in Lake County. This Ordinance generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. Section B of Article 4 of Lake County's Ordinance pertains to all Watershed Development Permits and includes mandates protecting stream channels, overland flows of stormwater, and water quality treatment areas. If natural channels are proposed for modification, a mitigation plan is required that demonstrates conservation of the physical characteristics of the existing channel, including length, cross-section, slope, sinuosity and carrying capacity. Revegetation is required using native plants. Section C of Article 4 of the Ordinance regulates activities in floodplains by restricting modification and disturbance of natural riverine floodplains to protect existing hydrologic and environmental functions. It requires disturbances shall be minimized and negative impacts mitigated. No developments are permitted that alone or cumulatively create a damaging or potentially damaging increase in flood levels. Section E of Article 4 of the Ordinance regulates activities in jurisdictional and non-jurisdictional wetlands. Delineations, impact assessments, alternatives analyses, and mitigation plans are required. Further, mitigation is required to provide for replacement of lost wetland at rates proportional to the quality of the impacted wetlands, with 6-to-1 mitigation ratio required for impacting forested wetlands. Buffer areas for mitigation wetlands are required, and, mitigation is not allowed within detention facilities. Mitigation may include restoration of degraded wetlands or riparian areas. And as such this program supports the requirements of this management measure.
http://www.lakecountyil.gov/stormwater/floodplainstormwaterregulations/wdoandtrm/Pages/watershеddevelopmentordinance.aspx

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (http://www.aiswcd.org/ium/) was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical reference on best management practices for soil erosion and sediment control, stormwater

management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual includes a thorough discussion of wetland creation and restoration best management practices. Extensive technical information is available on how to create a hydrologic regime similar to the type of wetland being restored, successfully plant native species from local ecotypes to ensure species diversity and survival, and plan and conduct restoration so that the result will be equivalent to a naturally occurring wetland ecosystem. For example, the manual provides guidance on when to use seeds versus plugs, talks about options for restoring hydrology, and provides guidance on the wildlife habitat considerations in play when making decisions on water control structures (See IUM practices standards 997 through 999, http://www.aiswcd.org/ium/practice-standards/)

The **Cook County Technical Guidance Manual**, created by MWRD, is a companion to the Cook County WMO. It intended to provide information required in support of a Watershed Management Permit, provide guidance to best achieve the WMO's requirement and provide examples to meet the requirements of the WMO. It builds upon the guidance provided in the Illinois Urban Manual. (https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf). Likewise, the **Lake County Technical Reference Manual** is a companion to the Lake County WDO. It is intended to assist applicants who are seeking to comply with the WDO. It includes technical background and reference information, direction to assist in uniform and comprehensive permit applications, design guidelines, information as a useful resource for planning purposes, and interpretation for the WDO. Both of these manuals provide detailed information on best management practices and requirements, including practices which can be applied to meet the goal of balancing the balancing improvements to wetland water quality functions with their other functions such as providing wildlife habitat.

The IDNR Office of Resource Conservation's Division of Wildlife Resources administers four special grant programs, collectively known **as IDNR Special Wildlife Funds Grants** that are funded by Illinois sportsmen through the purchase of Habitat Stamps and Migratory Waterfowl Stamps. Eligible projects include those seeking to preserve, protect, acquire or manage habitat (i.e. wetlands, woodlands, grasslands, and agricultural lands, natural or altered) in Illinois that have the potential to support populations of wildlife in any or all phases of their life cycles. These grants can be used for projects which restore native plant species (https://dnr.state.il.us/grants/special_funds/wildgrant.htm). IDNR has a **Natural Areas Acquisition Fund** which provides funding for the agency's purchase, protection, restoration and stewardship of high quality natural areas including wetlands (https://dnr.state.il.us/wetlands/CH5D.HTM).

"Acres for Wildlife" is an IDNR Landowner Assistance Program. Through "Acres for Wildlife," landowners receive help in protecting, improving, or developing lasting wildlife habitat on their property. Key provisions include: the program is strictly voluntary, landowners retain complete property

control(trespass for any reason is prohibited without landowner permission), there is no cost for IDNR services (or payments for participation). In return for IDNR assistance, landowners pledge their willingness to protect and improve habitat on their land as they are able. Protecting a minimum of one acre of habitat for at least one year is required. Landowners, including riparian land owners, will receive a management plan which may suggest changes to land management including the use of prescribed fire, the control of invasive species, etc. Free native plant seeds or plugs may be provided, and biologists advise land owners on available funding. https://dnr.state.il.us/orc/Wildliferesources/AFW/

The **Forest Preserves of Cook County**, with more than 68,000-acres, is the largest forest preserve district in the United States. Its mission is to acquire, restore and manage lands for the purpose of protecting and preserving public open space. Special ecosystems worthy of preservation, including wetlands and riparian corridors, are targeted for acquisition, protection and management. **Lake County Forest Preserves**, with more than 30,000 acres, has a parallel mission in Lake County, IL. **Local park districts**, such as the Chicago Park District, also have funding to acquire, protect and manage wetlands and riparian corridors.

The **Agricultural Conservation Easement Program** (ACEP) is administered through the US Department of Agriculture's Natural Resources Conservation Service. Under the Wetland Reserve Easements component of the program, private property owners with wetlands on their properties may enroll in a conservation easements and receive cost-share for restoration costs.

The **National Coastal Wetlands Conservation Grant Program** was established by P.L. 101-646, Coastal Wetlands Planning, Protection and Restoration Act of 1990 authorizing the U.S. Fish and Wildlife Service to provide matching grants to States for acquisition, restoration, management or enhancement of coastal wetlands.

Established by the Illinois Natural Areas Preservation Act (525 ILCS 30/), **the Illinois Nature Preserves Commission** (INPC) promotes the preservation of significant lands and oversees their stewardship, management, and protection by offering various land protection options designed to assist landowners who wish to voluntarily preserve their land (http://dnr.state.il.us/inpc/Index.htm). Several programs are available for landowners with properties with high-quality natural communities or other significant natural and/or archeological features. The INPC operates within the IDNR.

New in 2013, the **Chi-Cal Rivers Fund** is a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. IDNR is one of the major funders. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses. www.nfwf.org/chi-cal

The **Illinois Wetland Restoration and Creation Guide** is a technical guide that was prepared by the Illinois Natural History Survey in 1997. It provides detailed information on how to plan wetland restoration and creation projects, with a strong focus on designing the hydraulic regime, selecting and

planting native vegetative species, and monitoring the ecosystem functions of the restored or created wetland.
(http://www.dot.state.il.us/desenv/environmental/IllinoisWetlandRestorationAndCreationGuide.pdf)

In summary, the criteria for the Wetland and Riparian Area Restoration Management Measure are effectively implemented through these primary regulatory and non-regulatory programs:

1. Lake and Cook County ordinances that require that adverse impacts to riparian areas and wetlands be mitigated. Mitigation may include restoration or enhancement of degraded wetlands and riparian areas, and,
2. National, state and local agencies have a number of programs for acquisition, restoration, and management of wetlands and riparian areas.

All programs used to implement this measure are listed in Table 7-3. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

Enforcement Mechanisms

The USEPA and USACE are under a memorandum of agreement (MOA) on enforcement of Section 404. Under the MOA, the USACE, as the federal Agency that issues the permits, has the lead on permit violation cases. For unpermitted discharges, USEPA and USACE determine the appropriate lead agency based upon the criteria of the MOA. Enforcement tools include administrative compliance orders requiring a violator to stop any ongoing illegal discharge, civil penalties, and civil judicial enforcement. USEPA and USACE reserve their criminal enforcement authority for only the most flagrant and egregious Section 404 violations. Section 10 violators are issued a cease and desist order, violations are investigated, and administrative or legal action may be taken. Remedial measures can be ordered, and state agencies, including IEPA, can be involved in the decision on appropriate actions.

The IEPA is responsible for the review of Joint Permit applications and issuance of 401 Water Quality Certifications, as appropriate. If the IEPA determines that a discharge subject to a 401 Water Quality Certification will affect the quality of its waters so as to violate any water quality standards in Illinois, the IEPA has the authority to impose conditions or refuse to issue a license or permit. The IEPA, through the 401 Water Quality Certification process, has the authority to file lawsuits against violators of the Rivers and Harbors Act of 1899. IEPA has the authority to assess civil penalties for violations of NPDES requirements and performance standards and for ensuring compliance of MS4 permit holders with their general permit. IEPA is also responsible for the enforcement of NPDES rules for construction activities regulated under 40 CFR 122.26. With respect to enforcement, Section 31 of the Clean Water Act sets the basic framework for environmental compliance assurance and enforcement (415 ILCS §5/31). IEPA can assess civil penalties for violations of NPDES requirements or state water quality standards. 415 ILCS §5/42. In addition to the above, IEPA has the authority to issue citations or initiate enforcement actions for documented violations of the State Water Quality Standards (35 IAC 302). State water quality

standards also apply to sites smaller than one acre regardless of whether or not they are required to have an NPDES permit.

The Rivers, Lakes, and Streams Act and Illinois Rivers and Harbors Act give the IDNR jurisdiction over all waterbodies in the State, navigable and non-navigable and authorize the Agency to ascertain to what extent, if at all, these waters and shorelines have been or are proposed to be encroached upon by private interests or individuals. The Act gives IDNR authority to either recover full compensation for wrongful encroachment, or to recover the use of the same. The IDNR OWR is responsible for the review of Joint Permit applications and has enforcement authorities. Under the Rivers, Lakes, and Streams Act, illegal discharge is punishable as a Class A misdemeanor (615 ILCS §5/18). OWR has the authority to issue permits for construction in floodplains and floodways and has related enforcement authority.

Wetlands that are designated Nature Preserves are protected by the Illinois Nature Preserves Commission. The Commission and IDNR implement the Natural Areas Preservation act, which allows for consultation and review of projects that can impact high quality natural areas.

IDNR also has authority to conduct a comprehensive review on actions funded or performed by IDNR for environmental and historical impacts. Projects expected to have negative impacts on wetlands can be halted until the project proponent agrees to modifications to minimize or mitigate impacts. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department in or on any lands owned, leased, or managed by the Department (20 ILCS §805/805-515).

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

7.3.3 Management Measure for Vegetated Treatment Systems

The objective of this management measure is to promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant nonpoint source pollution abatement function. Vegetated treatment systems (VTS), including vegetated filter strips and constructed wetlands, are designed to reduce nonpoint source pollution. They need to be properly designed, correctly installed, and diligently maintained in order to function properly.

Vegetated filter strips (VFS) remove sediment and associated pollutants from runoff and wastewater by filtration, deposition, infiltration, absorption, adsorption, decomposition, and volatilization, thereby reducing the amount entering surface waters. VFS are appropriate for areas adjacent to surface waters that are receiving polluted runoff and improve water quality by removing nutrients, sediment, suspended solids, and pesticides. VFS are most efficient when contaminated runoff flows over vegetation as a uniform sheet. When the runoff concentrates in channels the VFS will not function optimally. Important design features of VFS include:

- A device such as a level spreader that ensures that runoff reaches the vegetated filter strip as a sheet flow
- A dense vegetative cover of erosion-resistant plant species
- A gentle slope of no more than five percent
- A length at least as long as the adjacent contributing area

Constructed wetlands are engineered complexes of saturated substrates, emergent and submerged vegetation, and water that simulate wetlands. Important features of constructed wetlands include:

- Substrates with various rates of hydraulic conductivity
- Plants adapted to water-saturated anaerobic substrates
- Water flowing through or above the substrate
- Aerobic and anaerobic microbial populations

Existing Programs or Practices and Lead Agencies

Programs and activities that are being implemented for this management measure are described below.

Regulatory Programs

The **Interagency Wetland Policy Act of 1989** (20 ILCS 830) directs that, where possible, state agencies should "preserve, enhance, and create wetlands." It also sets a goal of zero net loss of existing wetlands, or their value, from State supported activities. It accomplishes this by requiring State agencies to make wetland preservation a priority in all of their construction and land management plans. Where there is no feasible alternative to wetland degradation, that loss must be offset through the implementation of a Wetland Compensation Plan. This act creates an Interagency Wetlands Committee including IDNR, IEPA, Illinois Department of Agriculture, Illinois Department of Transportation, Illinois Historic Preservation Agency, Illinois Department of Commerce and Economic Opportunity, and the Capitol Development Board. The goal of the act is to ensure no net loss in wetlands due to state-supported activities, through the development of agency action plans and establishing a mitigation policy http://www.dnr.illinois.gov/adrules/documents/17-1090.pdf (https://dnr.state.il.us/wetlands/iwc_intro.htm and https://dnr.state.il.us/wetlands/ch6e.htm).

The **Comprehensive Environmental Review Process (CERP)** is an internal IDNR process to review 1) actions that the department performs or funds, 2) actions that the Department approves and tax

incentive is provided, or 3) actions that occur on IDNR-owned or leased land. An action is any activity that may change the existing physical, chemical, or biological conditions of the air, land, or water. Channelization activities which fit any of the three criteria above are reviewed for potential impact on threatened or endangered species, high value natural areas, wetlands, cultural resources, and other resources such as migratory birds, fisheries, forests, prairies, streams, and riparian corridors. Actions that may cause significant alterations to lakes or streams require a public review period. Certain activities such as controlling nuisance aquatic vegetation; transplanting native aquatic or semi-aquatic plants to establish cover, increase habitat diversity and prevent erosion; and maintaining existing levees and water control structures are exempt from review under most circumstances. (http://dnr.state.il.us/orep/docs/CERPmanual.pdf)

The **Cook County Watershed Management Ordinance** (55 ILCS §5/5-1062.1; 70 ILCS 2605/1 *et. seq.*) is administered to abate the negative impacts of stormwater runoff (e.g. flooding, erosion, water quality impairments, etc.) from developments or redevelopments. Article 6 of the Ordinance mandates special protections for floodplains, wetlands, wetland buffers, and riparian areas. The Ordinance requires that development in floodplains cannot increase flood velocity, impair hydrologic function, or degrade water quality. Article 6 has several elements that protect wetland and riparian areas, both of which attenuate the impacts of flooding and erosion. The Ordinance requires that developers must provide the District with the boundaries, extent, function, value, and quality of all wetlands on site. Development that impacts flood boundaries, water quality or wetlands is discouraged by the WMO, but mitigation of unavoidable impacts is allowed in some cases. Mitigation practices may include vegetated treatment systems and constructed wetlands or other similar measures, and as such this program supports the requirements of this management measure. Technical specifications are contained in the Technical Guidance Manual, which complements the ordinance.
(https://www.mwrd.org/pv_obj_cache/pv_obj_id_4985C2CD4FAB1ABFC7726C7E8F2A7E3E199B7200/filename/WMO.pdf)

The **Lake County Watershed Development Ordinance** (55 ILCS §5.5-1062) also generally requires a Watershed Development Permit for developments in floodplains, wetlands, or depressional storage areas. The Ordinance is intended to protect water resources, including flood boundaries, water quality or wetlands. Unavoidable impacts require mitigation plans, which can include vegetated treatment systems or wetlands. For example, the ordinance requires that restoration of a wetland on the site of a historic wetland receives more credit as wetland mitigation than creation of a wetland elsewhere. As such this program supports the requirements of this management measure. http://www.lakecountyil.gov/stormwater/floodplainstormwaterregulations/wdoandtrm/Pages/watershedevelopmentordinance.aspx

Education, Public Outreach and Technical and Financial Assistance

The **Illinois Urban Manual** (http://www.aiswcd.org/ium/) was originally developed by the IEPA and is currently hosted and continually updated by the Association of Illinois Soil and Water Conservation Districts through funding from Section 319 of the Clean Water Act. This manual is the go-to technical

reference on best management practices for soil erosion and sediment control, stormwater management, and special area protection. It is used by developers, planners, engineers, government officials and others involved in land use planning, building site development, and natural resource conservation in rural and urban communities and developing areas, including the Illinois Coastal Zone. The manual has guidance on best management practice selection, construction specifications, material specifications, and provides standard drawings. The manual includes a thorough discussion of wetland creation and restoration best management practices. Extensive technical information is available on how to create a hydrologic regime similar to the type of wetland being restored, successfully plant native species from local ecotypes to ensure species diversity and survival, and plan and conduct restoration so that the result will be equivalent to a naturally occurring wetland ecosystem. For example, the manual provides guidance on when to use seeds versus plugs, talks about options for restoring hydrology, and provides guidance on the wildlife habitat considerations in play when making decisions on water control structures (See IUM practices standards 998 through 999, http://www.aiswcd.org/ium/practice-standards/).The **Illinois Urban Manual Practice Standard 997 Wetland Creation** provides detailed technical guidance on the creation of wetlands where no natural wetland occurred historically and which contain soils that are not hydric. The **Illinois Urban Manual Practice Standard 800 Bioretention** provides detailed technical guidance on the construction of bioretention facilities. This includes information on best practices for soils, vegetation, inflow design, etc. http://www.aiswcd.org/wp-content/uploads/2013/06/urbst800_FINAL1.pdf. The **Illinois Urban Manual Practice Standard 835 Filter Strip** provides details on the installation of filter strips. It specifies recommended slopes, the use of level spreaders to achieve sheet flow, and soil and vegetation. http://www.aiswcd.org/wp-content/uploads/2013/06/urbst83511.pdf

The **Illinois Wetland Restoration and Creation Guide** is a technical guide that was prepared by the Illinois Natural History Survey in 1997. It provides detailed information on how to plan wetland restoration and creation projects, with a strong focus on designing the hydraulic regime, selecting and planting native vegetative species, and monitoring the ecosytem functions of the restored or created wetland.
(http://www.dot.state.il.us/desenv/environmental/IllinoisWetlandRestorationAndCreationGuide.pdf)

The **Cook County Technical Guidance Manual**, created by MWRD, is a companion to the Cook County WMO. It intended to provide information required in support of a Watershed Management Permit, provide guidance to best achieve the WMO's requirement and provide examples to meet the requirements of the WMO. It builds upon the guidance provided in the Illinois Urban Manual. (https://www.mwrd.org/irj/go/km/docs/documents/MWRD/internet/protecting_the_environment/Stormwater_Management/Pdfs/WMO/TGM/TGM.pdf). Likewise, the **Lake County Technical Reference Manual** is a companion to the Lake County WDO. It is intended to assist applicants who are seeking to comply with the WDO. It includes technical background and reference information, direction to assist in uniform and comprehensive permit applications, design guidelines, information as a useful resource for planning purposes, and interpretation for the WDO. Both of these manuals provide detailed information on best management practices and requirements, including practices which can be applied to meet the

goal of balancing the balancing improvements to wetland water quality functions with their other functions such as providing wildlife habitat.

Illinois Green Infrastructure Grant Program for Stormwater Management (IGIG) is a grant program administered through the IEPA. Since 2011, approximately $15 million has been made available to local units of government and other organizations to demonstrate green infrastructure best management practices to control stormwater runoff for water quality protection. Projects are located within Municipal Separate Storm Sewer System (MS4) or Combined Sewer Overflow (CSO) areas. Examples of projects funded include vegetated swales, stormwater wetlands, green roofs, tree infiltration boxes, rain gardens, and vegetated filter strips. The application process requires detailed information about the expected improvements to water quality and reduction in runoff volume from the project. http://www.epa.state.il.us/water/financial-assistance/publications/igig-progress-report.pdf

IDNR has a **Natural Areas Acquisition Fund** which provides funding for the agency's purchase, protection, restoration and stewardship of high quality natural areas including wetlands (https://dnr.state.il.us/wetlands/CH5D.HTM).

New in 2013, the **Chi-Cal Rivers Fund** is a private-public partnership which funds projects to enhance in stream habitat for aquatic life within the CAWS. IDNR is one of the major funders. Funded projects may include riverbank naturalization, bank stabilization, riparian buffer planting, in-stream structure installation, and restoration of wetlands, prairies, and forests adjacent to watercourses. Green infrastructure such as bioswales are also eligible for funding. www.nfwf.org/chi-cal

In summary, the Vegetated Treatment System Management Measure will be effectively implemented through these primary regulatory and non-regulatory programs:

1. Lake and Cook County ordinances that require that adverse impacts to riparian areas and wetlands be mitigated. Mitigation may include vegetated treatment systems, and,
2. The Illinois Urban Manual provides technical guidance on vegetated treatment system implementation
3. National, state and local agencies have a number of programs to support planning and construction of this management measure.

All programs used to implement this measure are listed in Table 7-3. This table summarizes the programs; authorizing legislation; program authority; lead agency enforcement mechanisms; and evaluation methods.

Enforcement Mechanisms

Wetland or water quality mitigation may be required by special permit conditions, and vegetated treatment systems might be part of a mitigation plan. IDNR has the power to enforce the laws of the State and the rules and regulations of the Department. Enforcement in the coastal zone will be coordinated with MWRD and/or LCSWC compliance officers.

MWRD has the authority and the responsibility for administering the Cook County Watershed Management Ordinance. This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit.

LCSMC has the authority and the responsibility for administering the Lake County Watershed Development Ordinance (WDO). This includes inspections to ensure compliance, issuance of fines, placing a stop-work order, or revoking a permit. Legal action may be taken and a notice of the violation may be recorded to the title to the property. LCSMC is available to meet with communities to provide technical assistance on WDO related issues at any time. LCSMC also has delegated authority from the OWR for enforcement of Part 3708 of the Rivers, Lakes and Streams Act (17 IAC 3708).

Table 7-3 Management Measure Programs and Practices for Wetlands, Riparian Areas and Vegetated Treatment Systems

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
401 Water Quality Certification	Environmental Protection Act (415 ILCS 5/) Federal Water Pollution Control Act Rivers and Harbors Act of 1899	35 IAC 302.395 33 CFR 1251-1387	Illinois Environmental Protection Agency	Issuance of Water Quality Certification. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of 401 certifications	7.3.1, 7.3.2
Acres for Wildlife Program			Illinois Department of Natural Resources			7.3.1, 7.3.2
Agricultural Conservation Easement Program- Wetland Reserve Easements			US Department of Agriculture's Natural Resources Conservation Service			7.3.1, 7.3.2

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Chi-Cal Rivers Fund			National Fish and Wildlife Foundation			7.3.2, 7.3.3
Chicago Wilderness Green Infrastructure Vision			Chicago Wilderness			7.3.1
Cook County Watershed Management Ordinance	55 ILCS 5/5-1062.1, 70 ILCS 2605/1 et seq.	70 ILCS 2605/1	Metropolitan Water Reclamation District of Greater Chicago (or authorized municipality)	Issuance of permit. Permittees are required to monitor for 5 years post-construction and submit water quality data to MWRD.	MWRD will evaluate data for effectiveness	7.3.1, 7.3.2, 7.3.3
Cook County Technical Guidance Manual			Metropolitan Water Reclamation District of Greater Chicago			7.3.1, 7.3.2, 7.3.3

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Environmental review of projects	Rivers, Lakes, and Streams Act (615 ILCS 5/) Interagency Wetland Policy Act Of 1989 (P.A. 86-157) Fish and Wildlife Coordination Act (16 USC 661-664) Regulation of Public Waters Act National Environmental Policy Act (40 CFR 1500-1508)	17 IAC 3704 17 IAC 3704	IDNR	Issuance of approvals. Issuance of orders requiring remediation administrative penalties, criminal penalties, civil penalties.	Number of approvals issued	7.3.1, 7.3.2, 7.3.3

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Forest Preserve Districts and municipal park districts	55 ILCS 5/5-1062	70 ILCS 2605/1	Cook County Forest Preserve District, Lake County Forest Preserve District	Land preservation and management	Acreage	7.3.1, 7.3.2
GO TO 2040	Public Act 095-0677		Chicago Metropolitan Agency for Planning			7.3.1
Illinois Green Infrastructure Grant Program for Stormwater Management			Illinois Environmental Protection Agency		Number of green infrastructure projects completed	7.3.3

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Illinois Department of Natural Resources Grant Programs- PARC, OSLAD, Land and Water Conservation Fund, IDNR Special Wildlife Funds	525 ILCS 33 36 CFR 59 525 ILCS 35 520 ILCS 5 Public Act 96-820 20 ILCS 805	17 ILCS 3025 17 ILCS 3030 17 ILCS 3060 17 ILCS 3070	Illinois Department of Natural Resources		Number of acres of wetland or riparian land purchased or restored	7.3.1, 7.3.2
Illinois Nature Preserves Commission	525 ILCS 30	17 ILCS 4000	Illinois Department of Natural Resources			7.3.1, 7.3.2

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Illinois Urban Manual			Association of Illinois Soil and Water Conservation Districts			7.3.1, 7.3.2, 7.3.3
Illinois Wetland Restoration and Creation Guide			Illinois Natural History Survey, University of Illinois			7.3.2, 7.3.3
Interagency Wetland Policy Act of 1989	20 ILCS 830	17 ILCS 1090	IDNR, in partnership with IEPA, IDO, IDOT, Illinois Historical Preservation Agency, Illinois Department of Commerce and Economic Opportunity, and the Capitol Development Board	Implementation of a wetland compensation plan, Issuance of approvals. Issuance of orders requiring remediation administrative penalties, criminal penalties, civil penalties.	No net loss of wetlands due to state sponsored activities	7.3.1, 7.3.2, 7.3.3

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Joint Permit Program	Rivers and Harbors Act Federal Water Pollution Control Act Illinois Rivers, Lakes, and Streams Act	33 CFR 322 33 CFR 1251-1387 17 IAC 3708 17 IAC 3704 33 CFR 323	US Army Corps of Engineers, in partnership with IEPA and IDNR	Issuance of permits. Issuance of cease and desist orders, orders requiring remediation, administrative penalties, criminal penalties, civil penalties.	Number of permits issued	7.3.1, 7.3.2
Lake County Watershed Development Ordinance	55 ILCS 5/5-1062	70 ILCS 2605/1	Lake County Stormwater Management Commission (or authorized municipality)	Issuance of permit. *** Permittees are required to monitor for 5 years post-construction and submit water quality data to LCSMC.	LCSMC will evaluate data for effectiveness	7.3.1, 7.3.2, 7.3.3

Program or Practice	Authorizing Legislation	Program Authority	Lead Implementing Agency	Enforcement Mechanism(s)	Evaluation Method(s)	Management Measure
Lake County Technical Manual			Lake County Stormwater Management Commission			7.3.1, 7.3.2, 7.3.3
National Coastal Wetlands Conservation Grant Program	Coastal Wetlands Planning, Protection and Restoration Act of 1990		US Fish and Wildlife Service			7.3.1, 7.3.2
IDNR Natural Areas Acquisition Fund			Illinois Department of Natural Resources		Number of acres of wetland or riparian land purchased or restored	7.3.1, 7.3.2, 7.3.3

Chapter 8. Additional Management Measures

EPA and NOAA's Program Development and Approval Guidance for Coastal Nonpoint Pollution Control Programs outlines the requirements for implementation of Additional Management Measures under §6217. Additional management measures provide a "second tier of pollution control efforts" after implementation of the §6217(g) management measures.

The *Program Guidance* states,

If the general level of protection provided by the first management tier is insufficient to enable coastal waters to meet water quality standards and protect designated uses, then the state must implement the second tier which consists of additional management measures. The purpose of the second tier is to restore coastal waters and, in the case of critical areas, to protect against future pollution problems.

The additional measures are to apply both to existing land and water uses that are found to cause or contribute to water quality impairment and to new or substantially expanding land uses within critical coastal areas adjacent to impaired or threatened coastal waters.

NOAA's guidance states that for program approval, states will need to complete the following steps, discussed in the sections of this Chapter:

1. identify coastal waters that are not attaining or maintaining applicable water quality standards or protecting designated uses, or that are threatened by reasonably foreseeable increases in pollution loadings from new or expanding sources;
2. identify land uses that individually or cumulatively cause or threaten water quality impairments in those coastal waters;
3. identify critical coastal areas;
4. develop a process for determining whether additional measures are necessary to attain or maintain water quality standards in the waters identified above;
5. describe the additional management measures the state will apply to the identified land uses and critical coastal areas; and,
6. develop a program to ensure implementation of the additional management measures within the time frame described in section IV.D.

In keeping with NOAA and EPA's guidance, the State of Illinois will follow an iterative process for implementing (g) management measures, assessing their effectiveness in achieving water quality goals and determining the need for additional management measures. Our use of this iterative process will meet the requirements for implementing additional management measures, as described below. As described in the previous chapters, numerous programs and regulations have already been implemented in Illinois to manage nonpoint source pollution. Numerous monitoring programs, which

include both data collection and data analysis, are already in place to determine the effectiveness of management measures. As deficiencies are identified, the State of Illinois has robust mechanisms for determining additional steps which need to be taken to address shortcomings.

8.1. Threatened and Impaired Coastal Waters

States must identify coastal waters that are not attaining or maintaining applicable water quality standards or protecting designated uses—or that are threatened by reasonable foreseeable increases in pollution loadings from new or expanding sources—and the land uses that individually or cumulatively cause or threaten water quality impairments in those coastal waters. There are processes in place in Illinois to meet this goal; the most applicable is IEPA's implementation of Sections 303(d), 305(b) and 314 of the Clean Water Act. Section 303(d) of the 1972 Clean Water Act requires States to identify lakes and streams that do not support their designated use(s). IEPA assesses lakes and streams for their designated uses on a two year cycle and reports this information through the Illinois Integrated Water Quality Report. Designated uses are evaluated through an analysis of biological, physicochemical, physical habitat and toxicity data for these lakes and streams. Those waterbodies not supporting their designated use(s) are deemed to be impaired and are identified on a list, called the 303(d) list. The State of Illinois recently issued the 2014 303(d) list (IEPA 2014). (The list is available online at http://www.epa.state.il.us/water/tmdl/303d-list.html.

The IEPA report uses data collected in 2011 for sites in the rotating cycle from a range of monitoring programs, including the Ambient Water Quality Monitoring Network, Intensive Basin Surveys, Facility-Related Stream Surveys, the Fish Contaminant Monitoring Program, the Ambient Lake Monitoring Program, the Illinois Clean Lakes Monitoring Program, the Volunteer Lake Monitoring Program, the Lake Michigan Monitoring Program, TMDL monitoring and other outside sources. For sites not included in the current cycle the most recent available data was used, which can be up to 15 years old. According to the report, the following assessments were made:

- Assessments of indigenous aquatic life use in streams were updated in this cycle using water data through 2011 from various sources. Indigenous aquatic life use was not updated this cycle for Lake Calumet because no new data were available.
- Assessments of primary contact use and secondary contact use in streams were updated with Ambient Water Quality Monitoring Network data from 2007 through 2011. Because there were no new fecal coliform samples collected in lakes since the last report, no new assessments of primary contact use or secondary contact use were made for freshwater lakes.
- Assessments of fish consumption use were generally updated with Fish Contaminant Monitoring Program data from 2011. In some cases, older data may also have been used.
- Aquatic life use and aesthetic quality use in lakes were updated with Ambient Lake Monitoring Program and Illinois Clean Lakes Monitoring Program data from 2011

In total, the areas sampled include 19.7 miles of Lake Michigan shoreline, 58.8 miles of inland streams, 7 unique inland lakes, and 23 additional individual sampling locations (points along streams or the coast). Sampling dates range from 1997 through 2013, with nearly all of the data from 2008 or later. The IEPA

collects chemical, physical, biological, habitat, and toxicity data, depending on the type of water body and the 305(b) list is updated as conditions change. Waters may be added or removed in the future, based upon changing water quality, parameters, criteria, improved data, etc.

Overall, the vast majority of Illinois' Coastal Zone waters that have been sampled are considered impaired in at least one use based on the most recent data available for each sampling location. For inland lakes (Table 8-1), all lakes except for Powderhorn Lake suffer from some form of impairment. Sources of impairment include RCRA hazardous waste sites (for PCBs); atmospheric deposition of mercury; and the combination of runoff from parks, urban areas, and impacts from waterfowl leading to problems with algae, macrophytes, total phosphorus, and total suspended solids (TSS). In many cases the complete causes of impairment are not fully known.

Table 8-1 Impairment status of inland lakes in the Illinois Coastal Zone using most recent IEPA data

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
Lake Calumet	IL_RHO	Fish Consumption	**Impaired**	Polychlorinated biphenyls (PCBs)	RCRA Hazardous Waste Sites
Wolf Lake	IL_RHA	Fish Consumption	**Impaired**	Mercury	Atmospheric Deposition - Toxics
				Polychlorinated biphenyls (PCBs)	Rcra Hazardous Waste Sites
Flatfoot Lake	IL_RHZJ	Fish Consumption	**Impaired**	Mercury	Atmospheric Deposition - Toxics
Powderhorn Lake	IL_RHG	Supports all uses	Good	N/A	N/A
Sand Pond	IL_QZV	Aesthetic Quality	**Impaired**	Aquatic Plants (Macrophytes)	Source Unknown
Lincoln Park - North Pond	IL_QZK	Aesthetic Quality	**Impaired**	Phosphorus, Total	Runoff from Parkland;Urban Runoff/Storm Sewers; Waterfowl
				Total Suspended Solids (TSS)	Runoff from Parkland;Urban Runoff/Storm Sewers; Waterfowl
Jackson Park - South Lagoon	IL_QZM	Fish Consumption	**Impaired**	Mercury	Atmospheric Deposition - Toxics
				Polychlorinated biphenyls (PCBs)	RCRA Hazardous Waste Sites

* indicates that impairment not fully explained by indicated cause of

impairment; unknown cause(s) also exist.

For rivers and streams in the Coastal Zone (Table 8-2), all segments are impaired. Sources of impairment fall into several major categories. Many segments have contaminated sediments impacted by persistent bioaccumulative toxins, including various metals, PCBs, and several types of pesticides. Segments are also frequently impacted by high nutrient inputs and related low levels of dissolved oxygen, stemming from a range of issues such as Combined Sewer Overflows (CSOs), urban runoff and storm sewers, municipal point source discharges, etc. A smaller number of sites are impacted by sediments and total suspended solids. Relatively few sites have impacts from atmospheric deposition of mercury, or from fecal coliform bacteria.

Table 8-2 Impairment status of river and stream segments in the Illinois Coastal Zone using most recent IEPA data.

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
Bull Creek	IL_QG	Aquatic Life	**Impaired**	Pesticides (Aldrin, Endri); Dissolved Oxygen	Contaminated Sediments; Source unknown for Dissolved Oxygen
Kellogg Ravine	IL_QF	Aquatic Life	**Impaired**	Aldrin; Dissolved Oxygen	Contaminated Sediments; Source unknown for Dissolved Oxygen
Dead Dog Creek	IL_QE-01	Aquatic Life	**Impaired**	Aldrin*	Contaminated Sediments *
Waukegan River	IL_QC-05	Aquatic Life	**Impaired**	DDT; Polychlorinated biphenyls (PCBs)	Contaminated Sediments
Waukegan River	IL_QC-03	Aquatic Life	**Impaired**	Pesticides (Aldrin, DDT, Hexachlorobenzen); PCBs; Dissolved Oxygen	Contaminated Sediments; Source unknown for Dissolved Oxygen
Pettibone Creek	IL_QA-C4	Aquatic Life	**Impaired**	Mercury; Other Metals (Arsenic, Copper, Lead, Manganese, Nickel, Silver, Zinc); Pesticides (Alpha-BHC, Dieldrin, Endrin); PCBs	Contaminated Sediments
S. Branch Pettibone Creek	IL_QAA-D1	Aquatic Life	**Impaired**	Pesticides (Alpha-BHC, Endrin, Heptachlor); PCBs	Contaminated Sediments

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
North Shore Channel	IL_HCCA-04	Fish Consumption	**Impaired**	Mercury; PCBs	Atmospheric deposition*
North Shore Channel	IL_HCCA-02	Aquatic Life	**Impaired**	Dissolved Oxygen; pH; Total Phosphorus	Combined Sewer Overflows; Upstream Impoundments; Municipal Point Source Discharges; Urban Runoff/Storm Sewers
N. Branch Chicago River	IL_HCC-08	Fish Consumption	**Impaired**	Mercury; PCBs	Atmospheric deposition*
		Aquatic Life	**Impaired**	Dissolved Oxygen; Iron; Total Phosphorus; Total Dissolved Solids	Combined Sewer Overlows (CSOs); Impacts from Hydrostructure Flow Regulation; Urban Runoff/Storm Sewers; Municipal Point Source Discharges
N. Branch Chicago River	IL_HCC-07	Aquatic Life	**Impaired**	Pesticides (Aldrin, DDT, Hexachlorobenzen); Alteration in Streamside Vegetation Cover; Chloride; Dissolved Oxygen; Total Phosphorus; Total Suspended Solids	Channelization; CSOs; Contaminated Sediments; Highway/Road/Bridge Runoff (non-construction); Muicipal Point Source Discharges; Streambank Modifications; Urban Runoff/Storm Sewers
		Fish Consumption	**Impaired**	PCBs	Source Unknown
		Primary Contact	**Impaired**	Fecal Coliform	CSOs; Urban Runoff/Storm Sewers
N. Branch Chicago River	IL_HCC-02	Fish Consumption	**Impaired**	Mercury; PCBs	Atmospheric deposition*
South Branch Chicago River	IL_HC-01	Fish Consumption	**Impaired**	PCBs	Source Unknown
		Aquatic Life	**Impaired**	Dissolved Oxygen; Total Dissolved Solids; Total Phosphorus	CSOs; Urban Runoff/Storm Sewers

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
Little Calumet River South	IL_HB-01	Primary Contact	**Impaired**	Fecal Coliform	CSOs; Urban Runoff/Storm Sewers
		Aquatic Life	**Impaired**	Pesticides (Chlordane, Endrin, Hexachlorobenzene); Chloride; Dissolved Oxygen; Total Phosphorus; Sedimentation/Siltation	Contaminated Sediments; CSOs; Municipal Point Source Discharges; Urban Runoff/Storm Sewers
Grand Calumet River	IL_HAB-41	Aquatic Life	**Impaired**	Metals (Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Nickel, Silver, Zinc); Ammonia; Dissolved Oxygen; DDT; PCBs; Total Phosphorus; Sedimentation/Siltation	Channelization; CSOs; Contaminated Sediments; Municipal Point Source Discharges; Urban Runoff/Storm Sewers
Calumet River	IL_HAA-01	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric deposition*
		Primary Contact	**Impaired**	Fecal Coliform	CSOs; Urban Runoff/Storm Sewers
Little Calumet River North	IL_HA-05	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric deposition*
		Aquatic Life	**Impaired**	Aldrin, Dissolved Oxygen, Total Phosphorus, Silver	Contaminated Sediments; CSOs; Channelization; Upstream Impoundments; Municipal Point Source Discharges; Urban Runoff/Storm Sewers
Little Calumet River North	IL_HA-04	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric deposition*
		Aquatic Life	**Impaired**	Dissolved Oxygen, Iron, Total Dissolved Solids	Contaminated Sediments; CSOs; Urban Runoff/Storm Sewers
Calumet-Sag	IL_H-02	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric deposition*

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
Channel		Aquatic Life	**Impaired**	Dissolved Oxygen, Iron, Total Dissolved Solids	Contaminated Sediments; CSOs; Urban Runoff/Storm Sewers
Chicago Sanitary & Ship Canal	IL_GI-03	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric deposition*
		Aquatic Life	**Impaired**	Dissolved Oxygen, Total Phosphorus	Channelization, CSOs, Impacts From Hydrostructure Flow Regulation; Municipal Point Source Discharges; Urban Runoff/Storm Sewers

* indicates that impairment not fully explained by indicated cause of impairment; unknown cause(s) also exist.

IEPA considers the waters of Lake Michigan in several categories. For harbors (Table 8-3), all harbor units are considered impaired for fish consumption due to PCBs and atmospheric deposition of mercury. Waukegan Harbor is also listed as impaired for aquatic life due to a combination of contaminated sediments, industrial point source discharges, and urban runoff/storm sewers. However, recent dredging of Waukegan Harbor sediments associated with a Remedial Action Plan should result in the removal of this impairment in the next round of monitoring. For the Lake Michigan shoreline, all 63 miles of Illinois' Lake Michigan shoreline are considered impaired for fish consumption and for primary contact, including all 51 Lake Michigan beaches. The fish consumption impairment is caused by atmospheric deposition of mercury and by PCBs. Primary contact issues are due to *Escherichia coli* contamination due in one case to CSOs and urban runoff/storm sewers, but in most cases sources are not known. A TMDL has been completed and approved for all Lake Michigan beaches.

Table 8-3 Impairment status of Lake Michigan harbors in the Illinois Coastal Zone using most recent IEPA data.

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
North Point Marina Harbor	IL_QH	Fish Consumption	**Impaired**	Mercury, Polychlorinated biphenyls (PCBs)	Atmospheric Deposition - Toxics *
Waukegan Harbor	IL_QZO	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric Deposition - Toxics, Contaminated Sediments *

Name	Waterbody Code	Designated Use	Status	Cause of Impairment	Probable Source(s)
		Aquatic Life	**Impaired**	Mercury, PCBs, Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Zinc), Total Phosphorus	Atmospheric Deposition - Toxics, Contaminated Sediments, Industrial Point Discharge, Urban Runoff/Storm Sewers *
Diversey Harbor	IL_QZI	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric Deposition - Toxics *
Calumet Harbor	IL_3S	Fish Consumption	**Impaired**	Mercury, PCBs	Atmospheric Deposition - Toxics *

* indicates that impairment not fully explained by indicated cause of impairment; unknown cause(s) also exist.

8.2. Land Uses Contributing to Degradation of Coastal Waters

According to the §6217(g) guidance, states must identify those land uses that individually or cumulatively cause or contribute to coastal water quality impairments. The land uses should include the general nonpoint sources categories and subcategories described in the guidance and other land uses not mentioned in the guidance that are or may be sources of runoff and infiltration to coastal waters. As noted in Table 1-1, the Illinois Coastal Zone has largely been converted to urban land uses, at just over 60% of the area. Of the remaining amount, 32% is in categories of open space that are mostly types of recreational or unforested conservation land, or in forested and wetland areas also under some form of conservation. Another 5% is water.

Given these statistics, it is clear that the impairments of Illinois coastal waters due to land use result from the combined, cumulative effects of extensive urban land cover. The guidance asks us to consider whether current or future uses are likely to result in additional water quality impairments. However, the land use of the Illinois Coastal Zone is highly unlikely to change in any substantial way that would increase impairments. Currently most land that can be converted to urban uses either already has been converted or it has been protected as conservation or recreational land (Figure 8-1).

Water quality impairments in Illinois coastal waters are caused by a wide range of sources, many of which are unrelated to land use. Sources of impairment noted above are summarized in Table 8-4 and include a significant proportion of waters impacted by atmospheric deposition of toxins such as mercury; existing contaminated sediments; and industrial and municipal point discharges. None of these sources are the result of land use practices.

In addition, a large number of impairments (>40%, Table 8-4) are the result of sources that have not been identified. Figure 8-2 identifies those waterways where additional research is needed to confirm sources of impairment. Nearly all of these are associated with impairments due to mercury; polychlorinated biphenyls; dissolved oxygen; and *Escherichia coli*.

Some land uses are associated with impairments in Illinois coastal waters, however. By far the greatest of these is urban landcover, the predominant land use in the Coastal Zone. Urban runoff particularly from stormwater is associated with a range of impairments, particularly heavy metals.

Runoff associated with parklands is also associated with some Coastal Zone impairments, in relation to macrophytes and algal growth. Parklands can also be associated with excess waterfowl numbers, resulting in impairments related to nutrients.

Table 8-4 Sources of impairments in Illinois Coastal Zone 305(d) Impaired Waters

Source	% of 305(d) Impaired Segments Impacted
Atmospheric Deposition - Toxics	14.93%
Contaminated Sediments	14.25%
Combined Sewer Overflows	8.14%
Urban Runoff/Storm Sewers	7.47%
Industrial Point Source Discharge	2.71%
Channelization	2.26%
Impacts from Hydrostructure Flow Regulation/Modification	2.26%
Upstream Impoundments	1.58%
Sediment Resuspension (Contaminated Sediment)	0.90%
Runoff from Forest/Grassland/Parkland	0.68%
Waterfowl	0.68%
RCRA Hazardous Waste Sites	0.45%
Highway/Road/Bridge Runoff (Non-construction Related)	0.23%
Streambank Modifications/Destabilization	0.23%
Source Unknown	43.21%

8.3. Critical Coastal Areas (Adjacent to Threatened and Impaired Coastal Waters)

The §6217(g) guidance asks for the identification of "critical coastal areas" that are associated with or adjacent to threatened and impaired coastal waters. The Illinois Coastal Zone is unusual compared to many states in its highly urbanized nature. Resulting in part from intensive urban land use, nearly all of the waters of the Coastal Zone are impaired in some manner. Therefore, it is difficult to identify particular areas that would stand out as critical over other areas.

According to the guidance, states may identify a critical coastal area based on applying a buffer strip along the shoreline adjacent to impaired coastal waters. ICMP considers this a reasonable approach for Illinois, and as such we consider the entire 63 mile length of our Lake Michigan coast to be a 'critical coastal area'. We recommend a buffer length of 0.25 mile, which in many places will include the full width of the Coastal Zone.

8.4. Other Efforts Dealing with Impaired Coastal Waters [LaMP, RAP, TMDLs]

As an outcome of the 1987 amendments to the Great Lakes Water Quality Agreement (originally signed by the United States and Canada in 1972), each lake including Lake Michigan has a Lakewide Management Plan (LAMP). The LAMPs focus on the open waters of the lakes and are intended "to identify critical pollutants that affect beneficial uses of the lakes and to present strategies, recommendations and policy options to restore those beneficial uses." They are updated every two years. The Lake Michigan LAMP includes strategies addressing a range of issues related to coastal nonpoint pollution including inputs of mercury, CSOs, and other the development of TMDLs.

Information on the Lake Michigan LAMP is available here:

http://epa.gov/greatlakes/lakemich/index.html

Remedial Action Plans (RAPs) are developed for specific nearshore sites with severe pollution issues, termed Great Lakes Areas of Concern (AOCs). The Waukegan Harbor is the only AOC in the Illinois Coastal Zone, and steady progress at delisting the AOC has been made under the leadership of the Waukegan Harbor Citizens Advisory Group (CAG). Most recently the CAG has overseen dredging of contaminated sediments in the harbor and applied for removal of the associated Dredging Beneficial Use Impairment (BUI).

Information on cleanup of the Waukegan Harbor AOC is available here:

http://www.epa.gov/greatlakes/aoc/waukegan/index.html#restoration

Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for pollutants identified as causing impairments to water bodies that are not meeting designated uses under technology-based controls (such as secondary treatment). The TMDL process establishes the allowable loading of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and instream conditions. This allowable loading represents the maximum quantity of the pollutant that the waterbody can receive without exceeding water quality standards. The TMDL also takes into account a margin of safety, which accounts for scientific uncertainty, as well as the effects of seasonal variation. Once the reduction required is established, that number is further divided up into the Waste Load Allocation (point sources) and Load Allocation (nonpoint sources and background sources). Each point source is given a specific allocation. By following the TMDL process, States can

establish water quality-based controls to reduce pollution from both point and nonpoint sources, and restore and maintain the quality of their water resources (USEPA, 1991).

The Illinois coastal zone has numerous impaired waterbodies as noted above. There are two TMDLs prepared by to date for sections of the Illinois Coastal Zone. One covers the 51 Lake Michigan beaches (RTI 2013a, RTI 2013b, RTI 2013c) focusing on E. coli (coliform bacteria) loads. This TMDL has been fully approved. The second TMDL covers several segments of the North Branch of the Chicago River, including one segment in the Coastal Zone (ID code IL_HCC-07). The TMDL covers chloride, fecal coliform, and dissolved oxygen. This TMDL is in Stage 3 of the approval process.

8.5. Process for Selecting and Implementing Additional Management Measures

As noted above, the vast majority of water bodies and shoreline segments in the Illinois Coastal Zone suffer from some form of impairment. Nevertheless, most of the land area in the Coastal Zone has already been converted to urban land cover, with most of the remaining consisting of recreational or unforested conservation land, or forested and wetland areas also under some form of conservation. There is little reason to anticipate the need for additional management measures based on new types of land use; much of the impacts on coastal water quality appear to stem from the cumulative impacts of urban land cover.

Many of the impairments suffered by coastal water bodies are the result of processes operating well beyond the boundaries of the Coastal Zone or even the state of Illinois (Table 8-4). A large number of the impairments stem from atmospheric deposition (particularly fish consumption impairments resulting from atmospheric deposition of mercury and/or PCBs), which operate on a large geographic scale. Many impairments to aquatic life stem from existing contaminated sediments which are also beyond the scope of what ICMP has the ability to manage. In addition, over 40% of the waterways suffer an impairment whose source is at least partially unidentified. It is unreasonable for ICMP to propose new Management Measures for many of these impairments.

In addition to the existing Management Measures, ICMP will be implementing additional strategies to address coastal nonpoint source pollution based on the recommendations of our stakeholders and experts on our Advisory Panel (see section 2.6). We anticipate seeing benefits from these actions. Through our coordination with IEPA and their existing water monitoring programs, ICMP will track coastal water quality trends in the future and on a regular, periodic basis to assess whether trends indicate the need to identify additional management measures.

Our process for selecting and implementing any additional management measures will involve the following:

- Annual tracking of water quality monitoring data (see section 2.5, Water Quality Monitoring and Tracking Techniques).

- Every five years, consulting on whether trends warrant identification of additional management measures with (1) representatives of the experts on our Advisory Panel for the Coastal Nonpoint Program (see Appendix 2), and (2) the Illinois Coastal Management Program Technical Advisory Committee.
- Conduct outreach to various stakeholders including representatives of federal, state and local government that manage land uses in the Illinois Coastal Zone for input on any proposed additional management measures. In addition, any discussions about possible additional management measures will include interested members of the public.

Once Illinois receives full or conditional approval from NOAA and EPA of the Coastal Nonpoint Program, the state will submit a 15-year program strategy for achieving full implementation of the §6217(g) management measures. Nested within the 15-year strategy will be a more specific 5-year implementation plan. These plans will include the process for monitoring and evaluating the success of management measures in conformity with the guidance as well as the time frame for implementation of additional management measures if such measures are needed.

Chapter 9. Summary

The Illinois Coastal Management Program has completed a careful, extensive analysis considering how the State of Illinois can implement an effective Coastal Nonpoint Pollution Control Program. The State's program must meet the requirements of §6217 of the federal Coastal Zone Act Reauthorization Amendments and also respond to specific local needs and opportunities. As put forth in the preceding chapters, the State of Illinois has established the regulatory basis for managing nonpoint pollution, and both the State and local units of government have developed many programs to minimize such pollution. Chief among these is the IEPA's Illinois Nonpoint Source Management Program (commonly referred to as Section 319, in relation to the relevant portion of the Clean Water Act) as well as various programs managed by MWRD and LCSMC.

Section 6217 requires each state Coastal Management Program to address specific Management Measures under seven major sources of nonpoint pollution. Among these, the State of Illinois has requested exclusion from addressing agricultural sources and forestry sources because such land uses cover a very low proportion of the Illinois Coastal Zone. In addition, our Coastal Zone is unusual in that virtually the entire area is governed by NPDES stormwater regulations. USEPA and NOAA have identified ten of the Management Measures related to "urban" and "hydromodification" sources as being covered under NPDES. Therefore, ICMP has requested exclusions for these Management Measures along with several others dealing with issues that are absent from our Coastal Zone, such as specific types of dams and with on-site sewage disposal systems.

As a result, the CNPCP is focused on a specific set of Management Measures noted in Table 9-1. Chapters 4 through 7 discuss the various programs underway in the Illinois Coastal Zone that address the requirements of each of these Management Measures. Some programs, such as the Illinois Clean

Marina Program, are housed primarily within ICMP. Many others are housed in other agencies such as IEPA, MWRD, and LCSMC but are connected to the CNPCP through close coordination.

Table 9-1 Management Measures addressed by the Illinois CNPCP.

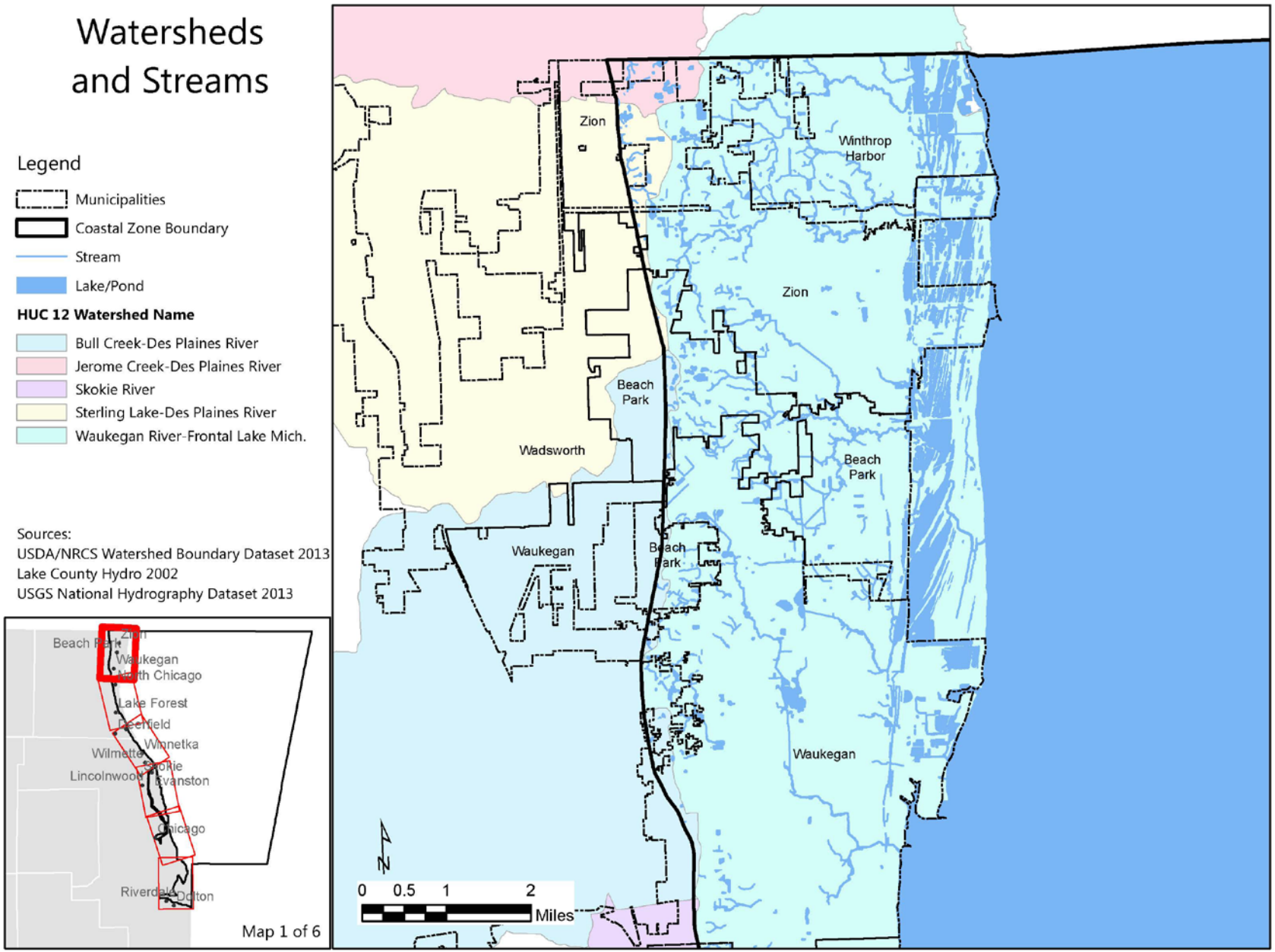
Source Category	Management Measure	Document Section
Urban Areas	Watershed Protection	4.3.2
Urban Areas	Site Development	4.3.3
Urban Areas	Pollution Prevention	4.3.9
Urban Areas	Planning, Siting, & Developing Roads & Highways	4.3.10
Urban Areas	Bridges	4.3.11
Marinas & Recreational Boating	Marina Flushing	5.3.1
Marinas & Recreational Boating	Water Quality Assessment	5.3.2
Marinas & Recreational Boating	Habitat Assessment	5.3.3
Marinas & Recreational Boating	Shoreline and Bank Stabilization	5.3.4
Marinas & Recreational Boating	Stormwater Runoff	5.3.5
Marinas & Recreational Boating	Fueling Station Design	5.3.6
Marinas & Recreational Boating	Sewage Facilities	5.3.7
Marinas & Recreational Boating	Solid Waste	5.3.8
Marinas & Recreational Boating	Fish Waste	5.3.9
Marinas & Recreational Boating	Liquid Material	5.3.10
Marinas & Recreational Boating	Petroleum Control	5.3.11
Marinas & Recreational Boating	Boat Cleaning	5.3.12
Marinas & Recreational Boating	Public Education & Outreach	5.3.13
Marinas & Recreational Boating	Maintenance of Sewage Facilities	5.3.14
Marinas & Recreational Boating	Boat Operation	5.3.15
Hydromodification	Physical and Chemical Characteristics of Surface Water for Channelization and Channel Modification	6.3.1
Hydromodification	Instream and Riparian Habitat Restoration for Channelization and Channel Modification	6.3.2
Hydromodification	Streambank and Shoreline Erosion	6.3.6
Wetlands, Riparian Areas, and Vegetated Treatment Systems	Protection of Wetlands and Riparian Areas	7.3.1
Wetlands, Riparian Areas, and Vegetated Treatment Systems	Restoration of Wetlands and Riparian Areas	7.3.2
Wetlands, Riparian Areas, and Vegetated Treatment Systems	Vegetated Treatment Systems	7.3.3

Through the process of developing the CNPCP, ICMP worked with a set of expert stakeholders on our Advisory Panel to identify opportunities to increase the impact of existing nonpoint pollution control in the Coastal Zone. Most of our coastal waters suffer from some form of impairment as documented by IEPA, although many of these issues stem from sources beyond the purview of the CNPCP such as atmospheric deposition of pollutants like mercury, or sediments contaminated with industrial pollutants. Nevertheless, the CNPCP Advisory Panel identified a set of actions summarized by ten goals that ICMP can pursue to further reduce coastal nonpoint pollution, as described in section 2.6. As part of this ongoing program, ICMP will continue implementing opportunities for broad public participation in the CNPCP.

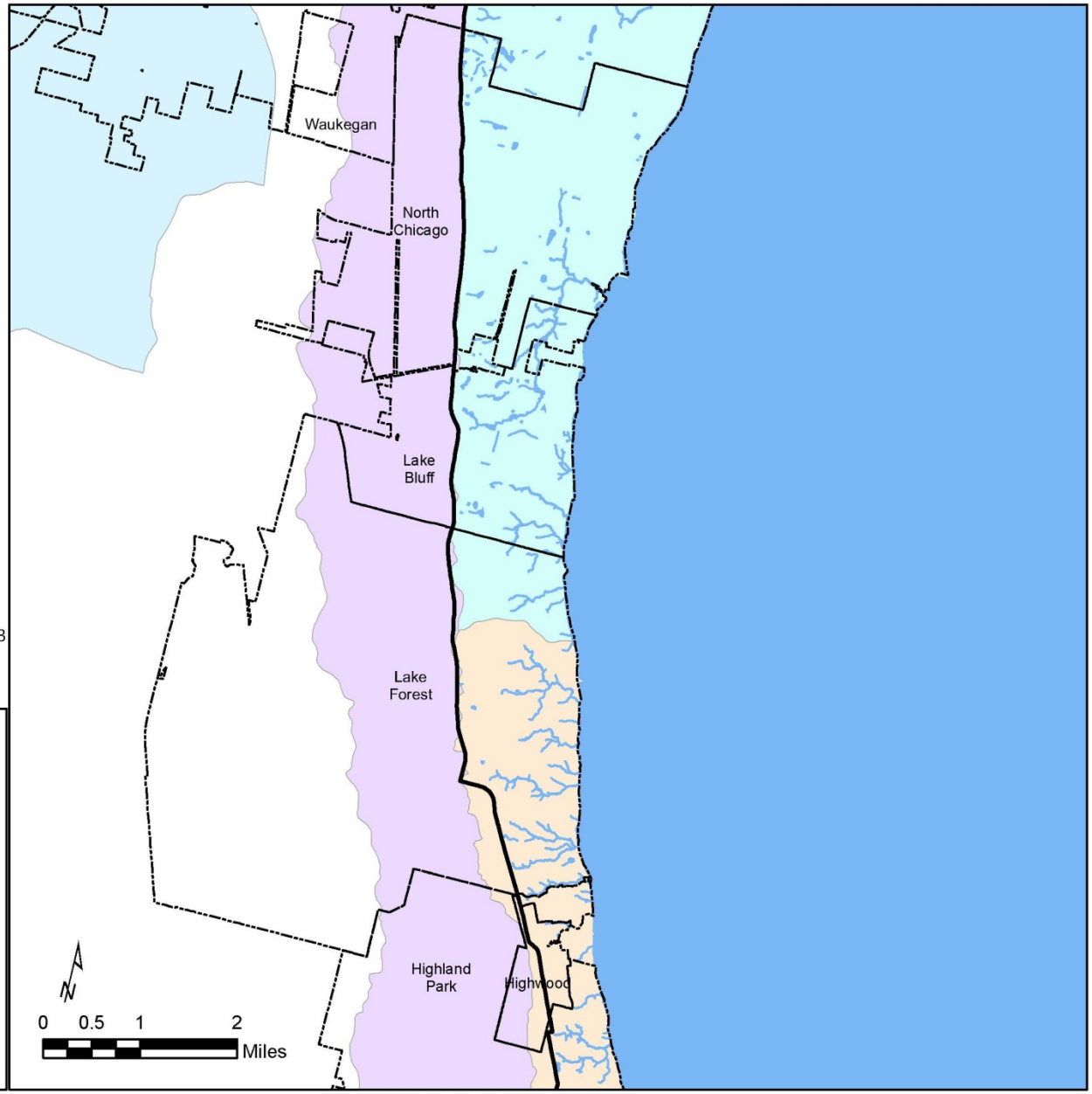
Illinois' CNPCP consists of a network of programs led by ICMP and integrated with the established programs of partner agencies in IEPA and local agencies. Support for the development of the program will come through extensive coordination among these and other partners. We anticipate significant benefits to the coastal waters of Illinois as a result of this program.

Appendix 1: Large-format Maps of the Coastal Zone

Figure 1-2 Watersheds and Streams in the Coastal Zone



Watersheds and Streams



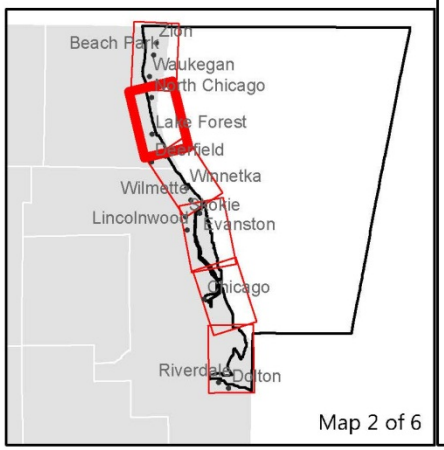
Legend

- Municipalities
- Coastal Zone Boundary
- Stream
- Lake/Pond

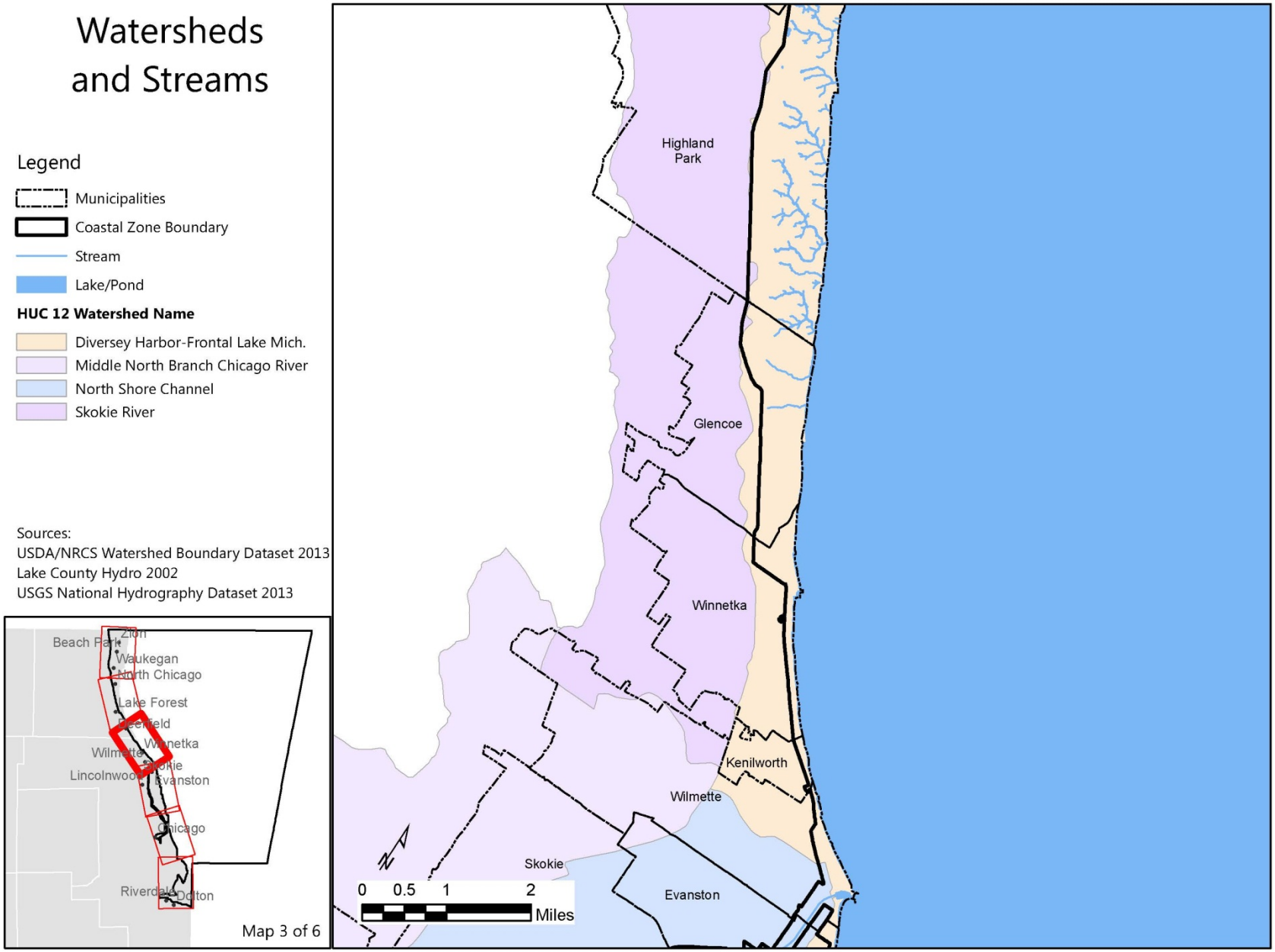
HUC 12 Watershed Name

- Bull Creek-Des Plaines River
- Diversey Harbor-Frontal Lake Mich.
- Skokie River
- Waukegan River-Frontal Lake Mich.

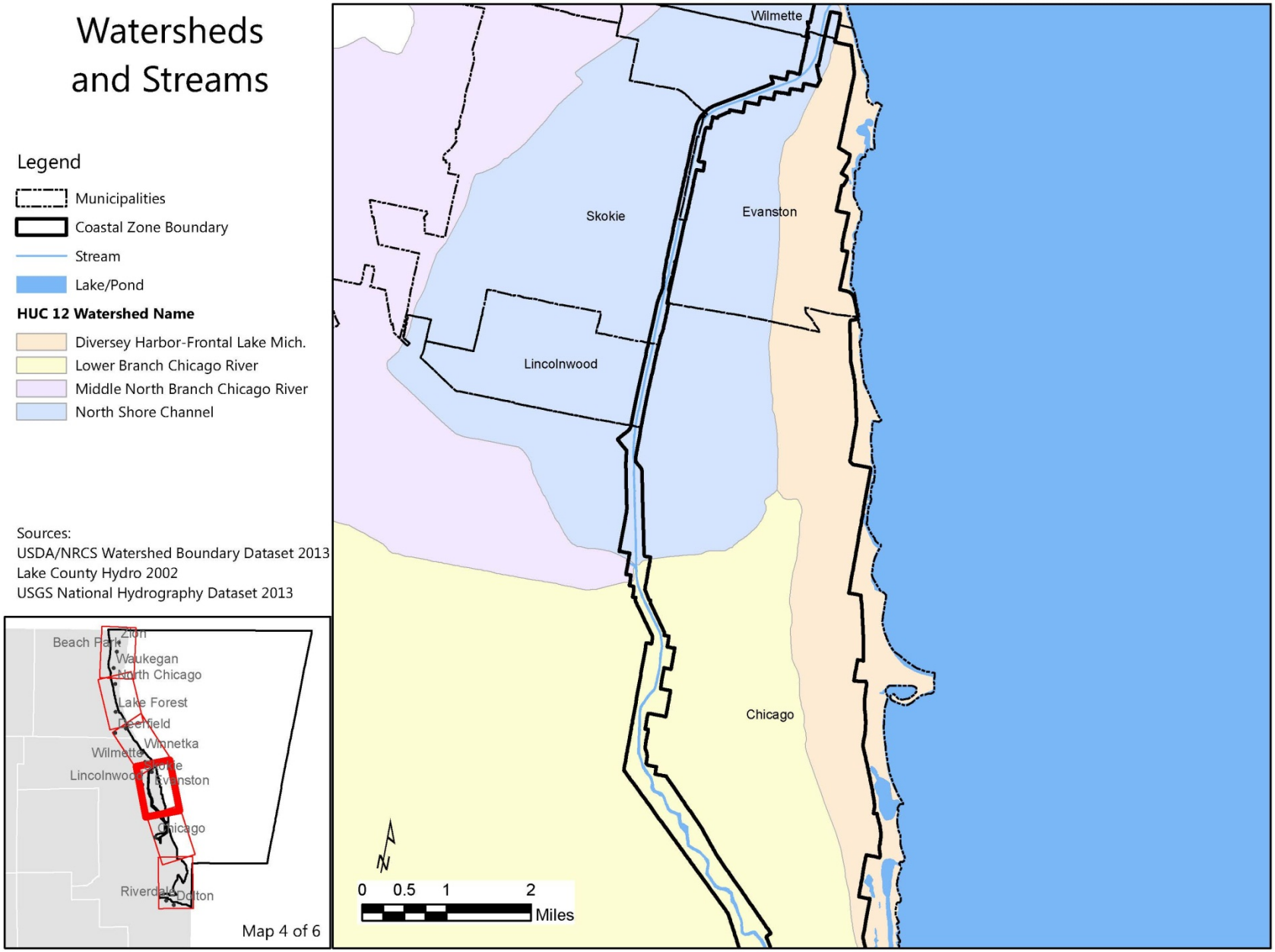
Sources:
USDA/NRCS Watershed Boundary Dataset 2013
Lake County Hydro 2002
USGS National Hydrography Dataset 2013



Watersheds and Streams

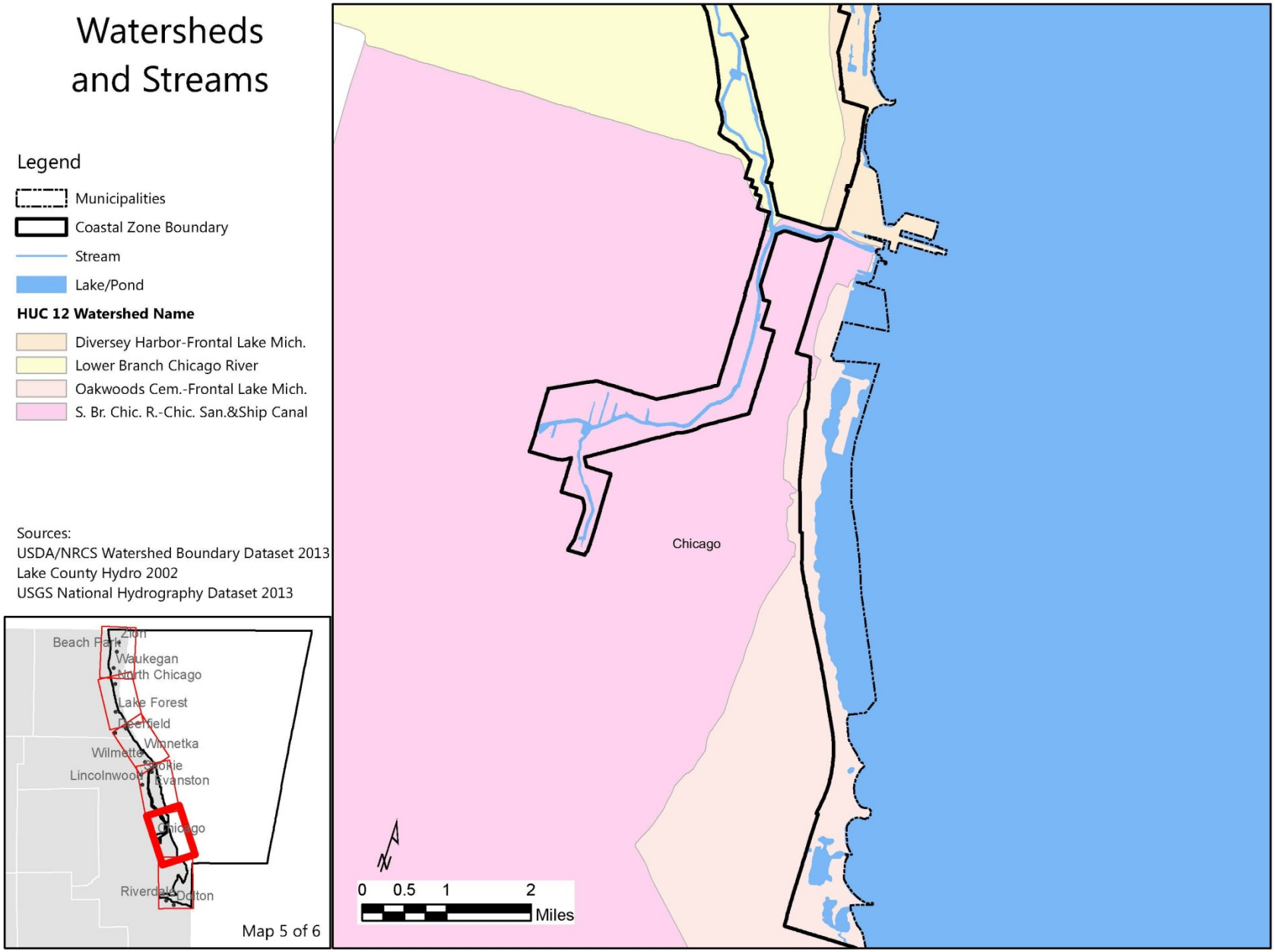


Watersheds and Streams



Sources:
USDA/NRCS Watershed Boundary Dataset 2013
Lake County Hydro 2002
USGS National Hydrography Dataset 2013

Watersheds and Streams



Watersheds and Streams

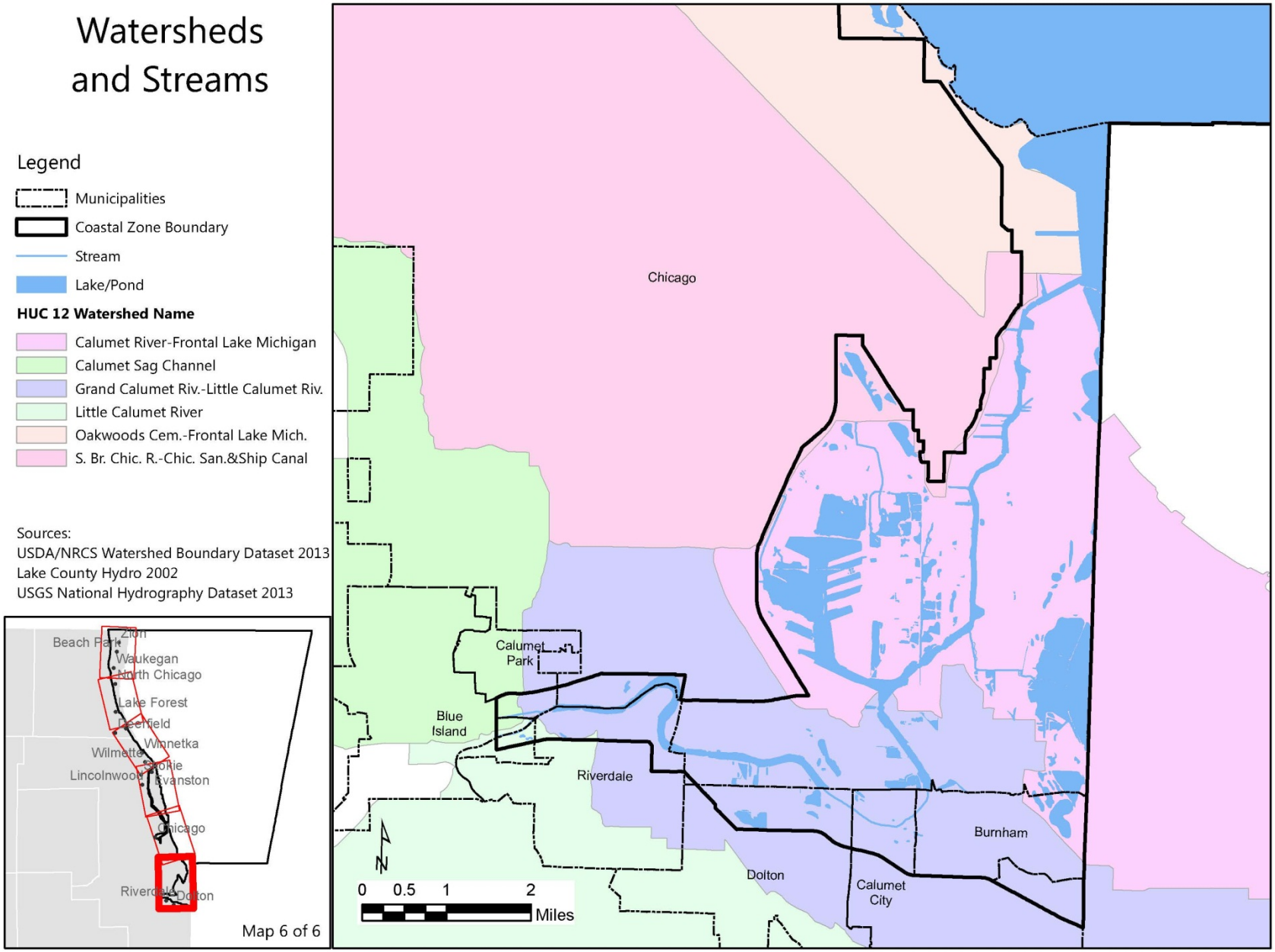
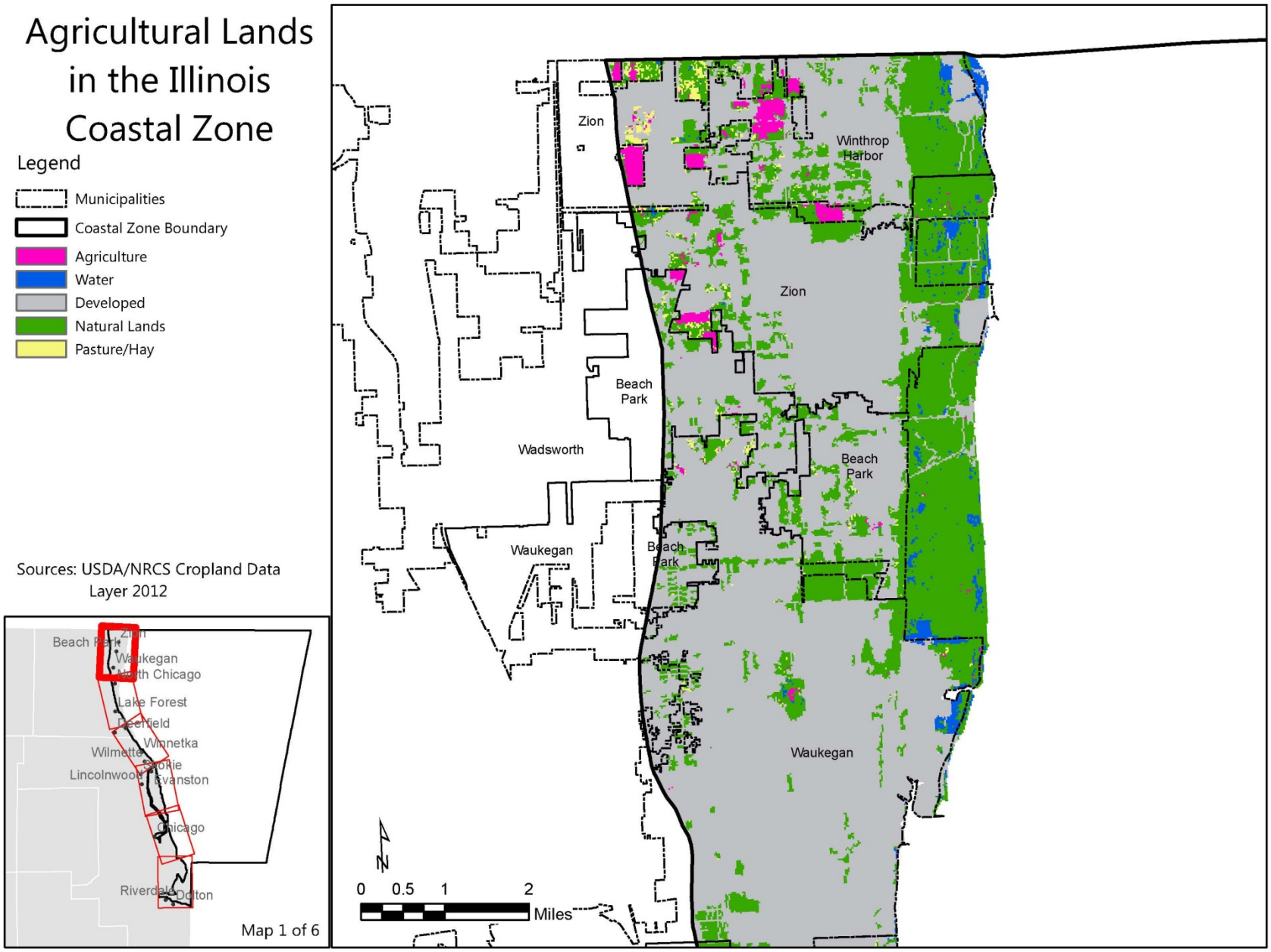
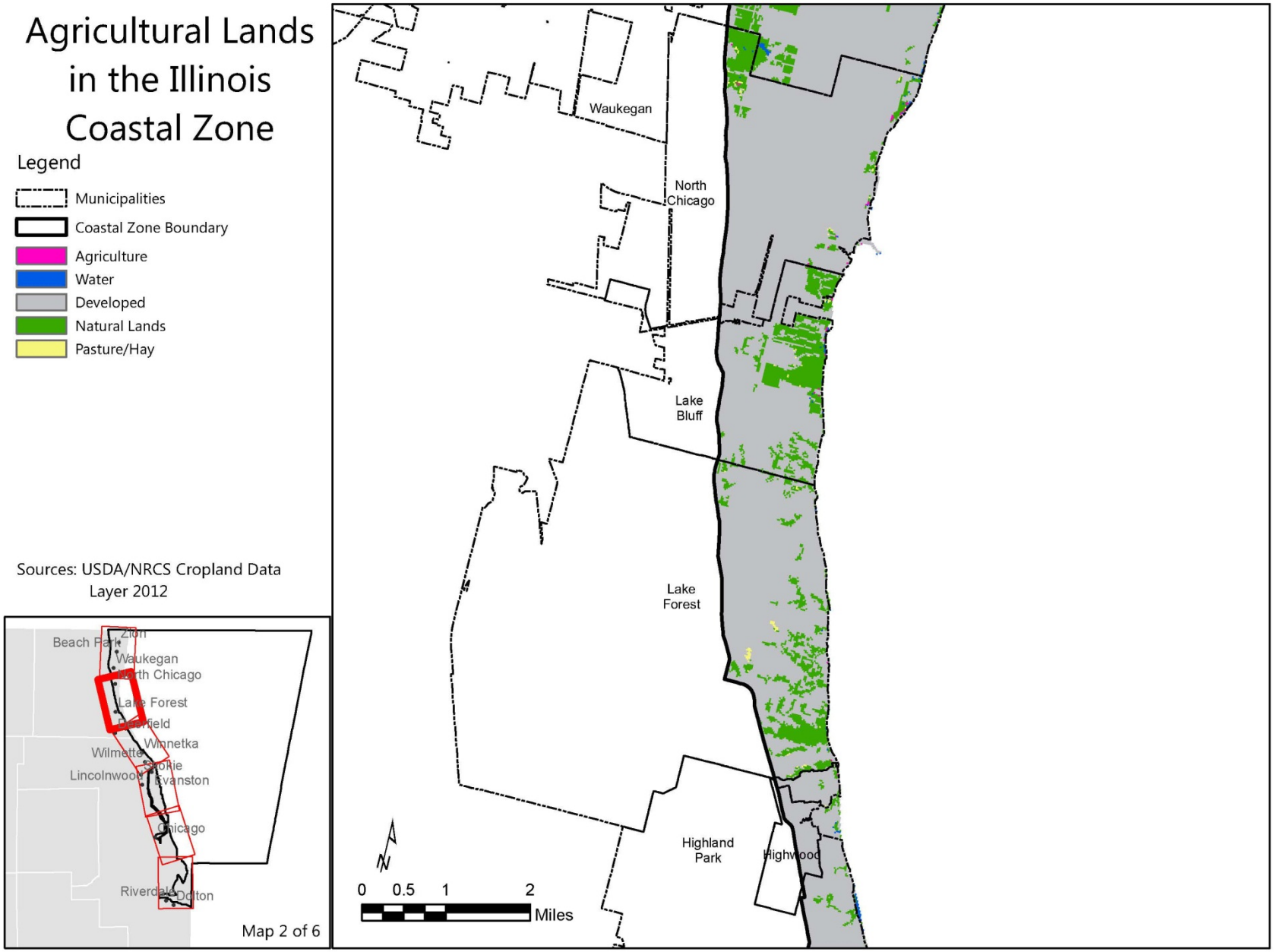


Figure 2-1 Agricultural Lands in the Illinois Coastal Zone



Agricultural Lands in the Illinois Coastal Zone



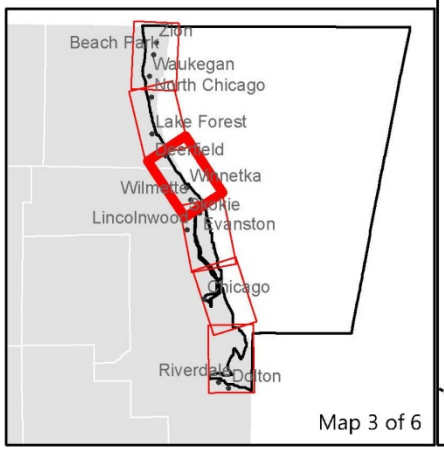
Sources: USDA/NRCS Cropland Data Layer 2012

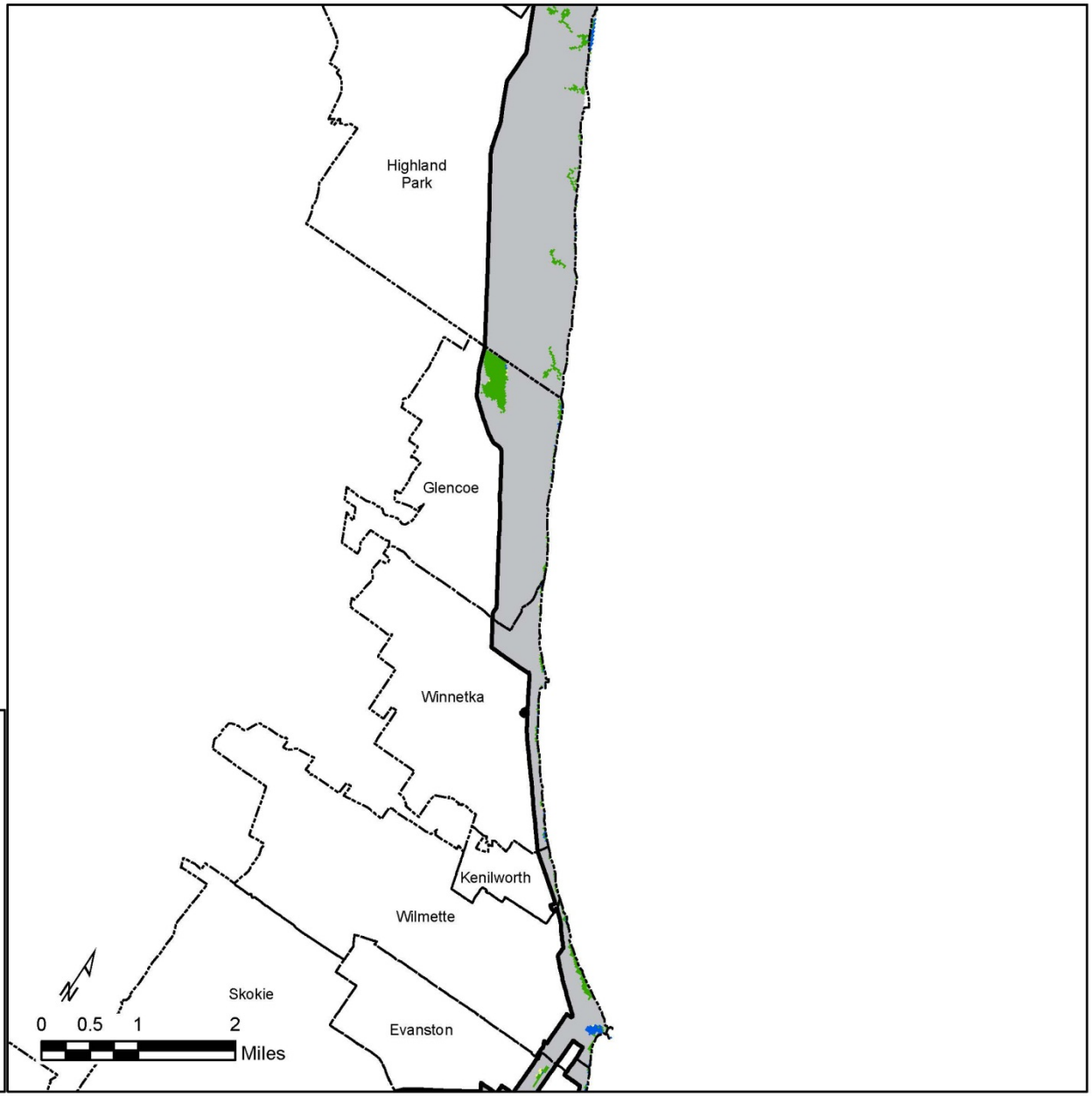
Agricultural Lands in the Illinois Coastal Zone

Legend

- Municipalities
- Coastal Zone Boundary
- Agriculture
- Water
- Developed
- Natural Lands
- Pasture/Hay

Sources: USDA/NRCS Cropland Data Layer 2012



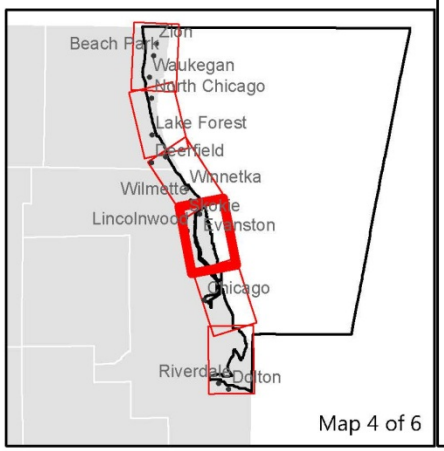


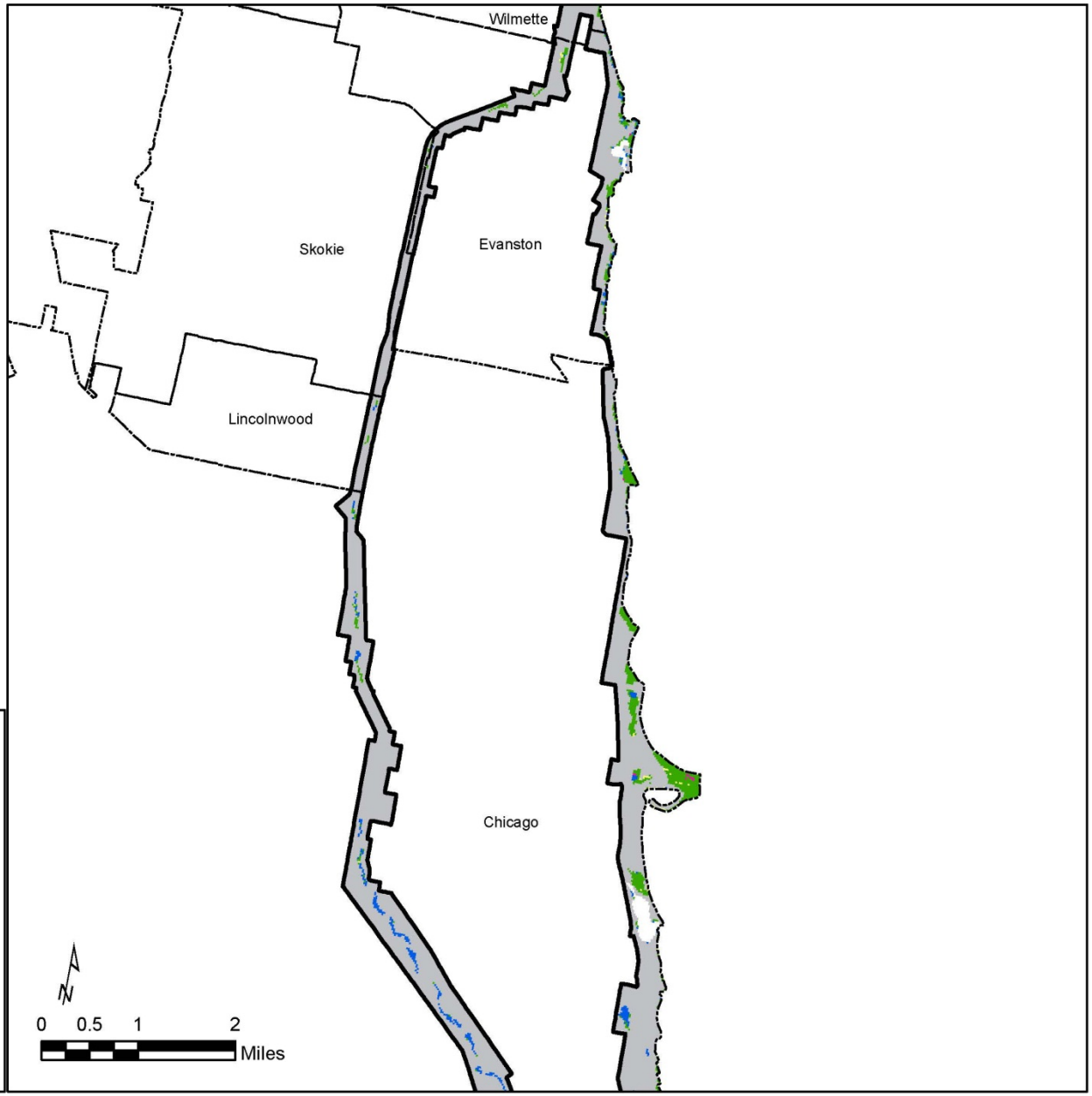
Agricultural Lands in the Illinois Coastal Zone

Legend

- Municipalities
- Coastal Zone Boundary
- Agriculture
- Water
- Developed
- Natural Lands
- Pasture/Hay

Sources: USDA/NRCS Cropland Data Layer 2012



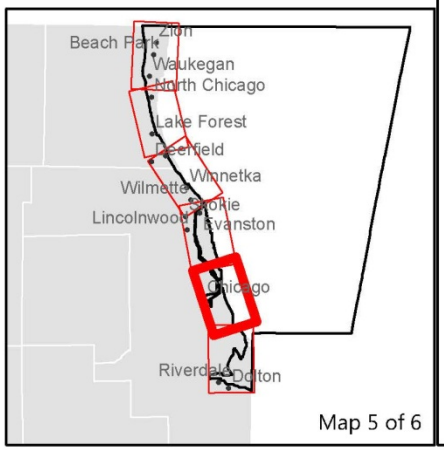


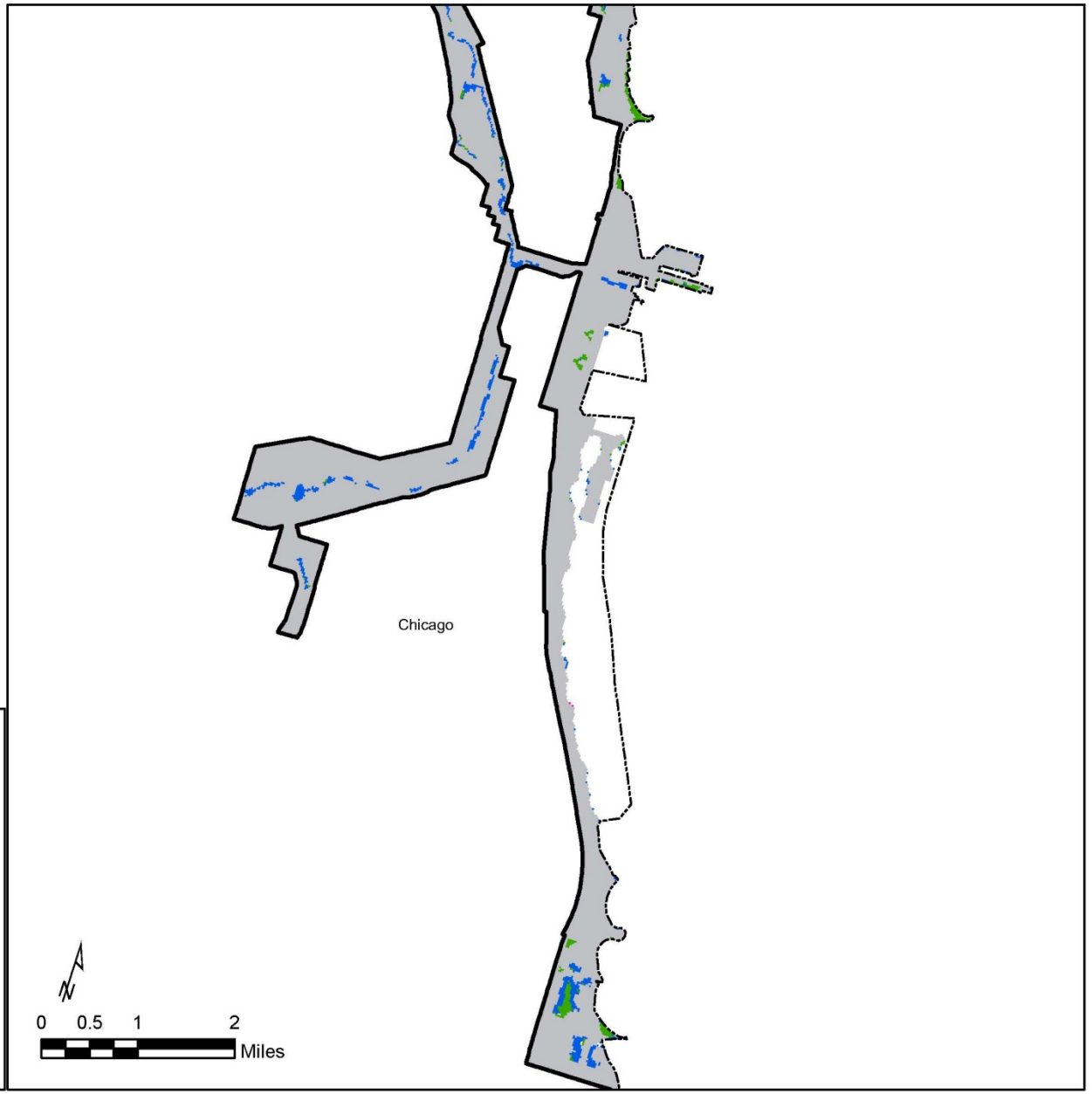
Agricultural Lands in the Illinois Coastal Zone

Legend

- Municipalities
- Coastal Zone Boundary
- Agriculture
- Water
- Developed
- Natural Lands
- Pasture/Hay

Sources: USDA/NRCS Cropland Data Layer 2012





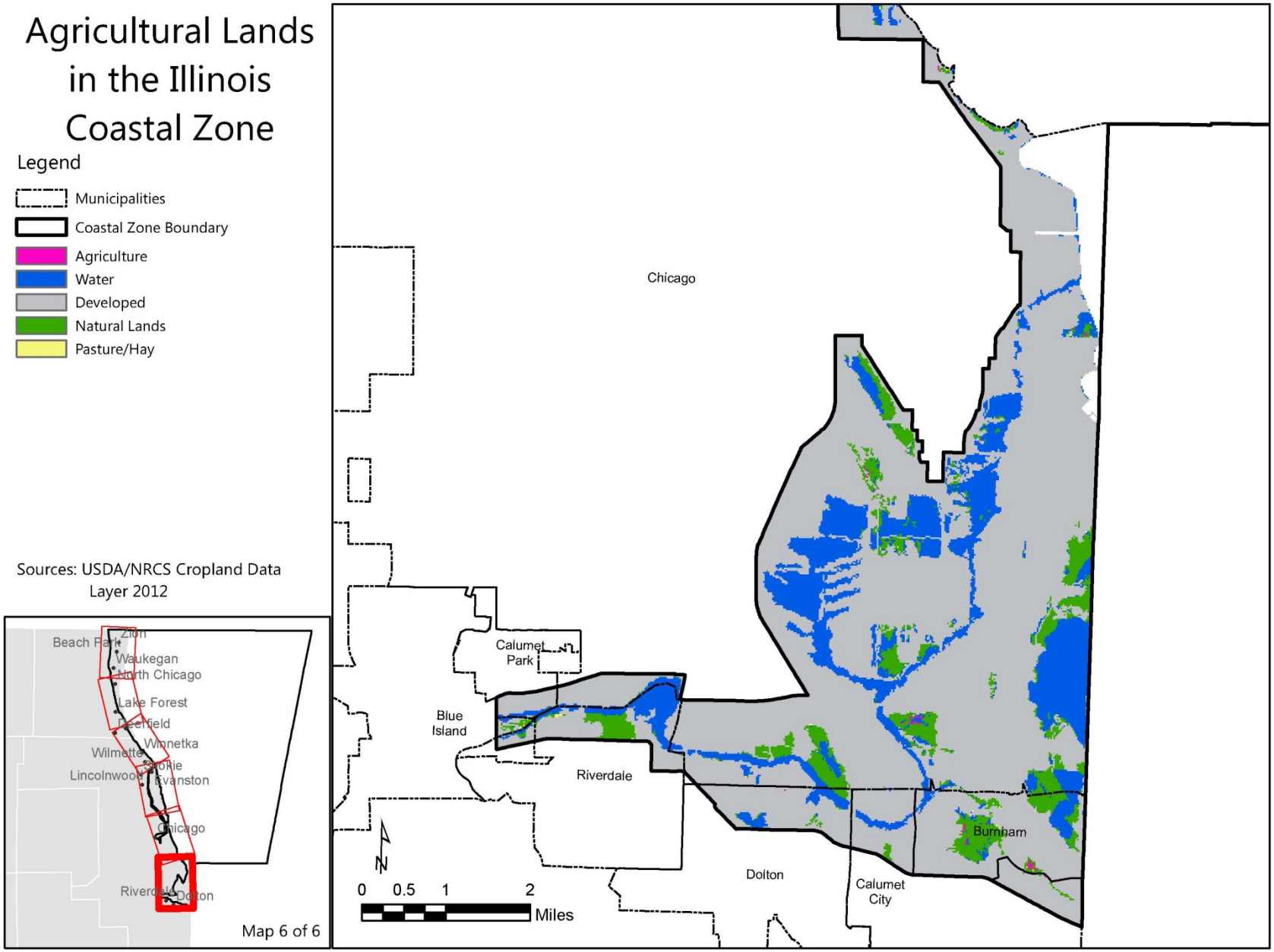
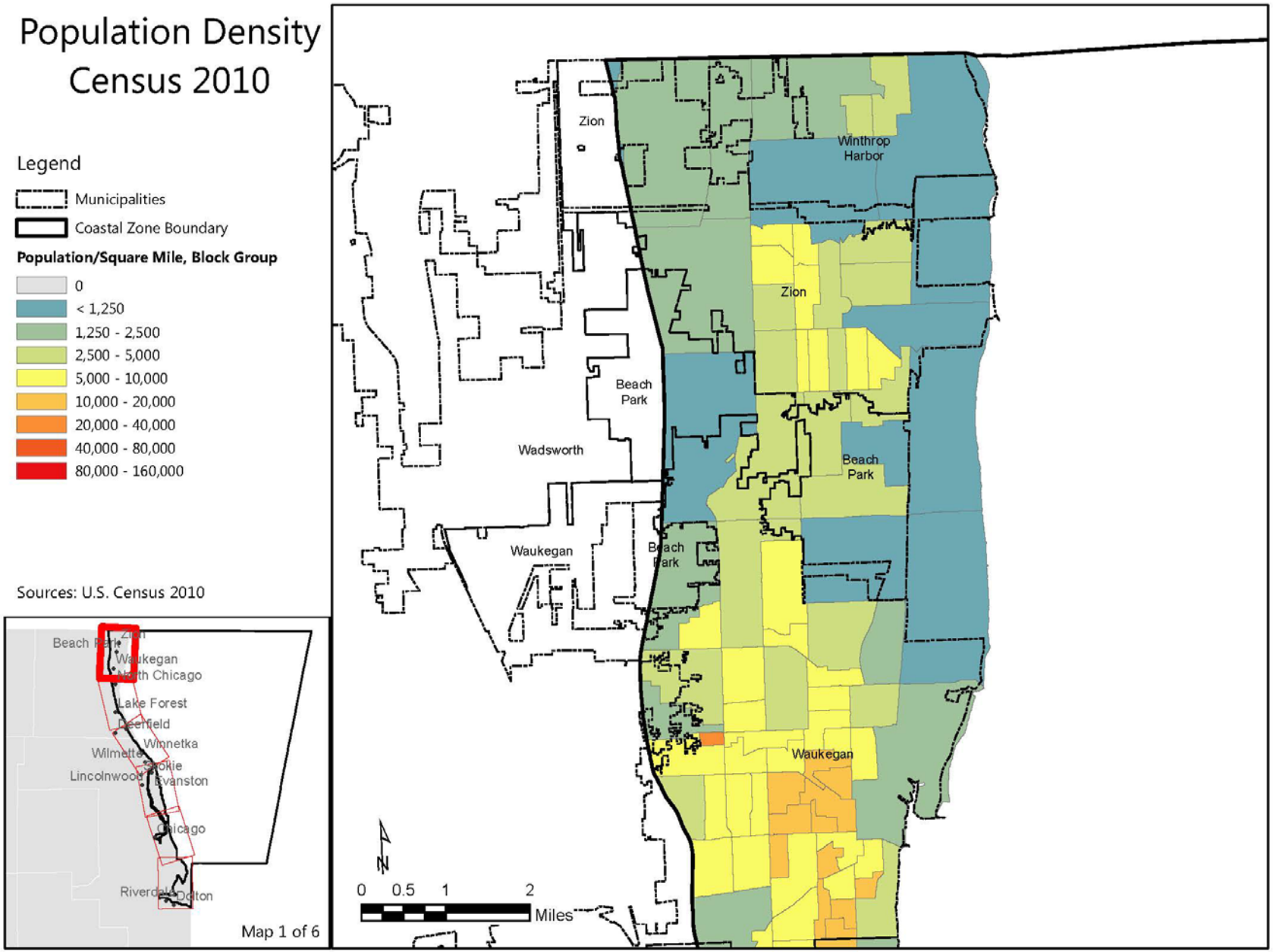
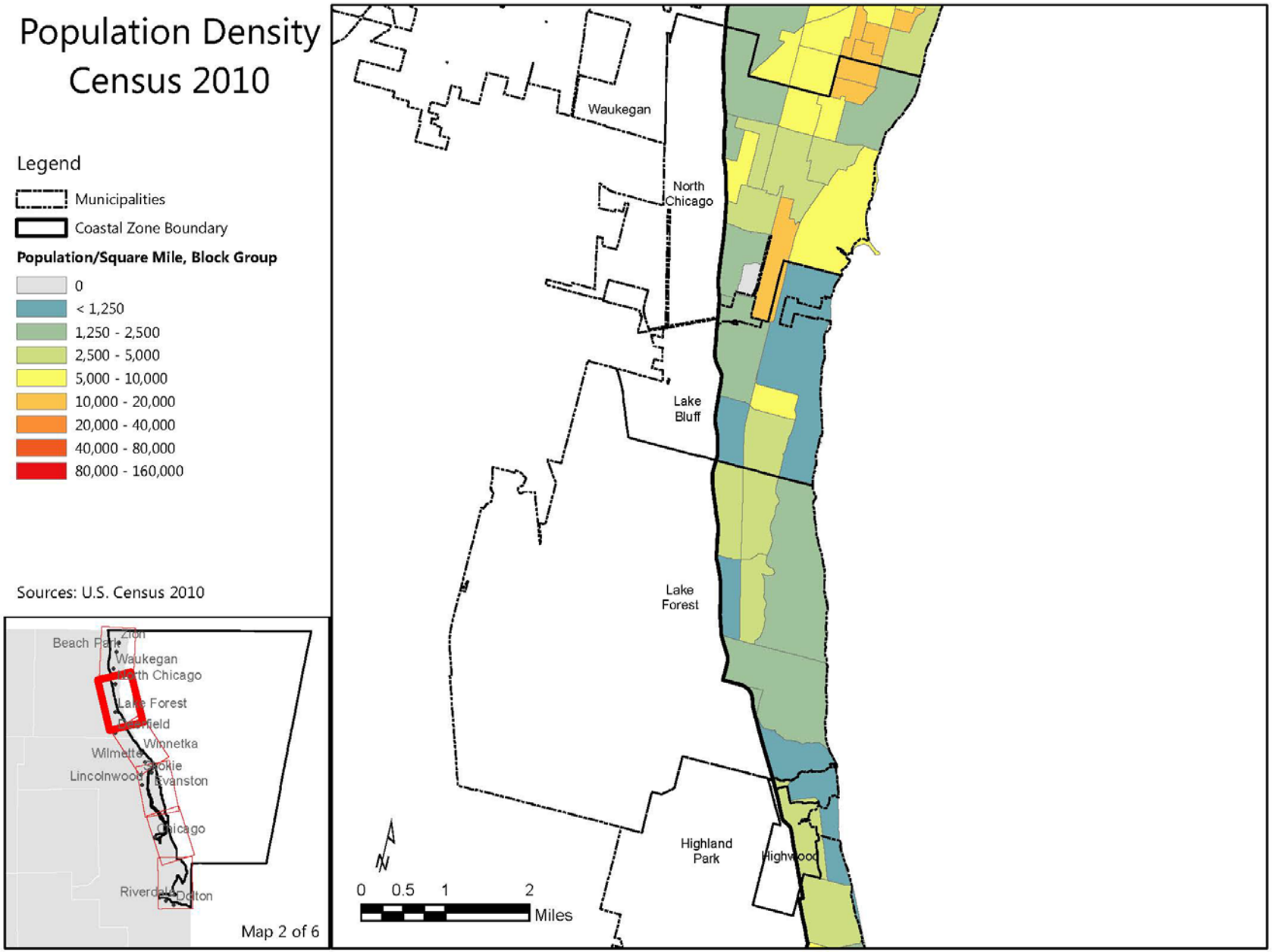
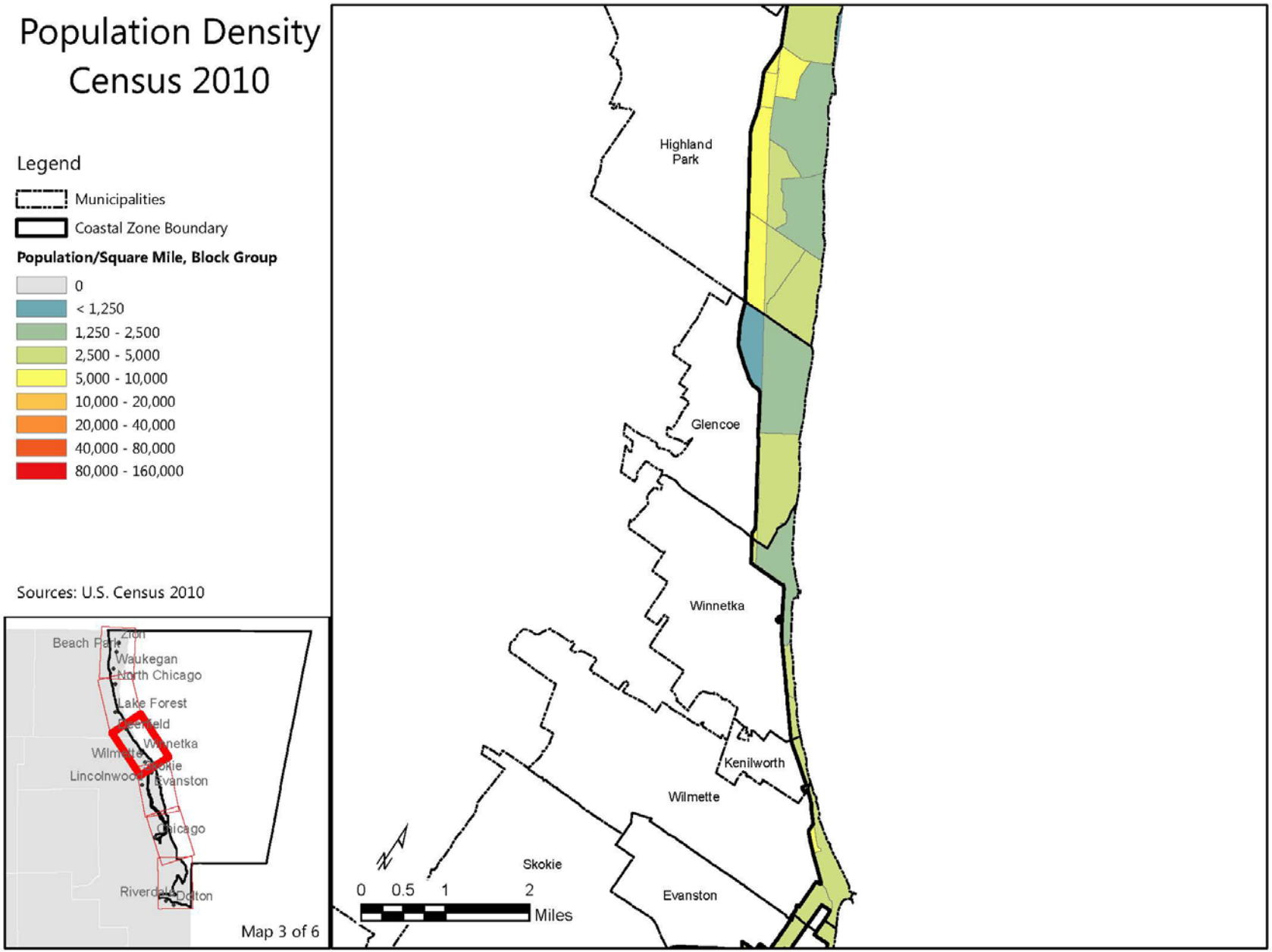

Agricultural Lands in the Illinois Coastal Zone
Legend
Municipalities
Coastal Zone Boundary
Agriculture
Water
Developed
Natural Lands
Pasture/Hay
Sources: USDA/NRCS Cropland Data Layer 2012
Chicago
Calumet Park
Blue Island
Riverdale
Dolton
Calumet City
Burnham
0 0.5 1 2
Miles
Map 6 of 6

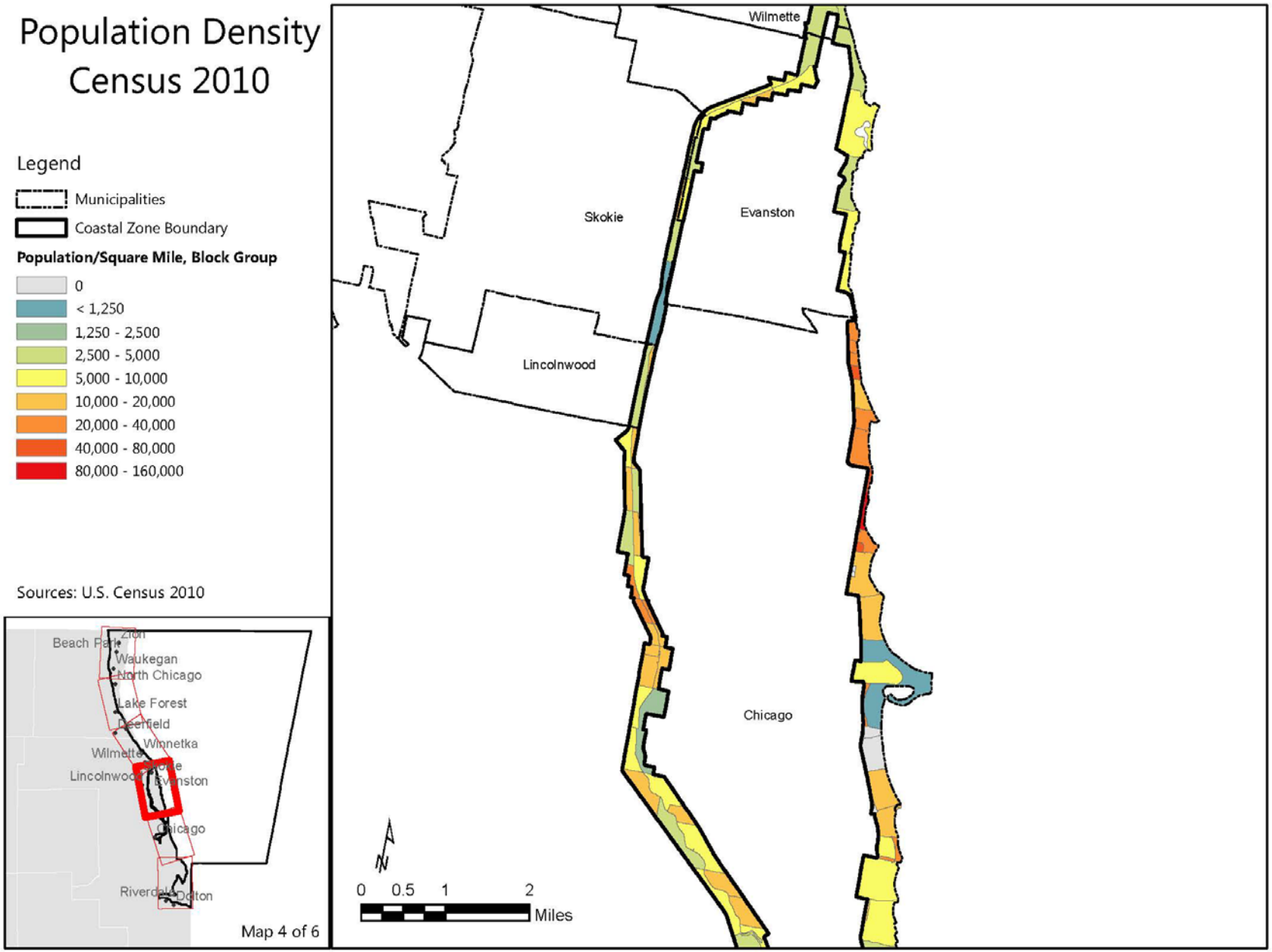
Figure 4-1 Population Density in the Coastal Zone



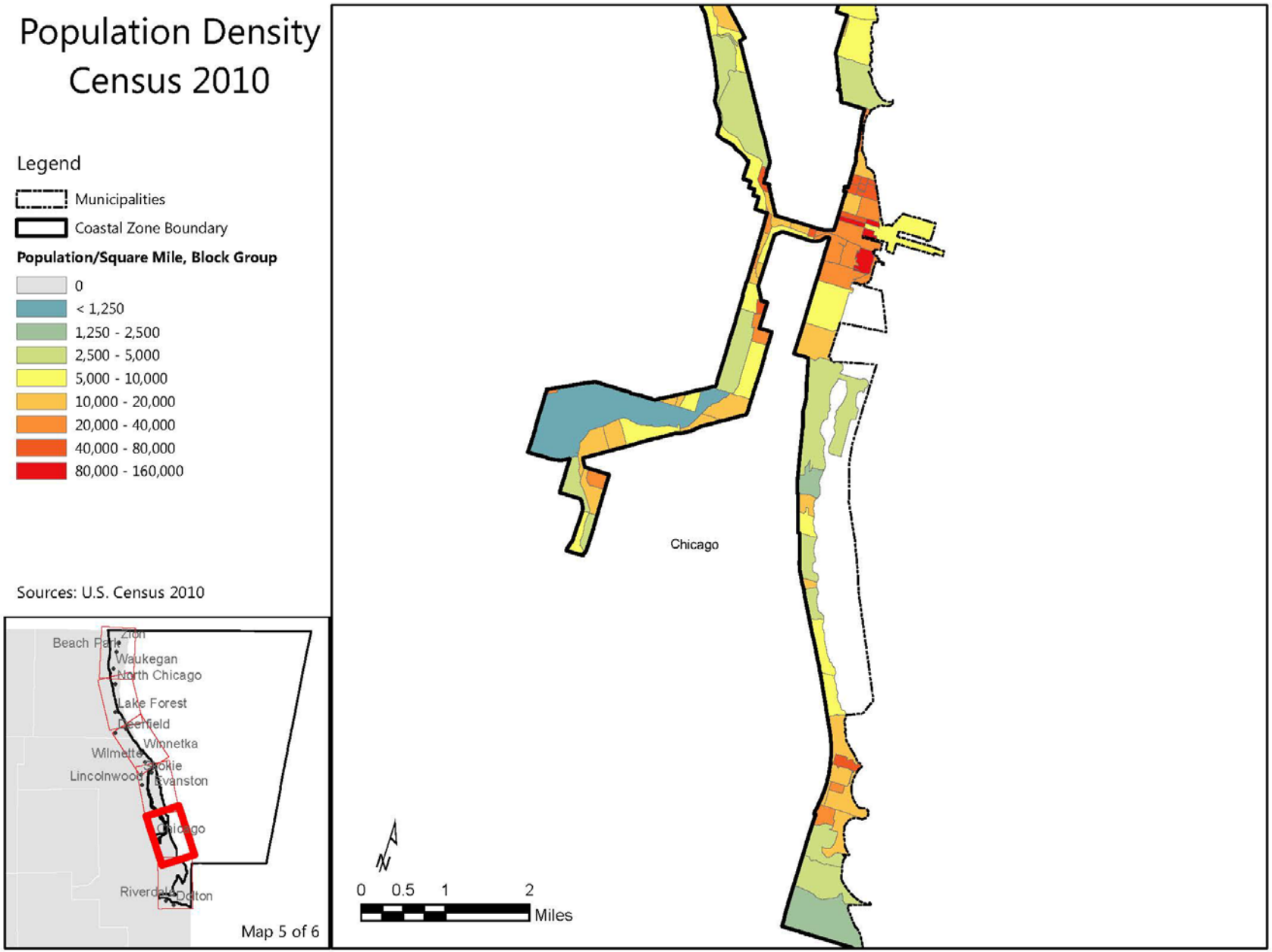

Population Density
Census 2010
Legend
Municipalities
Coastal Zone Boundary
Population/Square Mile, Block Group
0
< 1,250
1,250 - 2,500
2,500 - 5,000
5,000 - 10,000
10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
Sources: U.S. Census 2010
Waukegan
North Chicago
Lake Bluff
Lake Forest
Highland Park
Highwood
0 0.5 1 2
Miles
Map 2 of 6

Population Density Census 2010




Population Density
Census 2010
Legend
Municipalities
Coastal Zone Boundary
Population/Square Mile, Block Group
0
< 1,250
1,250 - 2,500
2,500 - 5,000
5,000 - 10,000
10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
Sources: U.S. Census 2010
Wilmette
Skokie
Evanston
Lincolnwood
Chicago
0 0.5 1 2
Miles
Beach Park
Zion
Waukegan
North Chicago
Lake Forest
Deerfield
Winnetka
Wilmette
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 4 of 6

Population Density Census 2010



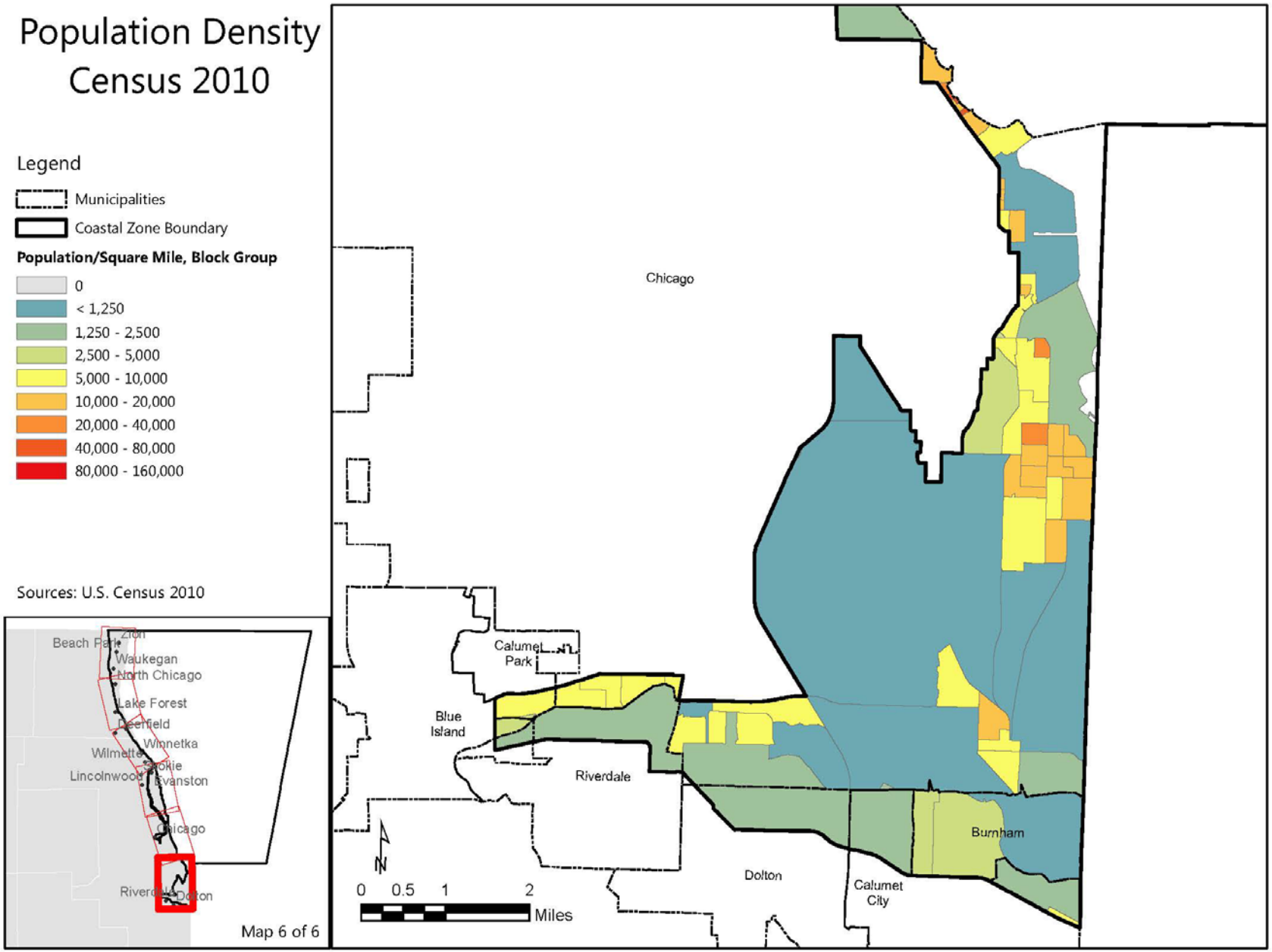
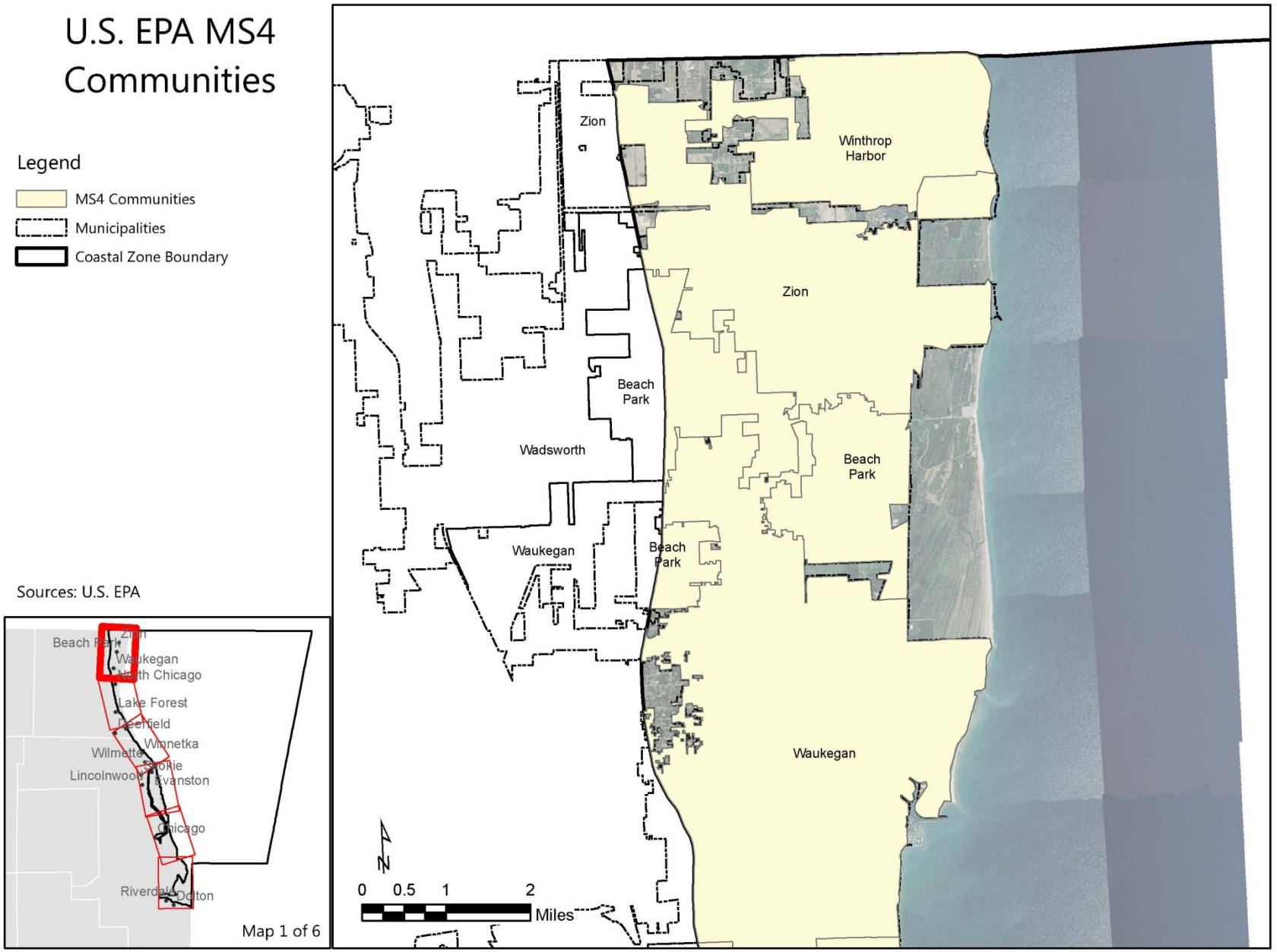

Population Density
Census 2010
Legend
Municipalities
Coastal Zone Boundary
Population/Square Mile, Block Group
0
< 1,250
1,250 - 2,500
2,500 - 5,000
5,000 - 10,000
10,000 - 20,000
20,000 - 40,000
40,000 - 80,000
80,000 - 160,000
Sources: U.S. Census 2010
Chicago
Calumet Park
Blue Island
Riverdale
Burnham
Dolton
Calumet City
0 0.5 1 2
Miles
Map 6 of 6

Figure 4-2 MS4 Communities in the Coastal Zone

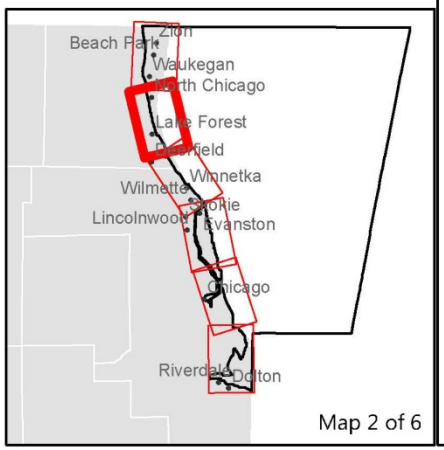


U.S. EPA MS4 Communities

Legend

- MS4 Communities
- Municipalities
- Coastal Zone Boundary

Sources: U.S. EPA

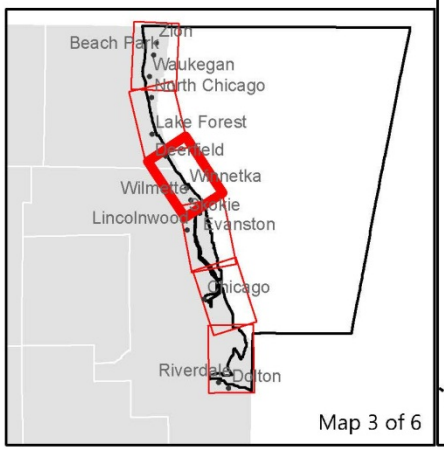


U.S. EPA MS4 Communities

Legend

- MS4 Communities
- Municipalities
- Coastal Zone Boundary

Sources: U.S. EPA



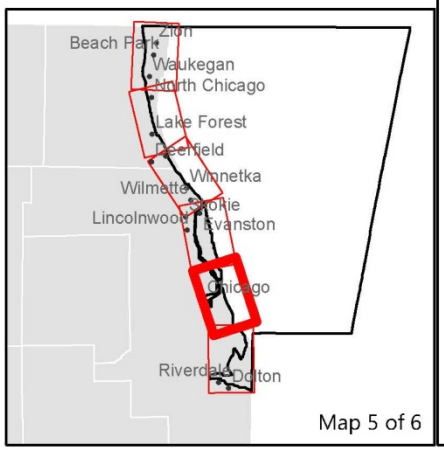
U.S. EPA MS4 Communities

U.S. EPA MS4 Communities

Legend

- MS4 Communities
- Municipalities
- Coastal Zone Boundary

Sources: U.S. EPA



U.S. EPA MS4 Communities

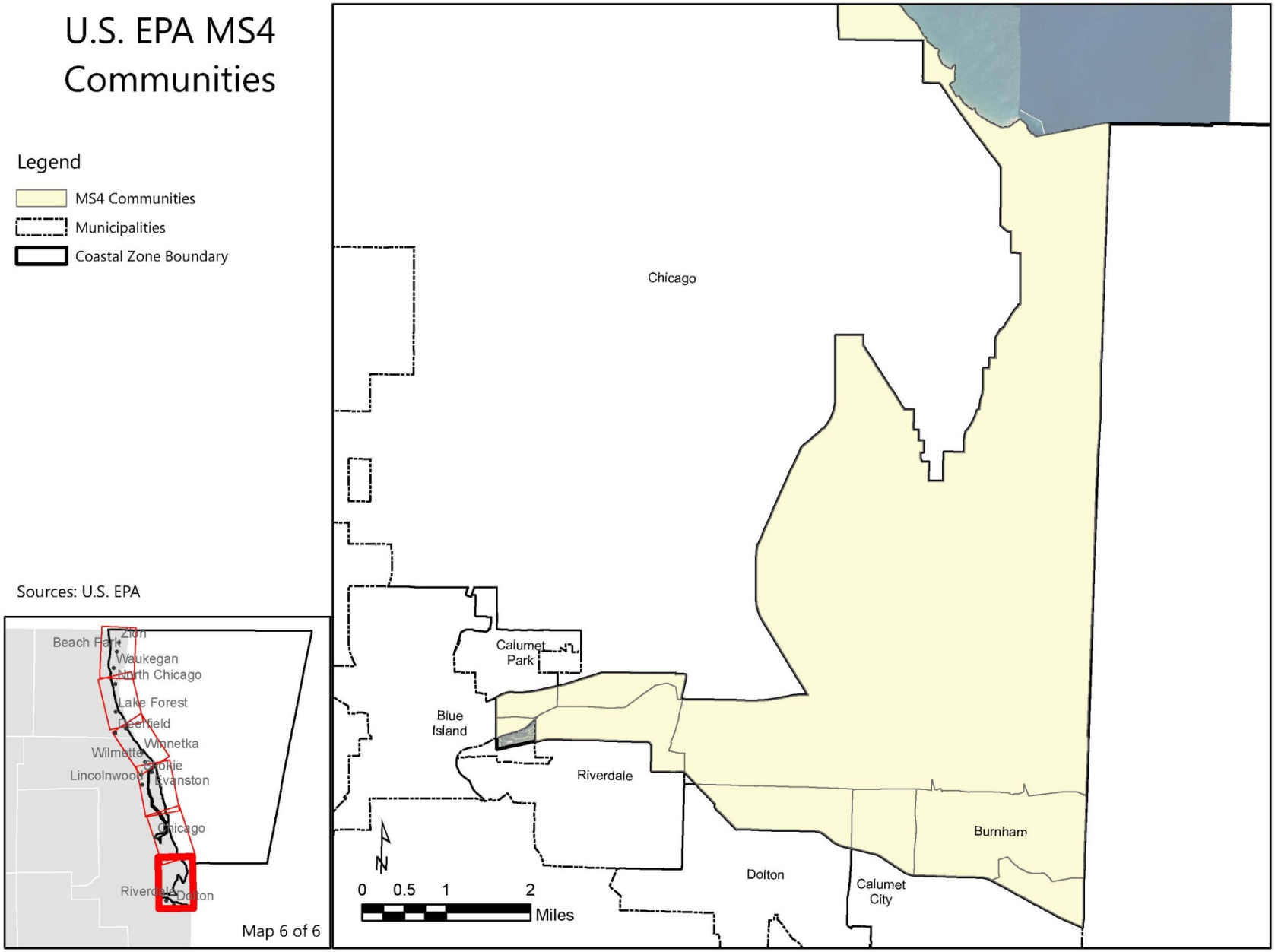
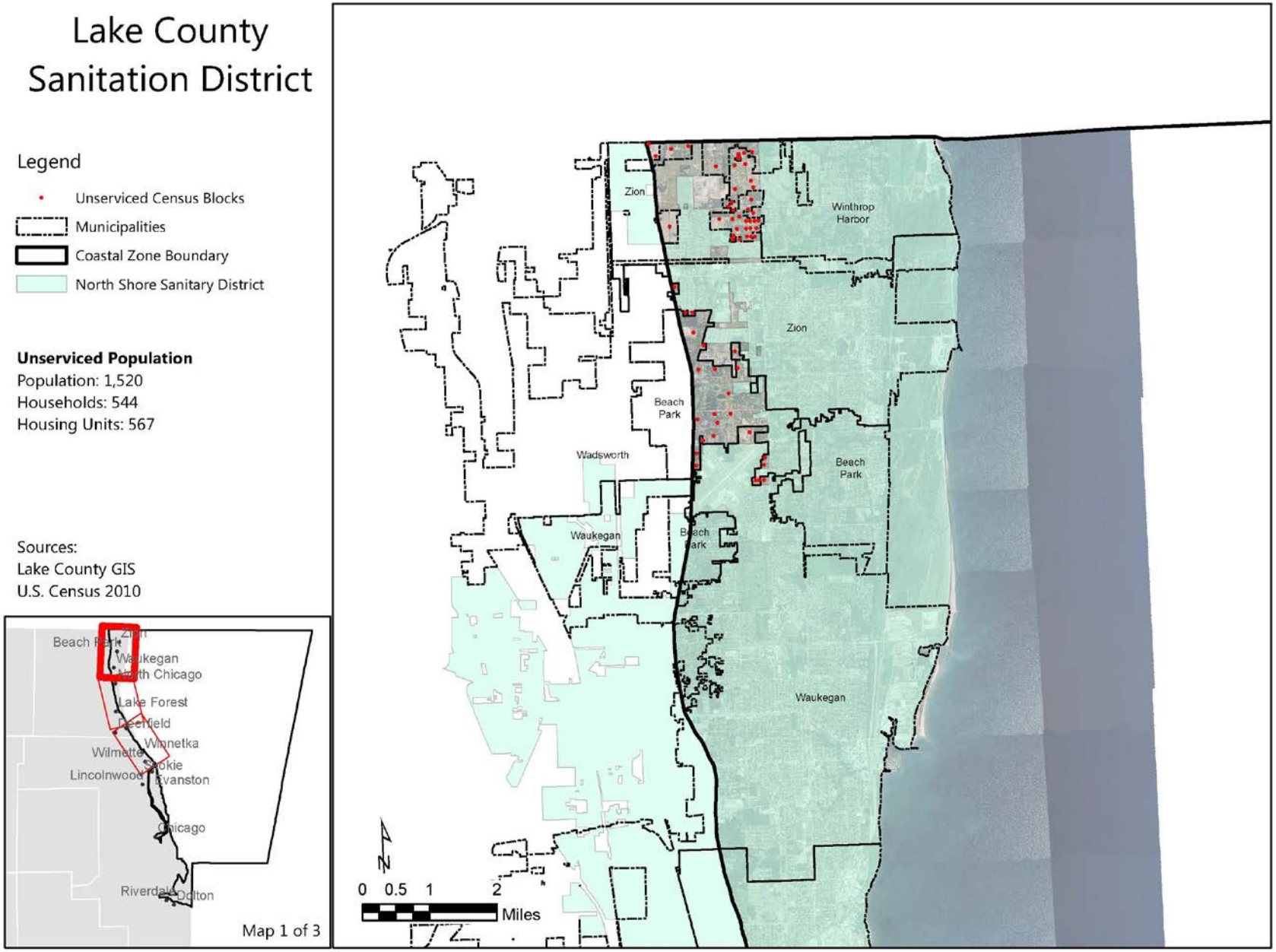
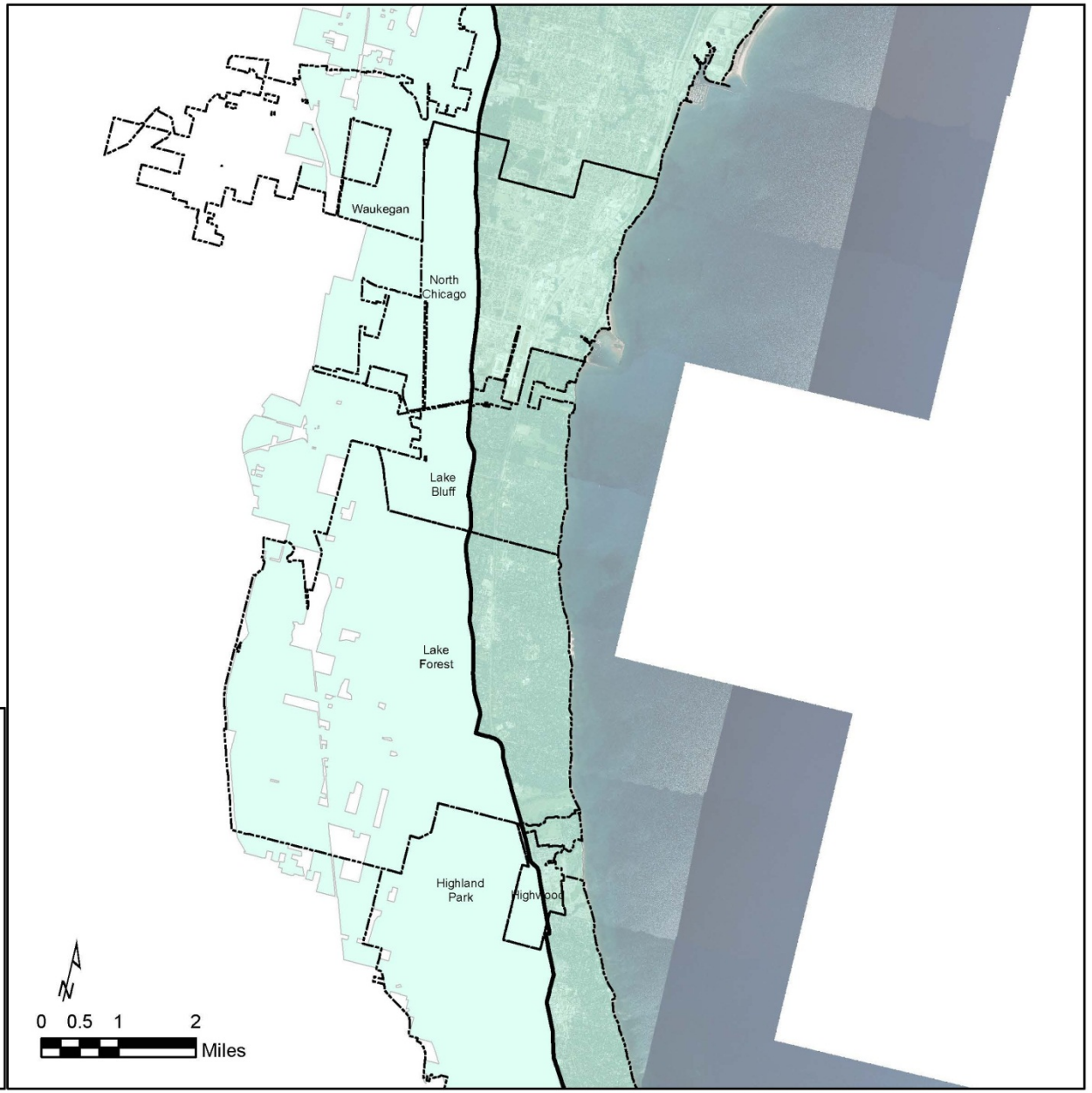


Figure 4-3 North Shore Sanitary District in the Coastal Zone



Lake County Sanitation District

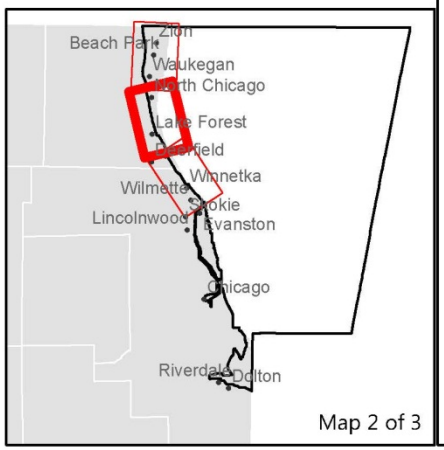


Legend

- Unserviced Census Blocks
- Municipalities
- Coastal Zone Boundary
- North Shore Sanitary District

Unserviced Population
Population: 1,520
Households: 544
Housing Units: 567

Sources:
Lake County GIS
U.S. Census 2010



Lake County Sanitation District

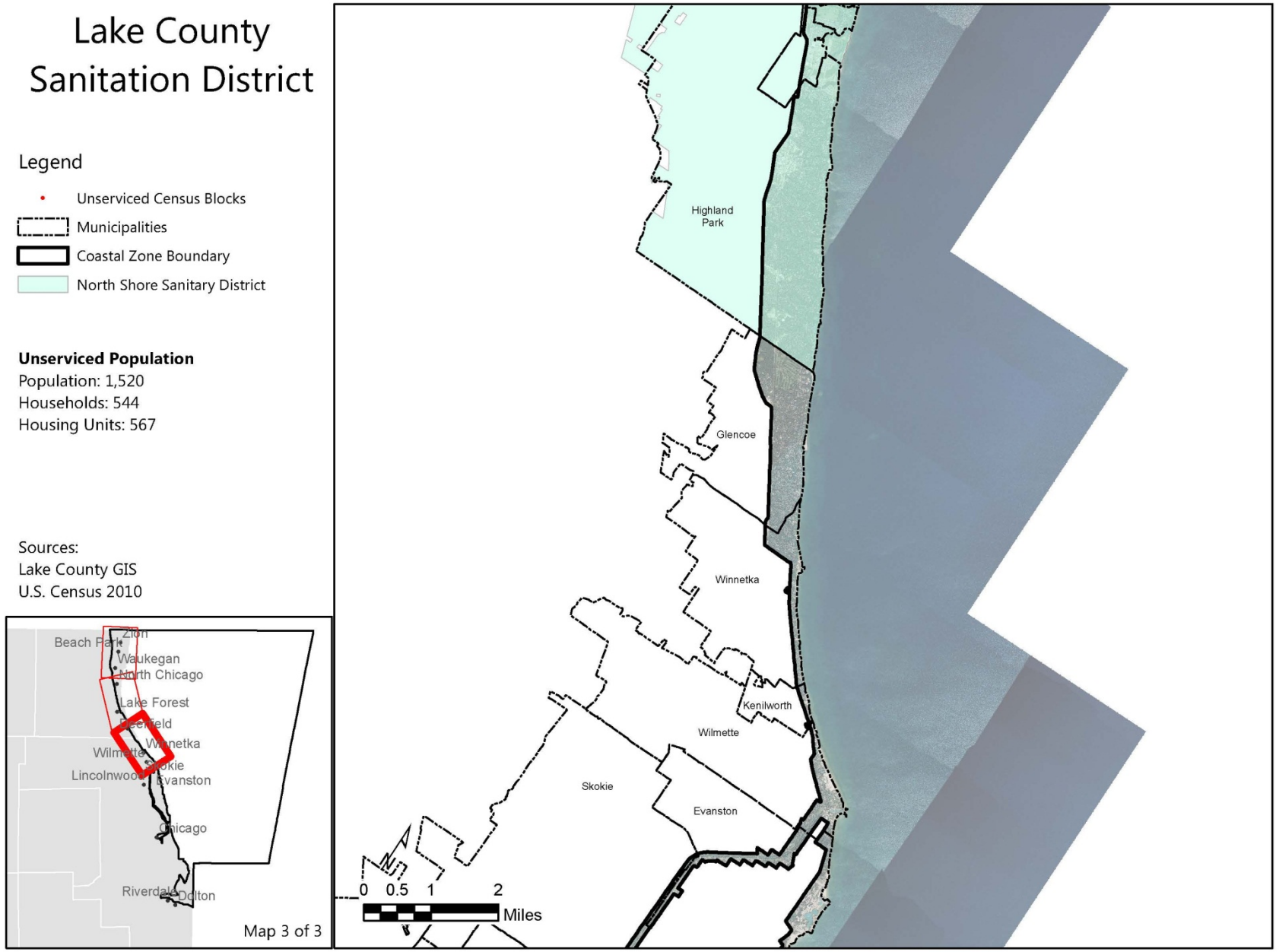


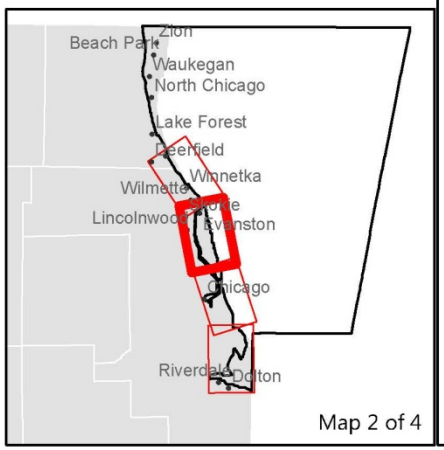
Figure 4-4 Combined Sewer Overflows

Combined Sewer Overflows

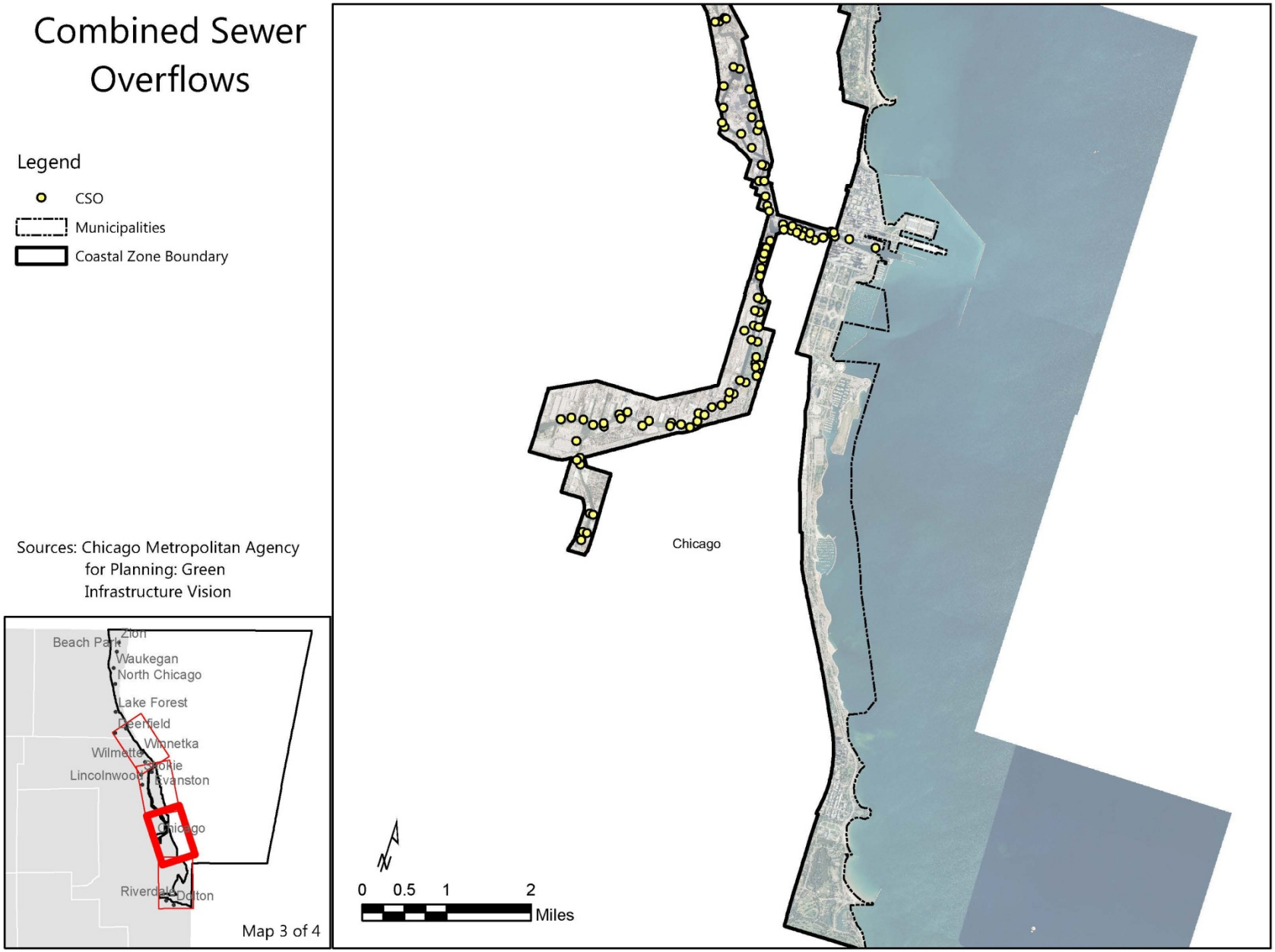
Legend

- CSO
- Municipalities
- Coastal Zone Boundary

Sources: Chicago Metropolitan Agency for Planning: Green Infrastructure Vision



Combined Sewer Overflows



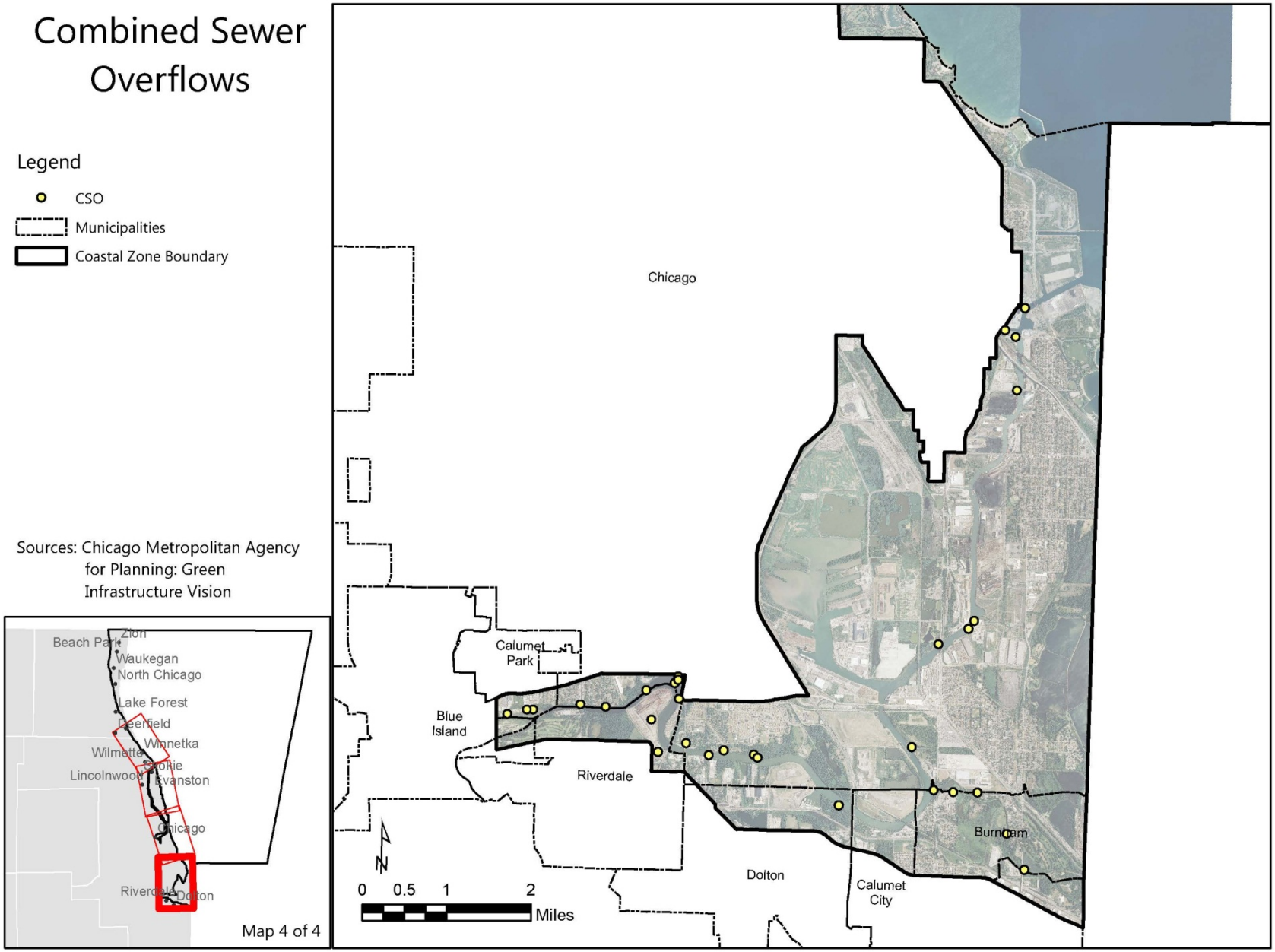
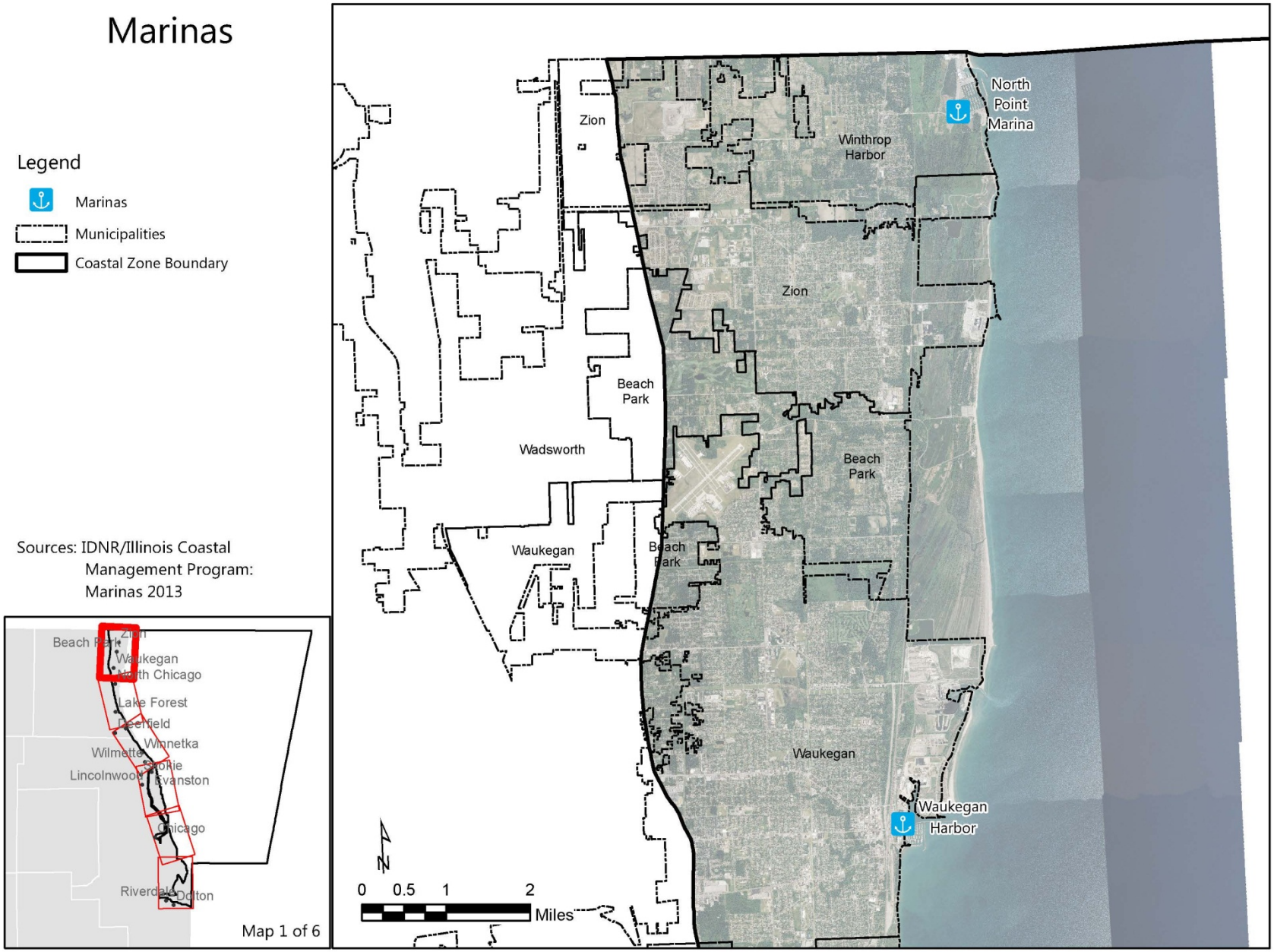

Combined Sewer Overflows
Legend
CSO
Municipalities
Coastal Zone Boundary
Sources: Chicago Metropolitan Agency for Planning: Green Infrastructure Vision
Chicago
Calumet Park
Blue Island
Riverdale
Dolton
Calumet City
Burnham
0 0.5 1 2
Miles
Map 4 of 4

Figure 5-1 Marinas in the Coastal Zone



Marinas


Legend
Marinas
Municipalities
Coastal Zone Boundary
Sources: IDNR/Illinois Coastal Management Program: Marinas 2013
Waukegan
North Chicago
Lake Bluff
Lake Forest
Highland Park
Great Lakes Base Marina
Forest Park Boating Facility
0 0.5 1 2
Miles
Map 2 of 6

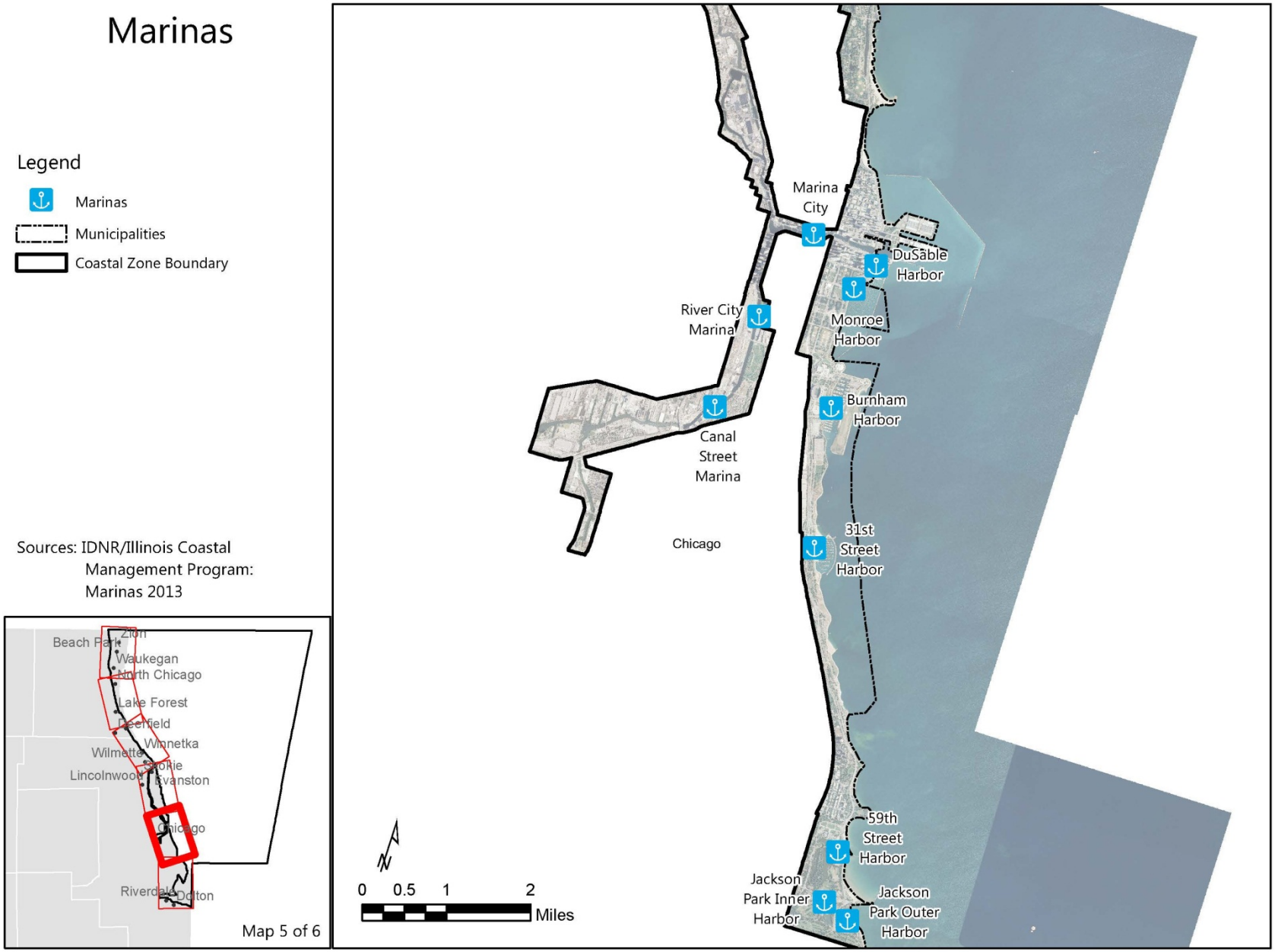
Marinas


Legend
Marinas
Municipalities
Coastal Zone Boundary
Sources: IDNR/Illinois Coastal Management Program: Marinas 2013
Waukegan
North Chicago
Great Lakes Base Marina
Lake Bluff
Lake Forest
Forest Park Boating Facility
Highland Park
Highwood
0 0.5 1 2
Miles
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Winnetka
Wilmette
Skokie
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 2 of 6

Marinas


Legend
Marinas
Municipalities
Coastal Zone Boundary
Sources: IDNR/Illinois Coastal Management Program: Marinas 2013
Wilmette
Skokie
Evanston
Lincolnwood
Chicago
Montrose Harbor
Belmont Harbor
Diversey Harbor
0 0.5 1 2
Miles
Map 4 of 6

Marinas


Legend
Marinas
Municipalities
Coastal Zone Boundary
Sources: IDNR/Illinois Coastal Management Program: Marinas 2013
Marina City
DuSable Harbor
Monroe Harbor
River City Marina
Burnham Harbor
Canal Street Marina
Chicago
31st Street Harbor
59th Street Harbor
Jackson Park Inner Harbor
Jackson Park Outer Harbor
0 0.5 1 2
Miles
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Deerfield
Winnetka
Wilmette
Kenilworth
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 5 of 6

Marinas

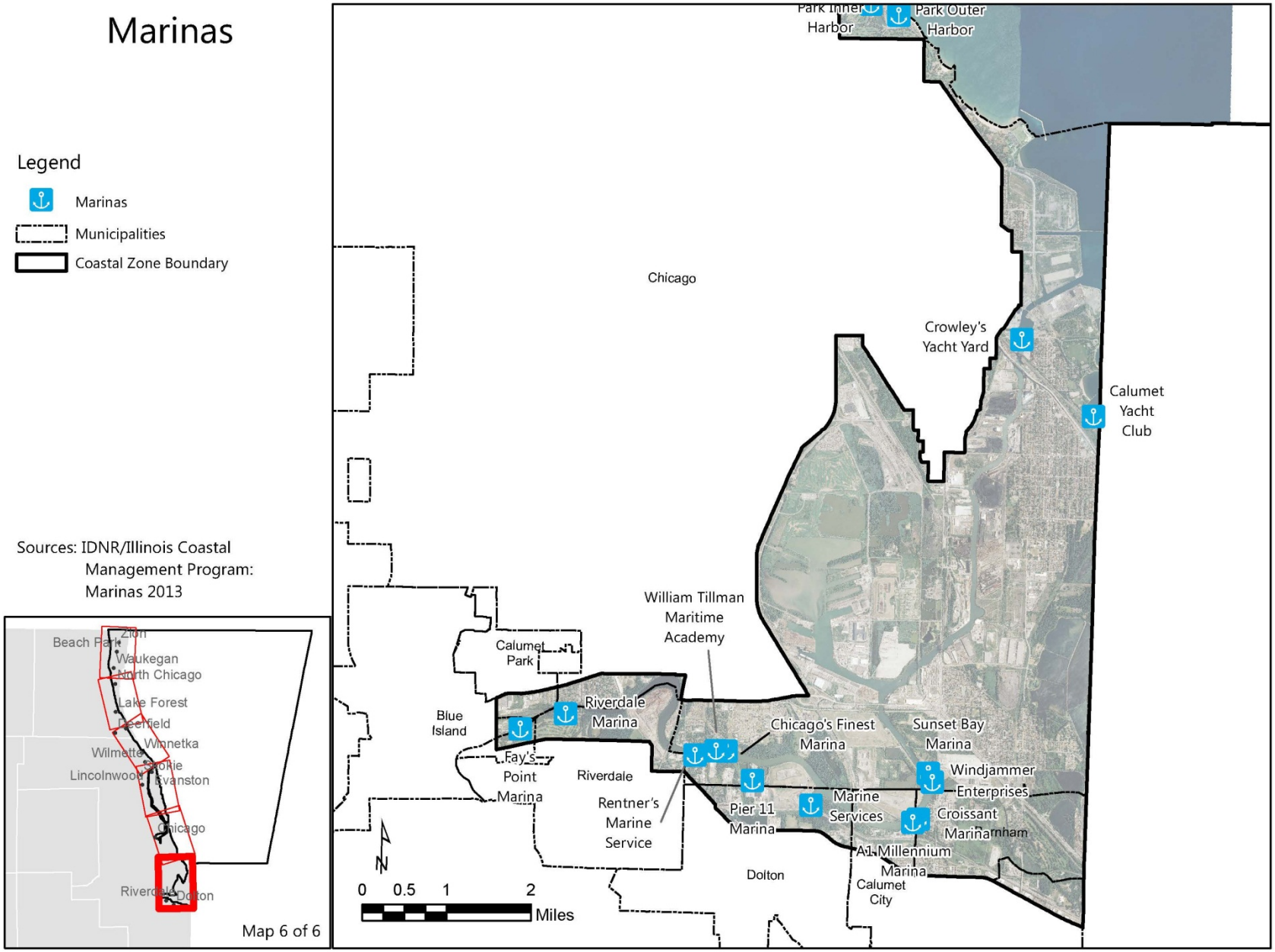

Legend
Marinas
Municipalities
Coastal Zone Boundary
Sources: IDNR/Illinois Coastal Management Program: Marinas 2013
Map 6 of 6
Park Inner Harbor
Park Outer Harbor
Chicago
Crowley's Yacht Yard
Calumet Yacht Club
William Tillman Maritime Academy
Calumet Park
Blue Island
Riverdale Marina
Fay's Point Marina
Riverdale
Rentner's Marine Service
Chicago's Finest Marina
Sunset Bay Marina
Windjammer Enterprises
Pier 11 Marina
Marine Services
Croissant Marina
A1 Millennium Marina
Dolton
Calumet City
0 0.5 1 2
Miles
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Deerfield
Wilmette
Winnetka
Skokie
Lincolnwood
Evanston
Chicago
Riverdale
Dolton

Figure 6-1 Dams and Locks in the Coastal Zone

Dams and Locks

Dams and Locks

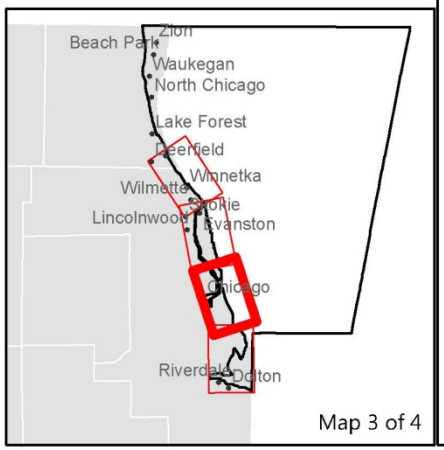
Legend

- Dams and Locks
- Municipalities
- Coastal Zone Boundary

For the purposes of coastal zone management, dams are restricted to constructed impoundments that are either (1) 25 feet or more in height and greater than 15 acre-feet in capacity, or, (2) 6 feet or more in height and greater than 50 acre-feet in capacity (EPA 2001).

The CRCW, the O'Brien Lock and Dam, Wilmette Pumping Station and the North Branch Dam do not have sufficient height nor constructed impoundments of sufficient size and are therefore excluded in accordance with the definitions of dams in EPA (2001).

Sources: USACE National Inventory of Dams 2013



Dams and Locks

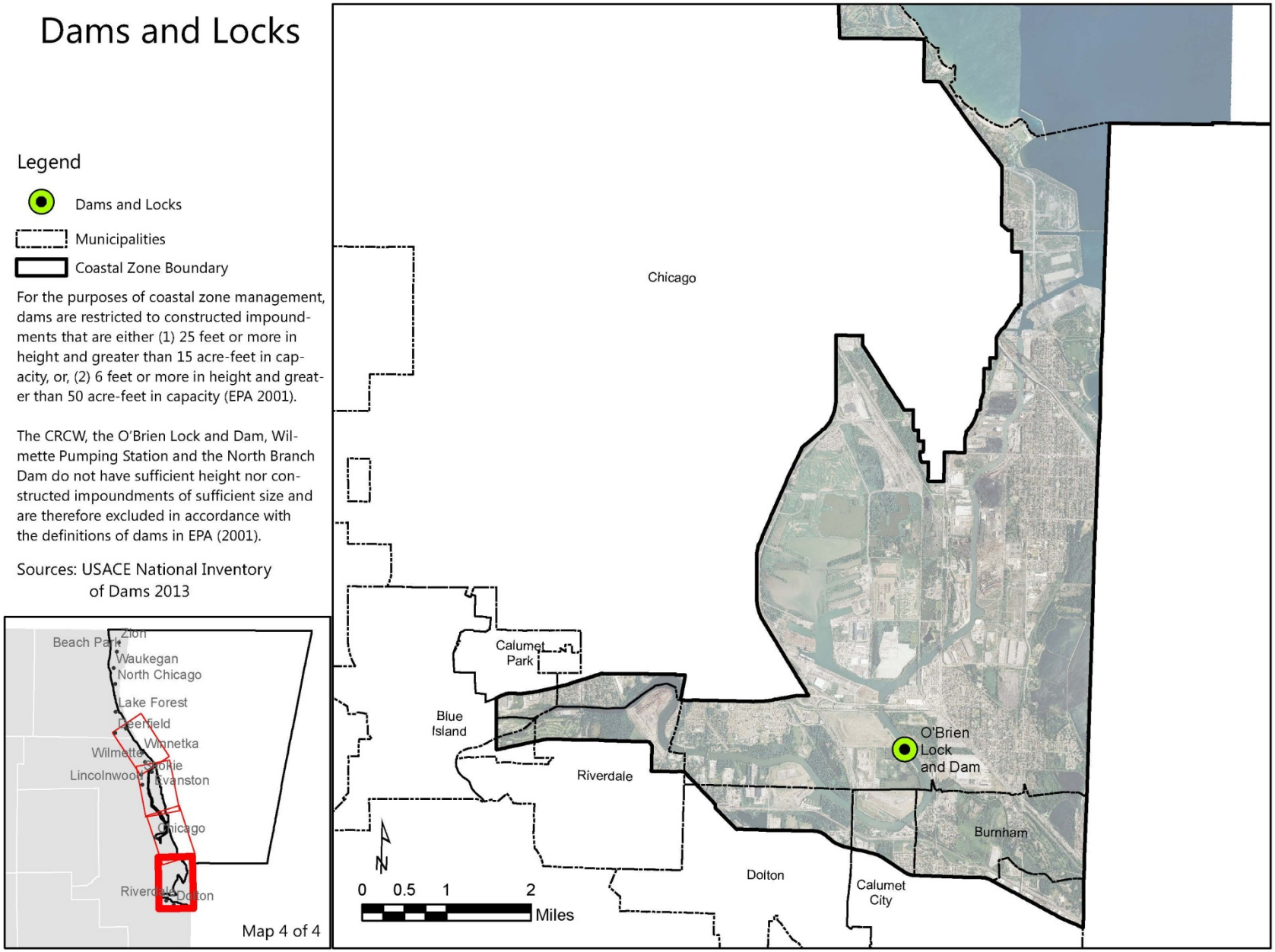
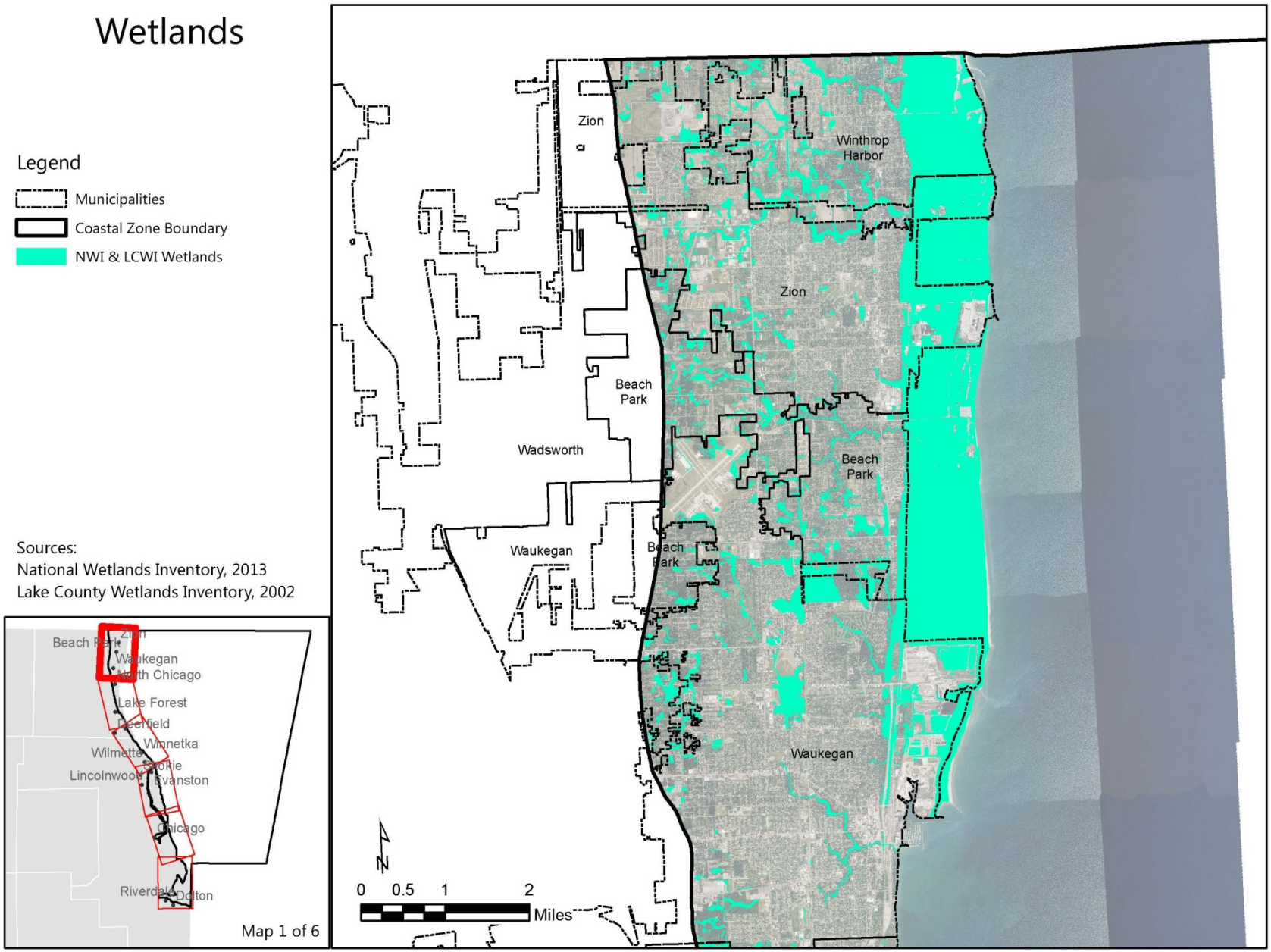


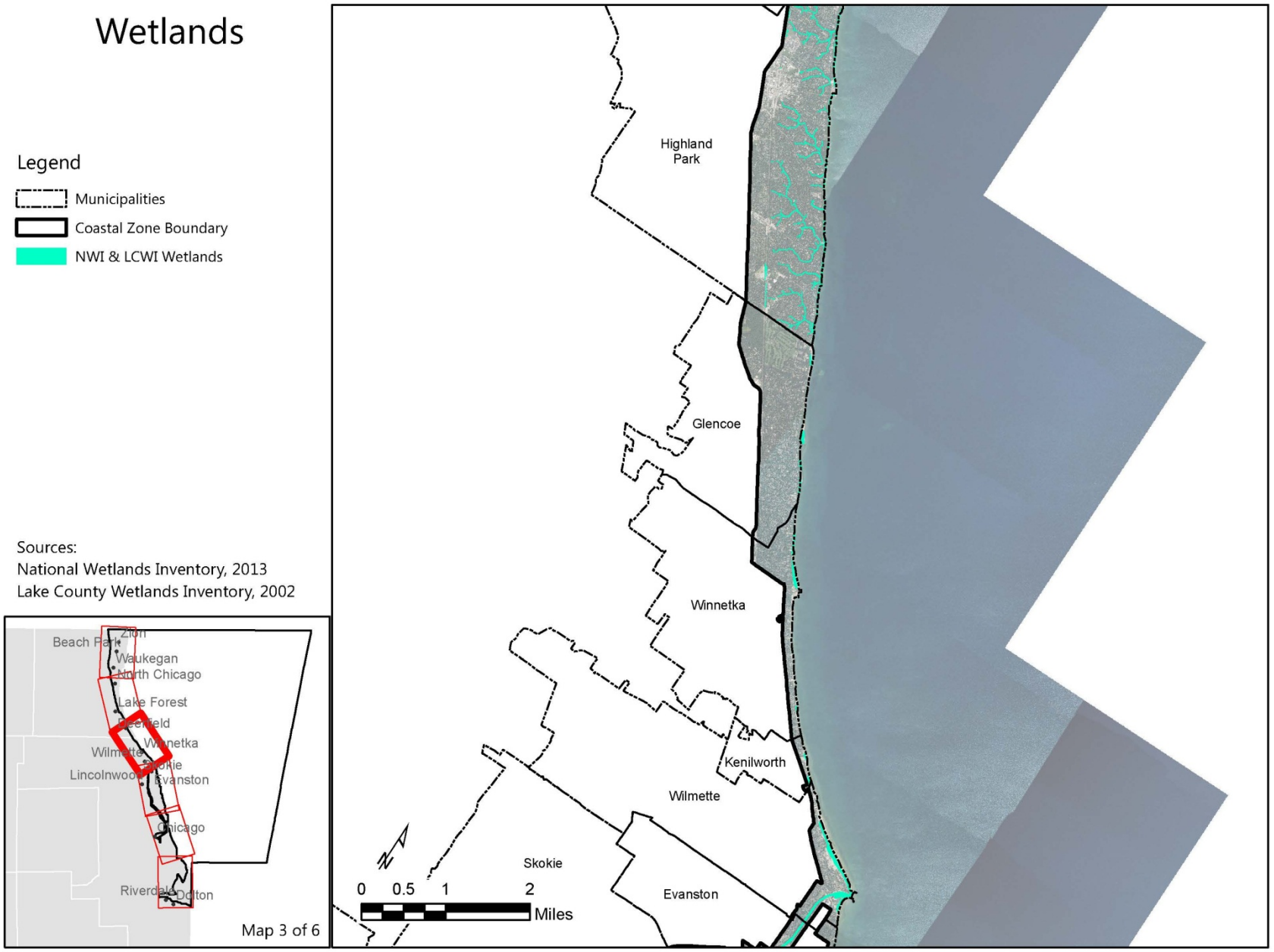
Figure 7-1 Wetlands in the Coastal Zone



Wetlands


Legend
Municipalities
Coastal Zone Boundary
NWI & LCWI Wetlands
Waukegan
North Chicago
Lake Bluff
Lake Forest
Highland Park
Highwood
0 0.5 1 2
Miles
Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Winnetka
Wilmette
Skokie
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 2 of 6

Wetlands


Legend
Municipalities
Coastal Zone Boundary
NWI & LCWI Wetlands
Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Map 3 of 6
Highland Park
Glencoe
Winnetka
Kenilworth
Wilmette
Skokie
Evanston
0 0.5 1 2
Miles

Wetlands


Legend
Municipalities
Coastal Zone Boundary
NWI & LCWI Wetlands
Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Wilmette
Skokie
Evanston
Lincolnwood
Chicago
0 0.5 1 2
Miles
Map 4 of 6

Wetlands


Legend
Municipalities
Coastal Zone Boundary
NWI & LCWI Wetlands
Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Deerfield
Wilmette
Winnetka
Kenilworth
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 5 of 6
Chicago
0 0.5 1 2
Miles

Wetlands

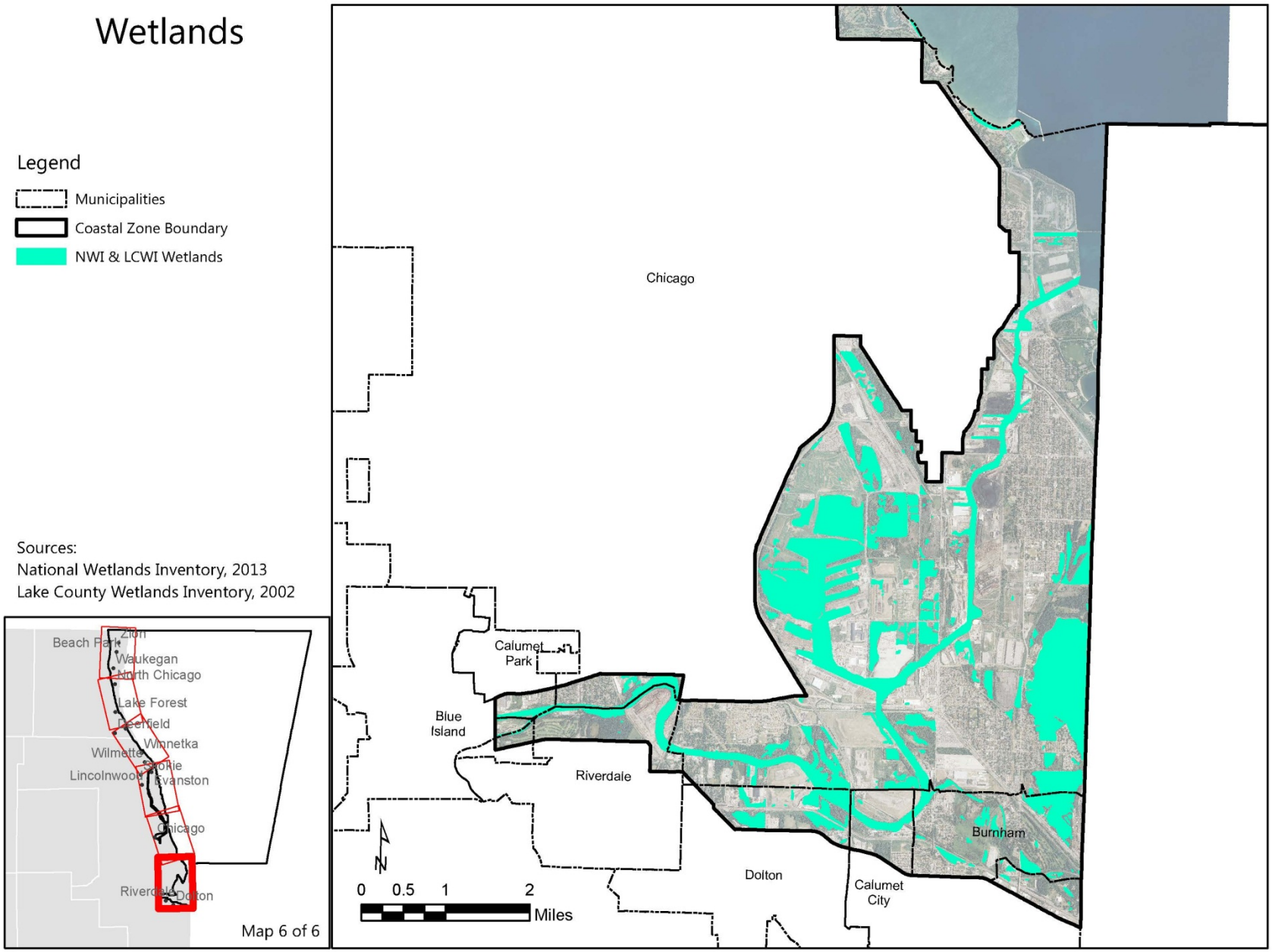
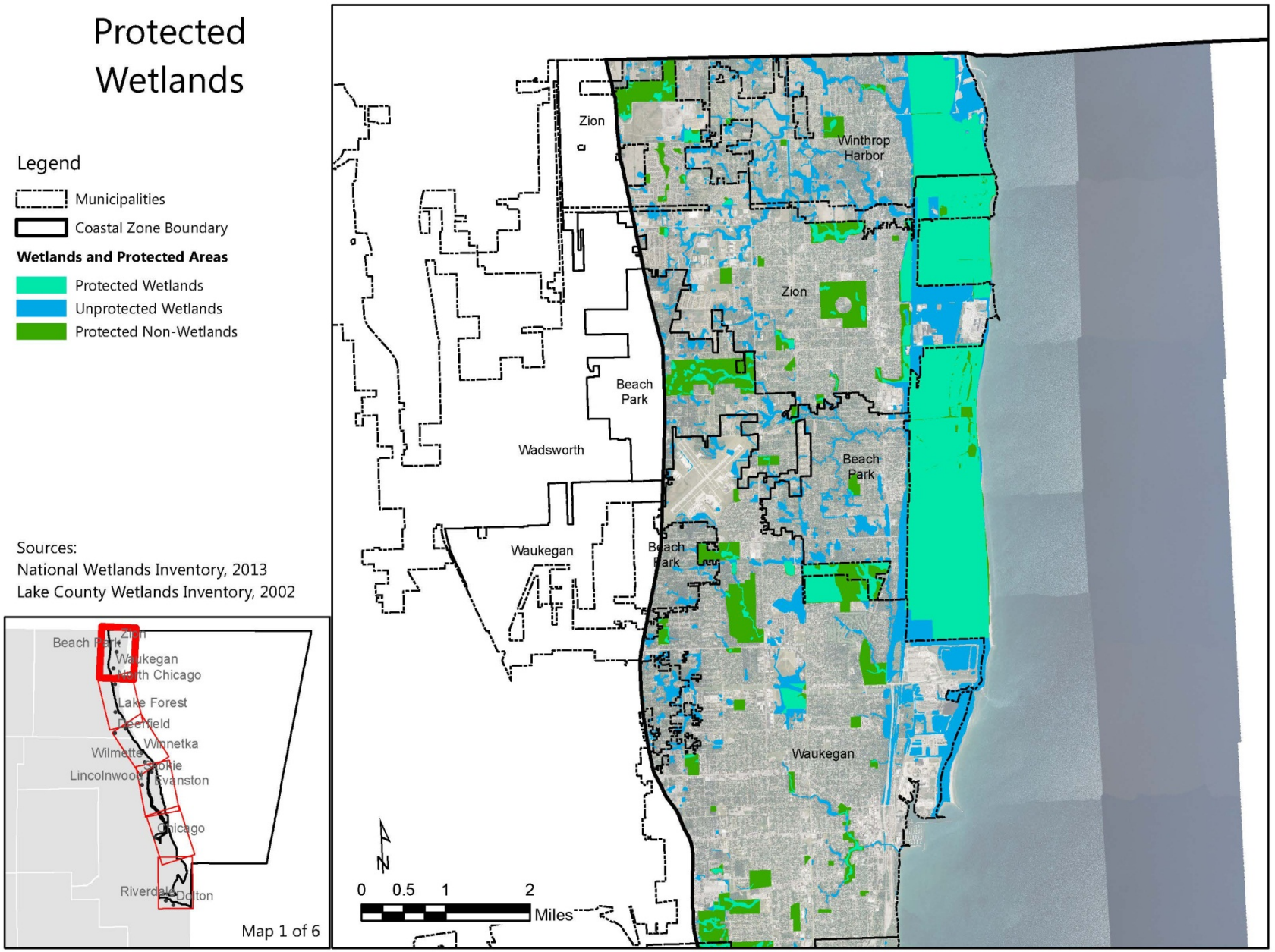
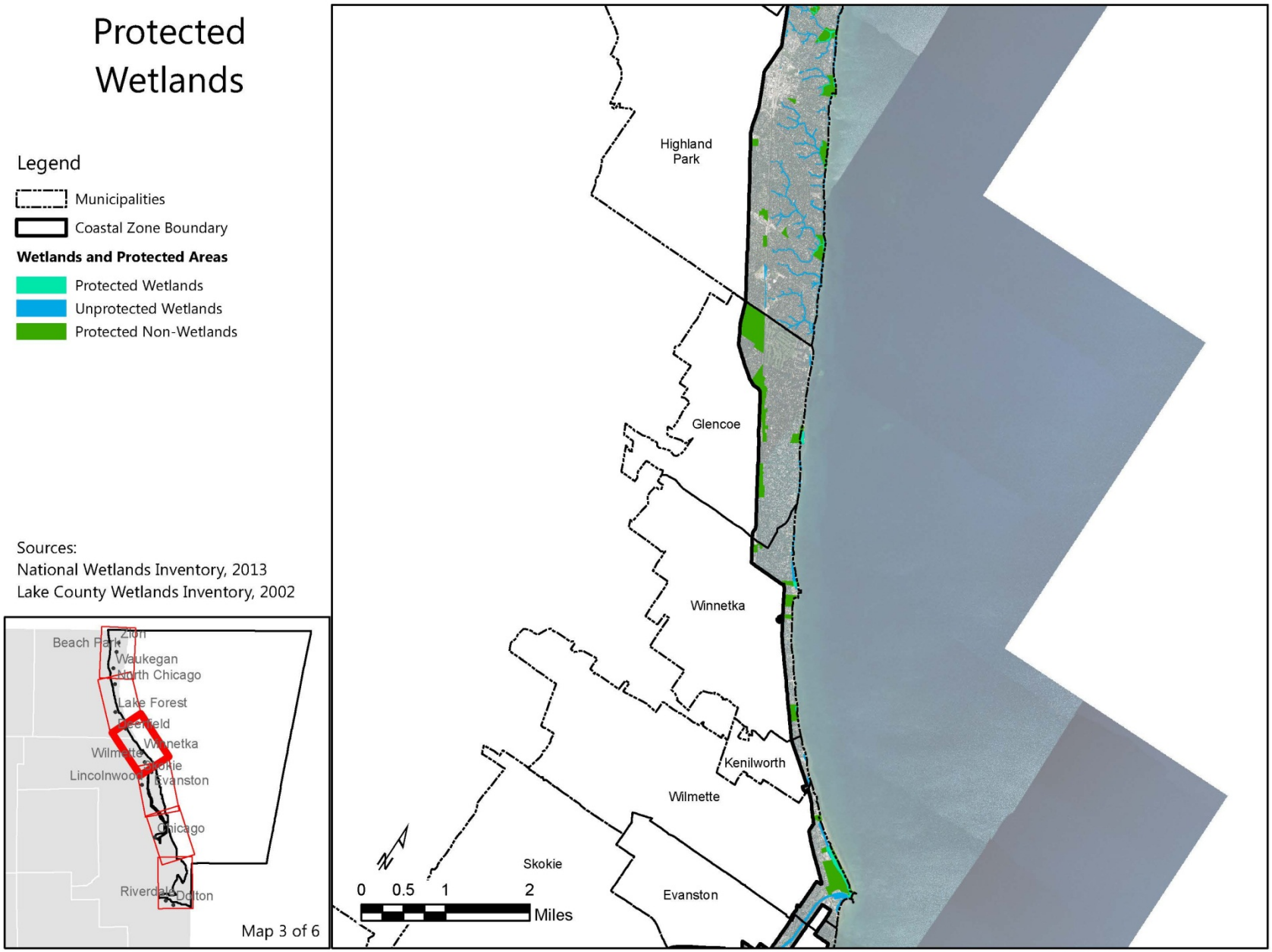

Legend
Municipalities
Coastal Zone Boundary
NWI & LCWI Wetlands
Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Chicago
Calumet Park
Blue Island
Riverdale
Dolton
Burnham
Calumet City
0 0.5 1 2
Miles
Map 6 of 6

Figure 7-2 Protected Wetlands in the Coastal Zone



Protected Wetlands

Protected Wetlands



Protected Wetlands

Protected Wetlands

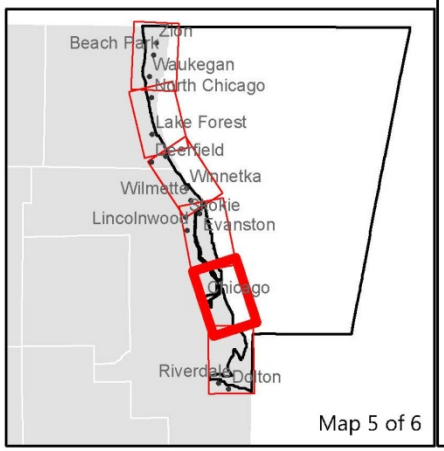
Legend

- Municipalities
- Coastal Zone Boundary

Wetlands and Protected Areas

- Protected Wetlands
- Unprotected Wetlands
- Protected Non-Wetlands

Sources:
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002



Map 5 of 6

Protected Wetlands

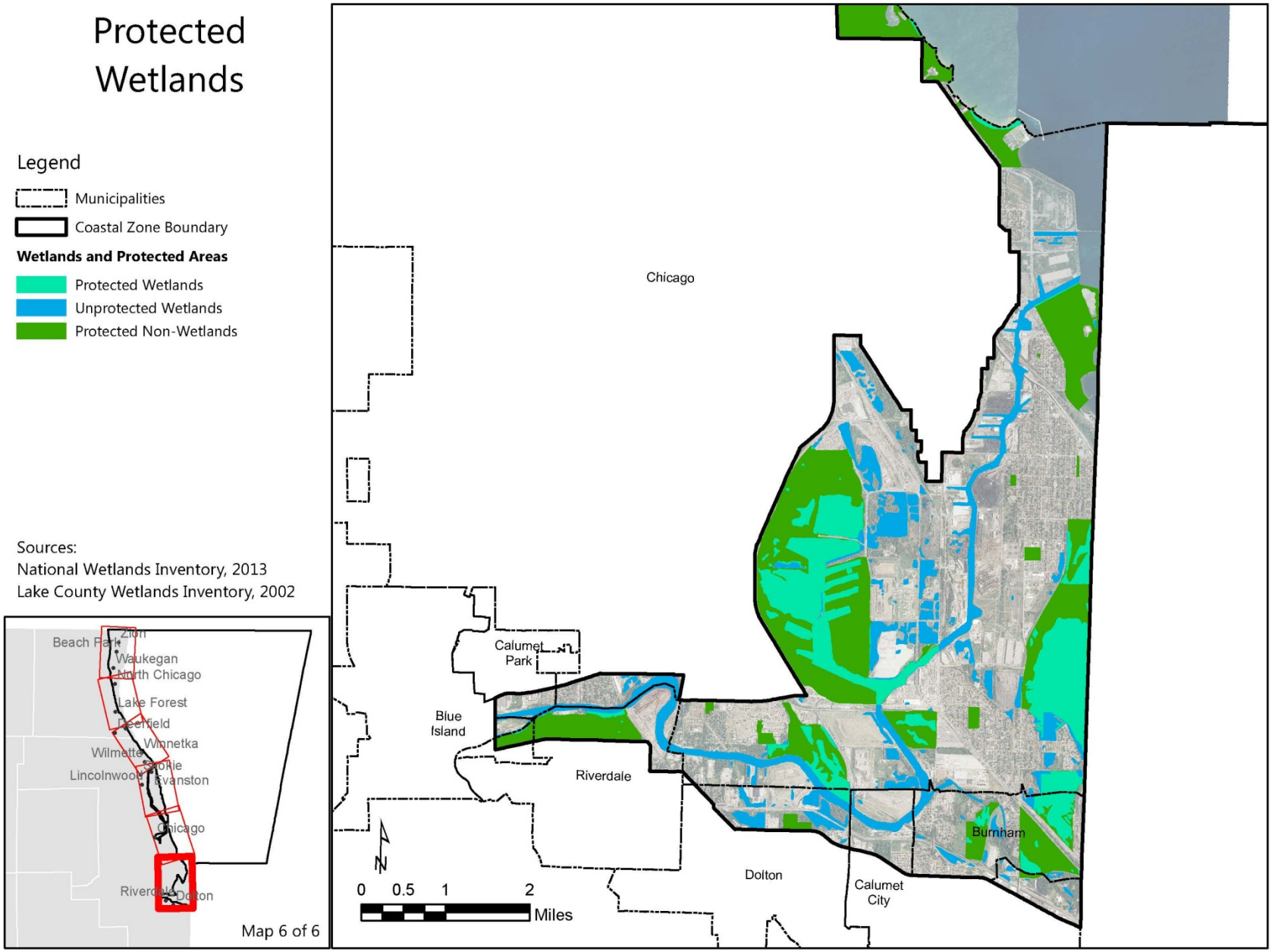
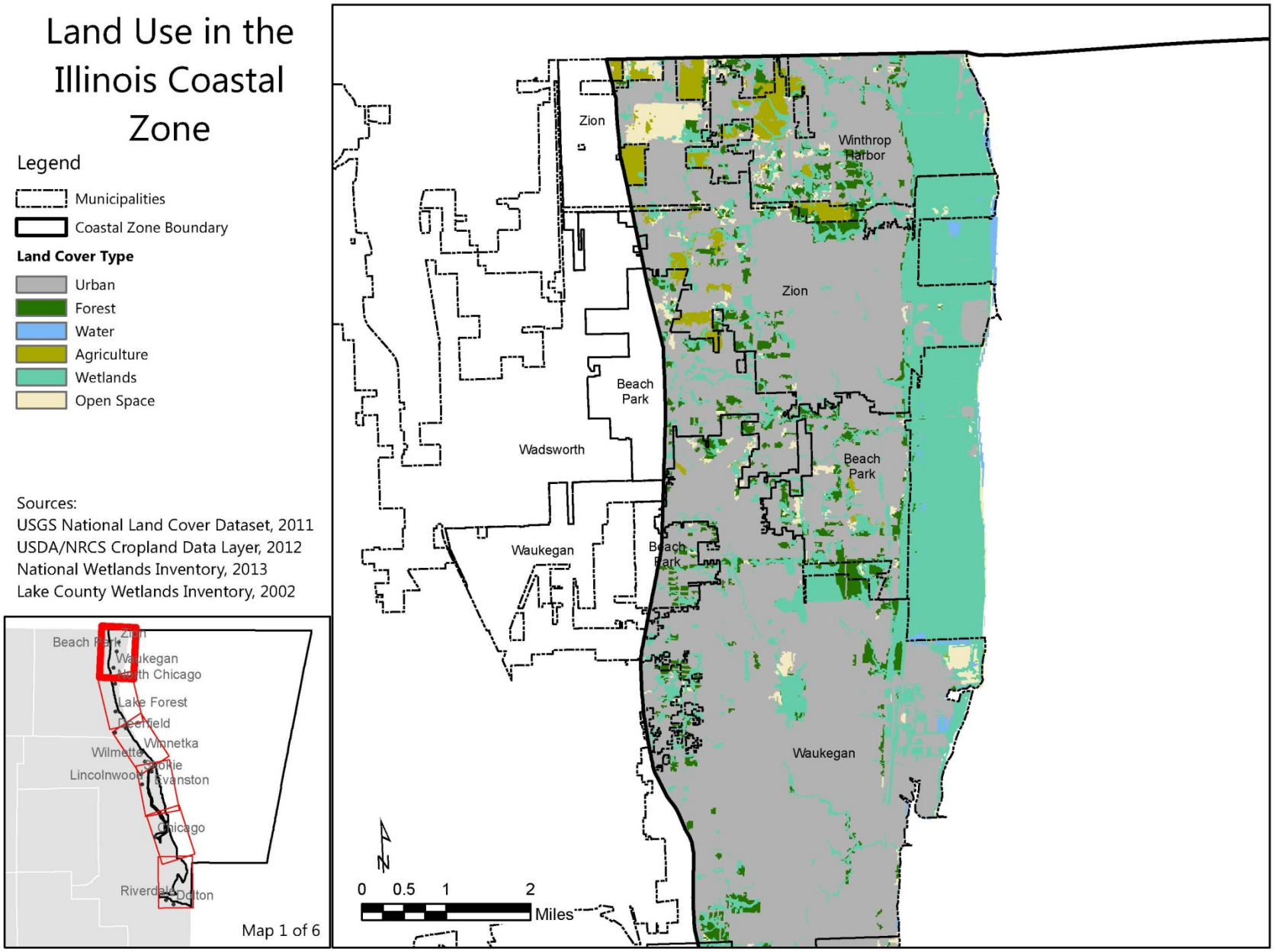


Figure 8-1 Land Use in the Coastal Zone



Land Use in the Illinois Coastal Zone

Land Use in the Illinois Coastal Zone

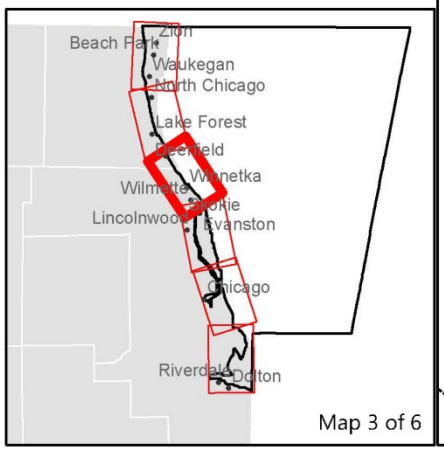
Legend

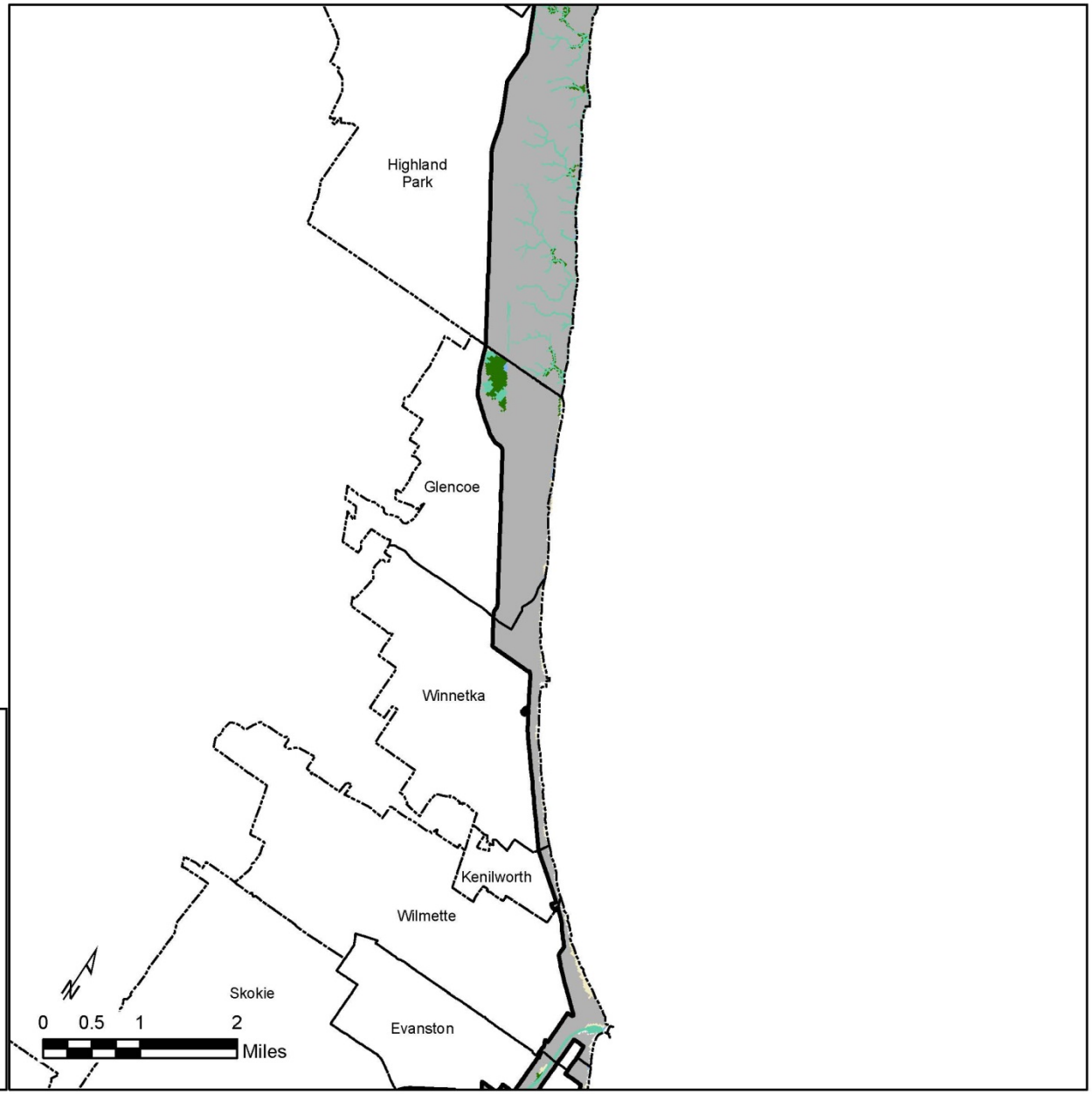
- Municipalities
- Coastal Zone Boundary

Land Cover Type

- Urban
- Forest
- Water
- Agriculture
- Wetlands
- Open Space

Sources:
USGS National Land Cover Dataset, 2011
USDA/NRCS Cropland Data Layer, 2012
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002





Land Use in the Illinois Coastal Zone

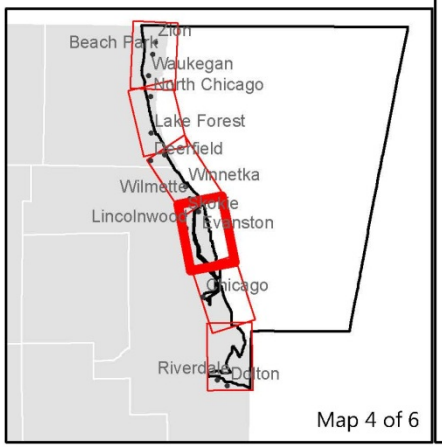
Legend

- Municipalities
- Coastal Zone Boundary

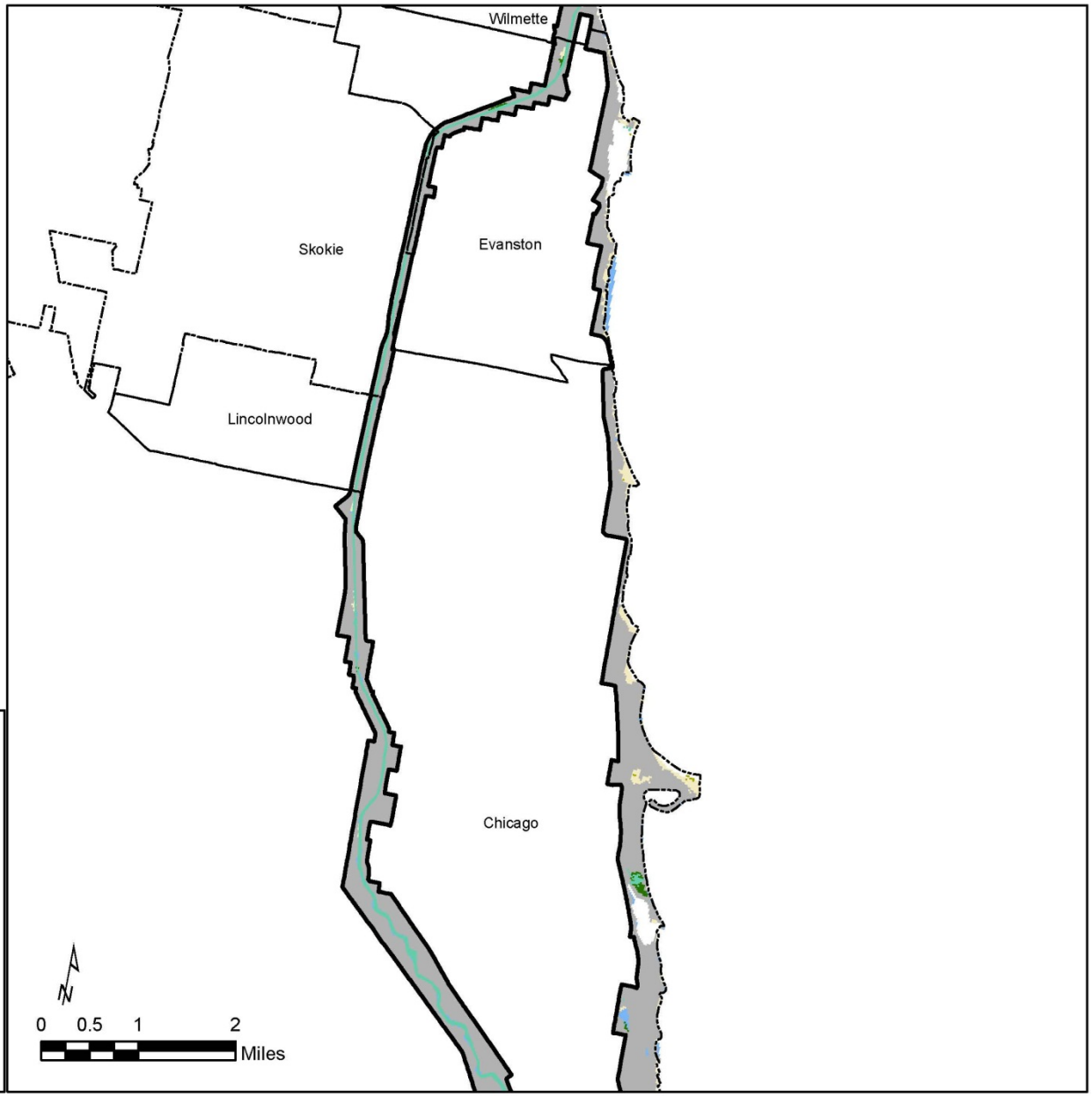
Land Cover Type

- Urban
- Forest
- Water
- Agriculture
- Wetlands
- Open Space

Sources:
USGS National Land Cover Dataset, 2011
USDA/NRCS Cropland Data Layer, 2012
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002



Map 4 of 6



Land Use in the Illinois Coastal Zone

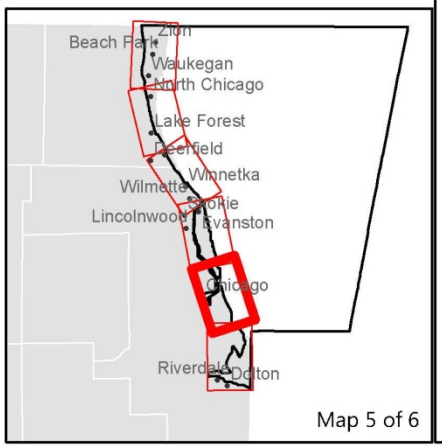
Legend

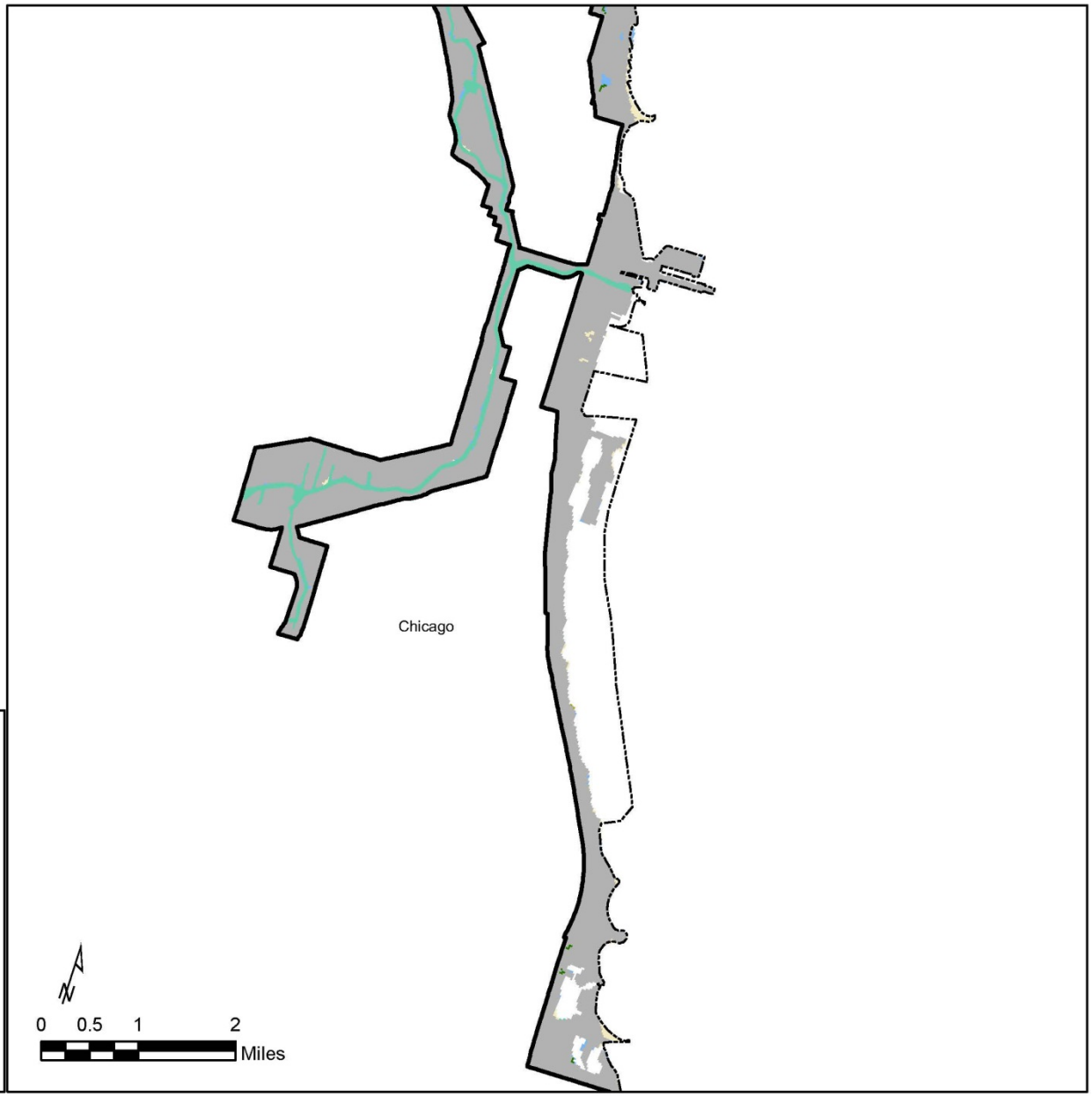
- Municipalities
- Coastal Zone Boundary

Land Cover Type

- Urban
- Forest
- Water
- Agriculture
- Wetlands
- Open Space

Sources:
USGS National Land Cover Dataset, 2011
USDA/NRCS Cropland Data Layer, 2012
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002





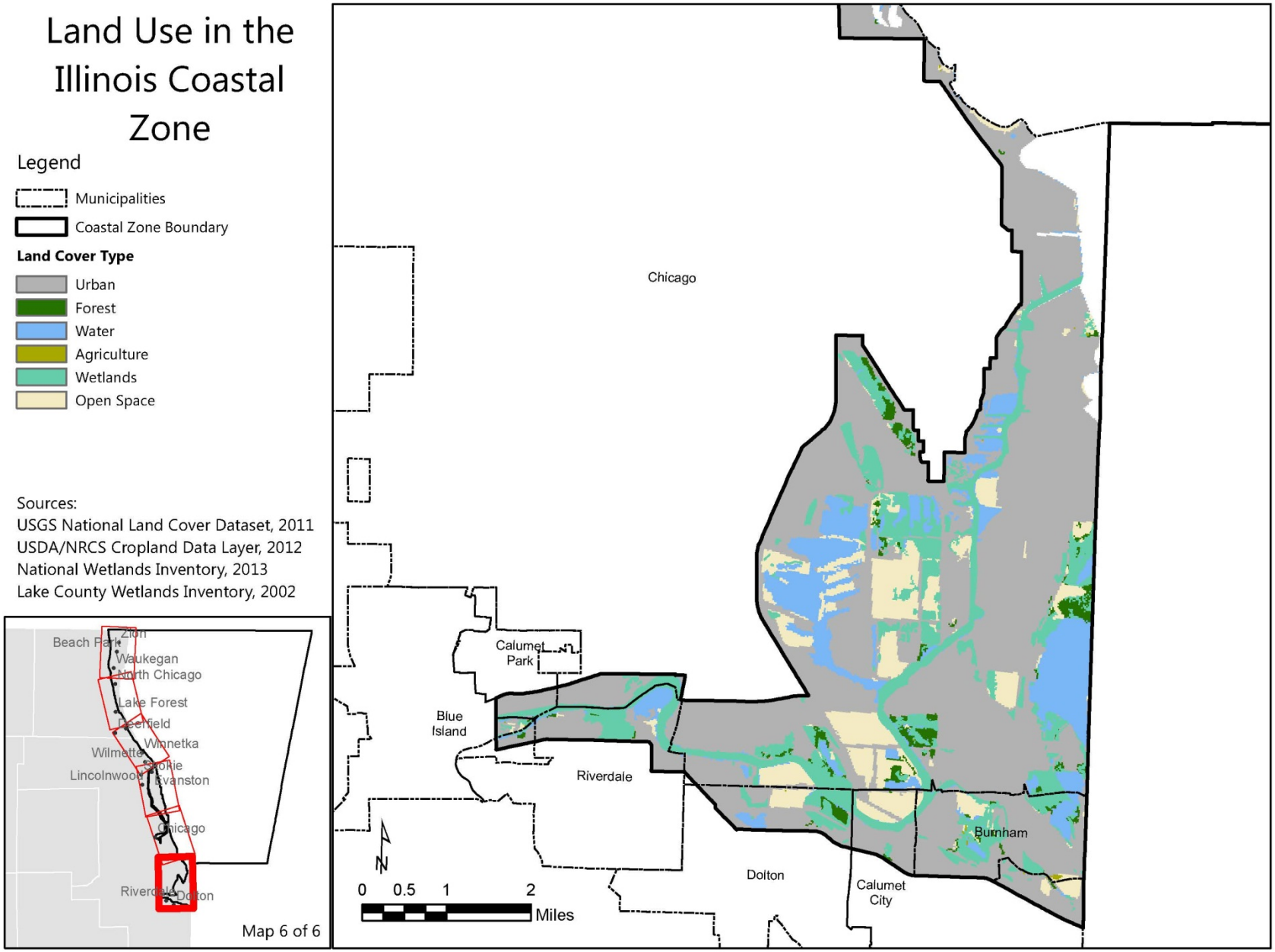
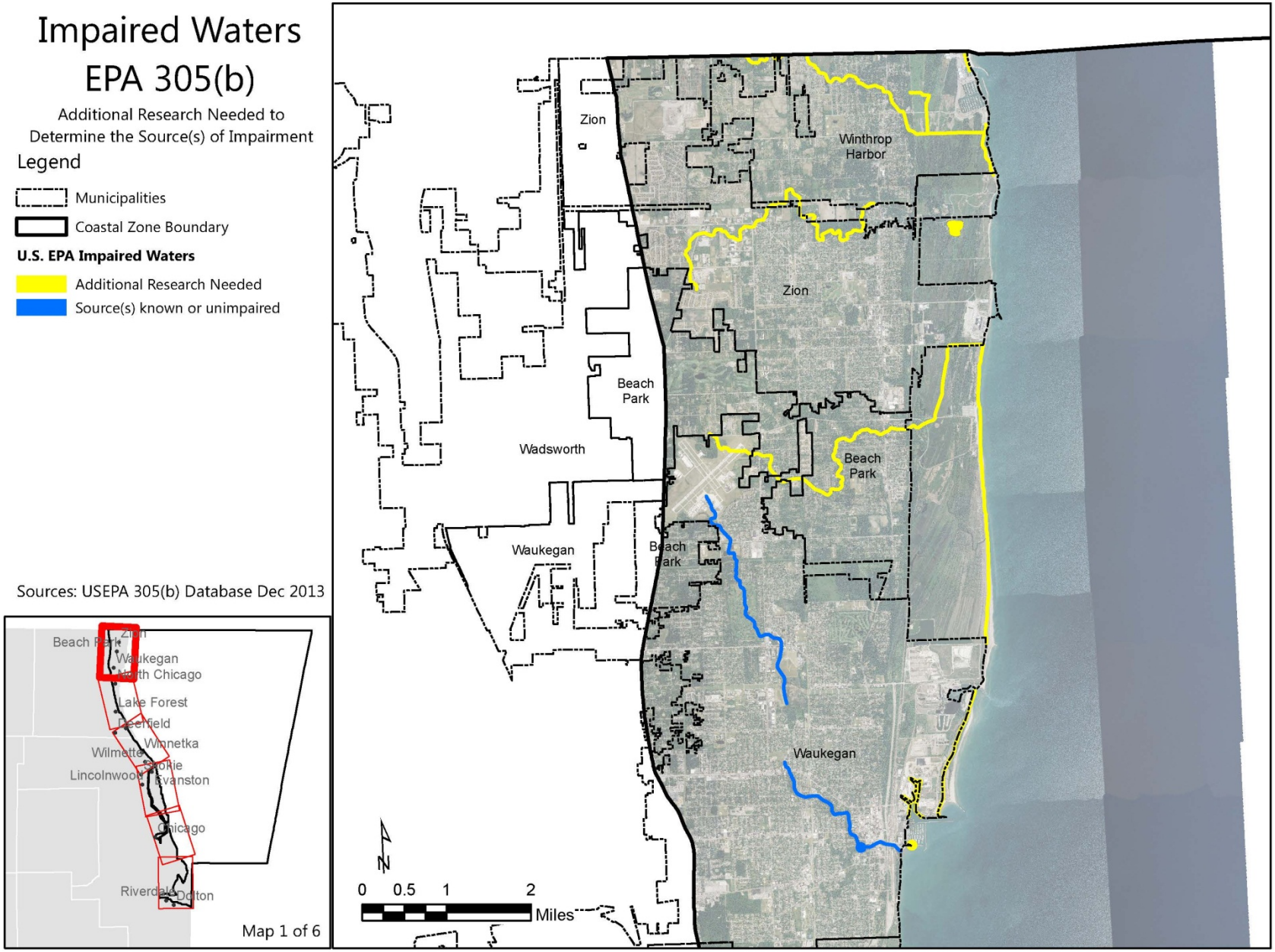

Land Use in the Illinois Coastal Zone
Legend
Municipalities
Coastal Zone Boundary
Land Cover Type
Urban
Forest
Water
Agriculture
Wetlands
Open Space
Sources:
USGS National Land Cover Dataset, 2011
USDA/NRCS Cropland Data Layer, 2012
National Wetlands Inventory, 2013
Lake County Wetlands Inventory, 2002
Chicago
Calumet Park
Blue Island
Riverdale
Dolton
Burnham
Calumet City
0 0.5 1 2
Miles
Map 6 of 6

Figure 8-2 Research Maps



Impaired Waters
EPA 305(b)

Additional Research Needed to
Determine the Source(s) of Impairment

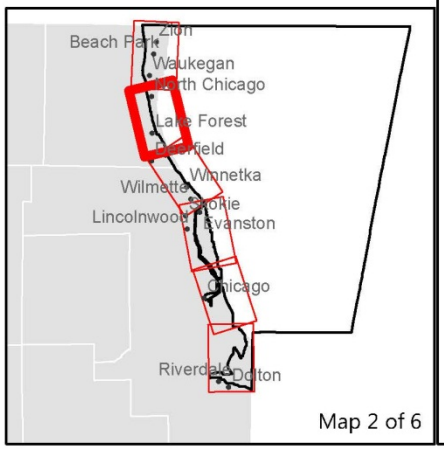
Legend

- Municipalities
- Coastal Zone Boundary

U.S. EPA Impaired Waters

- Additional Research Needed
- Source(s) known or unimpaired

Sources: USEPA 305(b) Database Dec 2013



Impaired Waters
EPA 305(b)

Additional Research Needed to Determine the Source(s) of Impairment

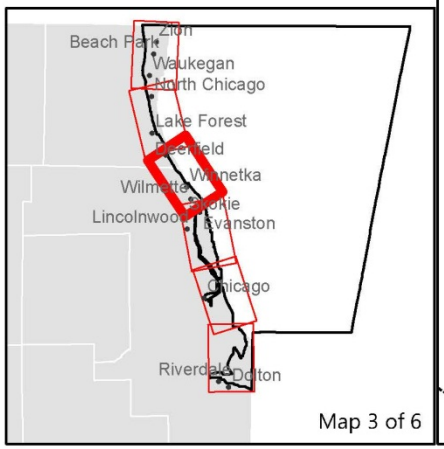
Legend

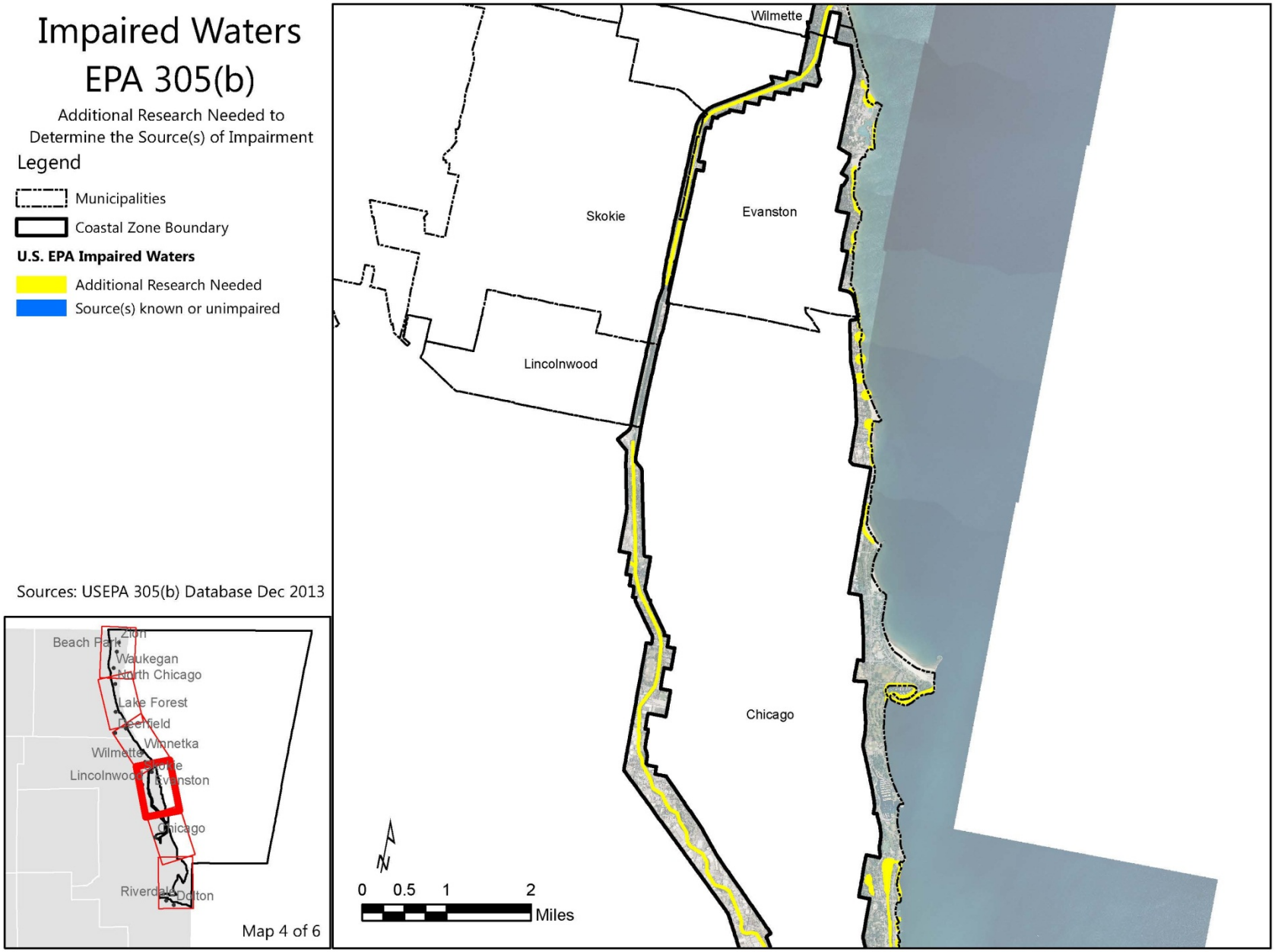
- Municipalities
- Coastal Zone Boundary

U.S. EPA Impaired Waters

- Additional Research Needed
- Source(s) known or unimpaired

Sources: USEPA 305(b) Database Dec 2013




Impaired Waters
EPA 305(b)
Additional Research Needed to
Determine the Source(s) of Impairment
Legend
Municipalities
Coastal Zone Boundary
U.S. EPA Impaired Waters
Additional Research Needed
Source(s) known or unimpaired
Sources: USEPA 305(b) Database Dec 2013
Wilmette
Skokie
Evanston
Lincolnwood
Chicago
0 0.5 1 2
Miles
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Deerfield
Winnetka
Wilmette
Skokie
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 4 of 6

Impaired Waters
EPA 305(b)

Additional Research Needed to Determine the Source(s) of Impairment

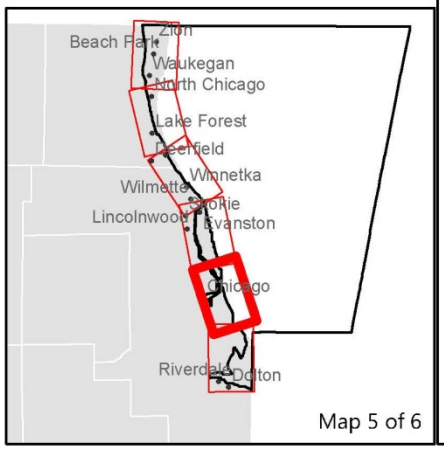
Legend

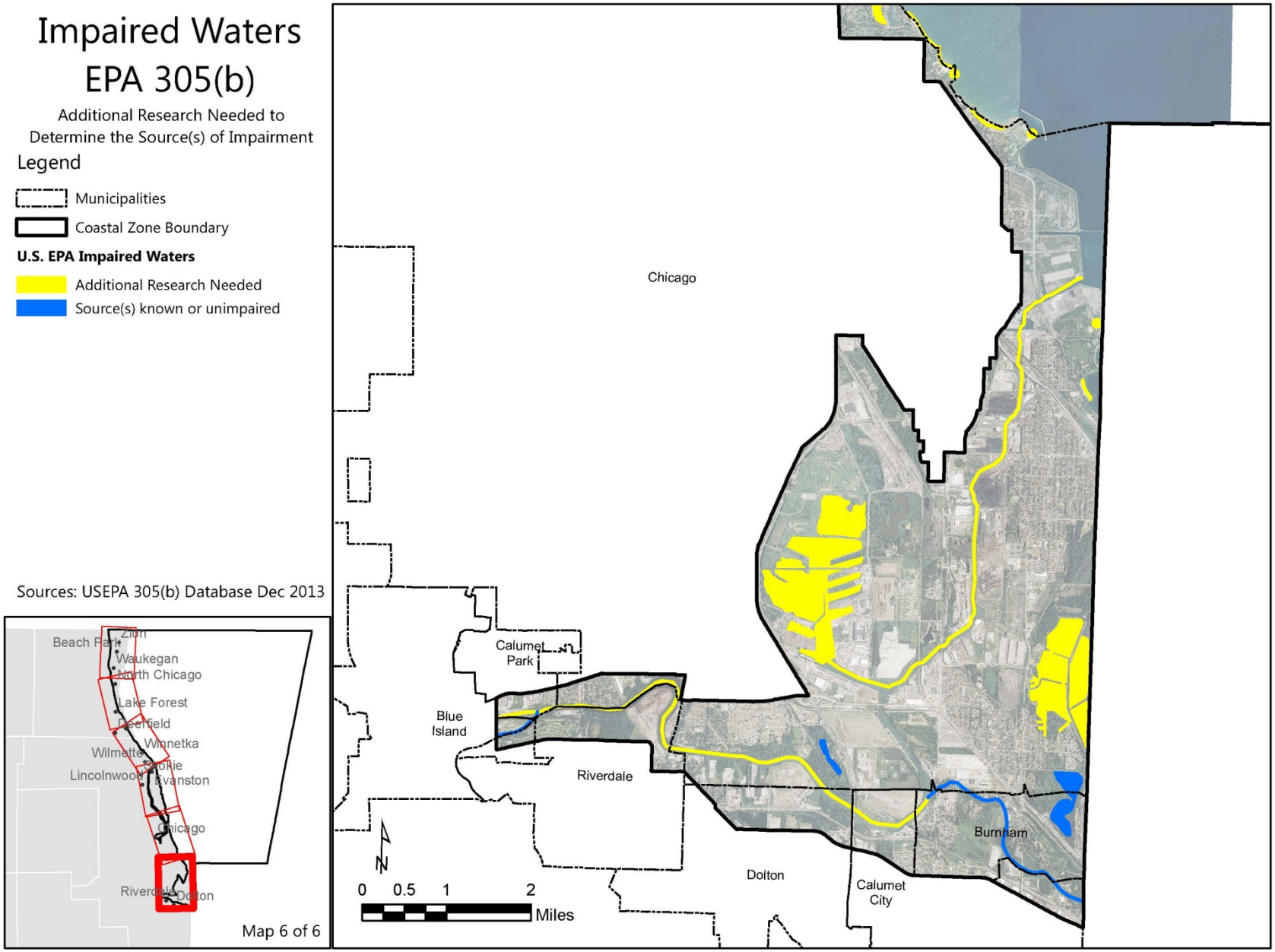
- Municipalities
- Coastal Zone Boundary

U.S. EPA Impaired Waters

- Additional Research Needed
- Source(s) known or unimpaired

Sources: USEPA 305(b) Database Dec 2013




Impaired Waters
EPA 305(b)
Additional Research Needed to
Determine the Source(s) of Impairment
Legend
Municipalities
Coastal Zone Boundary
U.S. EPA Impaired Waters
Additional Research Needed
Source(s) known or unimpaired
Sources: USEPA 305(b) Database Dec 2013
Chicago
Calumet
Park
Blue
Island
Riverdale
Dolton
Calumet
City
Burnham
N
0 0.5 1 2
Miles
Zion
Beach Park
Waukegan
North Chicago
Lake Forest
Deerfield
Wilmette
Winnetka
Kenilworth
Lincolnwood
Evanston
Chicago
Riverdale
Dolton
Map 6 of 6

Appendix 2: Consultant's Report for the CNPCP Advisory Panel

Summary Report

Expert Advisory Panel Program Review & Input

Prepared by: Bluestem Communications

Prepared for: Illinois Coastal Management Program

I. ADVISORY PANEL OVERVIEW

Purpose & Goals

The Illinois Coastal Management Program (ICMP), a department within the Illinois Department of Natural Resources (IDNR), retained Bluestem Communications (Bluestem) to assist with facilitating an Advisory Panel of experts to provide input into the development of the Illinois Coastal Nonpoint Source Pollution Control (CNPC) Program. This new CNPCP will be implemented jointly by ICMP and the Illinois Environmental Protection Agency (IEPA). Specifically, ICMP sought to identify the following:

- Input into the unfilled niche(s) that the new CNPCP could address
- How best the CNPC could provide technical assistance to local governments and the public to implement management measures
- A blueprint for a continued process for CNPC program coordination with stakeholders into the future

Participants

Bluestem worked with staff from ICMP and IEPA to identify a panel of experts who work in the Illinois Coastal Zone on issues related to stormwater management and nonpoint source pollution or otherwise manage these issues. Invitations were extended to 22 professionals representing regulatory agencies, land management agencies, stormwater management agencies, municipal departments, municipal planning agencies and local nonprofit organizations working on these issues. The final Advisory Panel comprised the following group of volunteers:

Name	Organization
Lyman Welch	Alliance for the Great Lakes
Richard Nichols	Association of Illinois Soil and Water Conservation Districts
Dan Cooper	Chicago Park District
John Quail	Friends of the Chicago River
Dan Injerd	Illinois Department of Natural Resources - Office of Water Resources
Amy Walkenbach	Illinois Environmental Protection Agency (IEPA)
Ders Anderson	Openlands - Lake Calumet Watershed Group
Stacy Meyers	Openlands
Michael Adam	Lake County Health Department

Name	Organization
Patty Werner	Lake County Stormwater Management District
Mike Prusila	Lake County Stormwater Management District
Abby Crisostomo	Metropolitan Planning Council
John Murray	Metropolitan Water Reclamation District
Josh Lott	National Oceanic and Atmospheric Administration
Reggie Greenwood	South Suburban Mayors and Managers Association
Janette Marsh	U.S. Environmental Protection Agency - Region 5

II. ADVISORY PANEL FACILITATION

Providing Input

The Advisory Panel met five times from January 2014 - June 2014 in a series of workshops designed to answer three specific questions:

- What gaps currently exist in our region's efforts to reduce nonpoint source pollution?
- How can the CNPCP best contribute to filling those gaps?
- How can the CNPCP best complement the efforts already being made to decrease nonpoint source pollution and improve Lake Michigan's water quality?

Appendix 2.1 includes the meeting agendas and notes from each of the Advisory Panel meetings. In addition to the questions above, the Panel assisted with the development of a survey sent to a broader group of stakeholders in the region, and identifying the most pressing needs (i.e., prioritization).

Survey

After several months of working to identify on-the-ground needs and potential solutions, the Advisory Panel assisted with the development of a survey sent to a broad group of regional stakeholders, with 20 people participating in the survey. The survey was designed to assist with

prioritization of issues and solutions, and was geared toward municipal representatives, regulatory agency staff, public utility staff and local nonprofit partners.

III. INPUT AND OUTCOMES

Addressing Source Categories and Management Measures

In an effort to ensure that the CNPCP will consider and address all of the Management Measures identified by Source Category, the Advisory Panel first reviewed each Source Category, and how other State Coastal Programs have addressed those particular Management Measures. Then, through a series of facilitated workshops, the Panel identified all of the on-the-ground gaps in nonpoint source pollution management within the Illinois Coastal Zone. This was done by reviewing each of the Management Measures identified within each Source Category – with the exception of the Agriculture and Forestry categories – and discussing where current management needs exist, and to the extent possible, identifying potential solutions to address those gaps. Appendix 2.2 includes summary charts of the needs and solutions identified by the Advisory Panel, within each Source Category.

CNPCP Capacity

Due to the complexity of nonpoint source pollution and its management, many of the gaps and solutions overlap. Further, the CNPCP in practice will seek to address nonpoint source pollution from a comprehensive approach, so the team further distilled the gaps and potential solutions from the lens of actual capacity of ICMP and IEPA. The capacities of ICMP and IEPA were broken down into several categories, to help identify just how the CNPCP could participate in the solutions:

Technical Assistance

ICMP and IEPA staff have limited expertise and capacity with regard to some specific issues identified as gaps or on-the-ground needs. However, the agencies can serve as facilitators, educators and resources for technical information pertaining to rules and regulatory guidance. To that extent, in this category, the CNPCP could focus efforts to:

- Host workshops, develop instruction manuals or provide staff expertise to help agencies or municipalities implement on-the-ground projects
- CMP does not currently have staff capacity to provide technical assistance for some of the identified issues, but fostering partnerships to host workshops are a viable option

- IEPA currently produces instruction manuals and provides workshops, but has limited capacity to do so

Coordination/ Clearinghouse

ICMP and IEPA staff participate in regional planning groups and maintain a presence in the region with agency partners and other organizations. The CNPCP could serve as a repository for information, data, materials and other resources, in an effort to ensure access to and coordination among the various agencies and organizations working in the Illinois Coastal Zone. In this category, the CNPCP could:

- Provide a leadership role to bring together agencies to build communication and share resources about specific issues
- Convene task forces, consortiums or otherwise facilitate stakeholder groups to ensure consistency among them

Regulatory

ICMP has no regulatory authority in the State of Illinois, and IEPA has limited capacity and regulatory authority. It is unlikely the CNPCP would focus heavily on taking regulatory action. However, the CNPCP could include limited capacity and can perform the following functions:

- Provide guidance on regulatory issues
- Enforce legislation or ordinances

Information Sharing, Data Inventories, Research & Resource Sharing

ICMP and IEPA staff regularly research and develop or otherwise work with datasets. Such information is highly valuable for municipal agencies or other organizations without the same technical capacity. As such, the CNPCP could function to:

- Gather and distribute data from multiple agencies and organizations
- Organize data collection processes
- Provide mapping services or coordination
- Share data with other organizations
- Develop inventories or helpful/ required research

Planning & Implementation (Funding for)

ICMP and IEPA each manage grant programs with established priorities and focus. Such programs fund partners to plan and implement programs or projects that address nonpoint source pollution. The agencies could focus priorities for the following grant programs toward projects that will address nonpoint source pollution issues (such as green infrastructure implementation and watershed planning):

- Provide financial assistance through the ICMP Coastal Grants Program

- Provide financial assistance through IEPA grant programs, such as the 319 Watershed Planning and Implementation grants
- To some degree, focus State Revolving Funds to green infrastructure projects

Outreach/Education (Funding for)

ICMP and IEPA each have grant programs that could fund the following work within the Illinois Coastal Zone:

- Develop and distribute educational materials
- Build stakeholder lists
- Share funding information and other resources
- Conduct outreach

Addressing the Needs

The following table represents the full list of gaps, as identified by the Advisory Panel, organized by the capacity category (described above) under which they may be addressed. The table is organized with an identified need, its potential solution within the CNPCP, the Source Category under which it was originally identified as a gap, and the CNPCP staff that would likely take the lead in implementing the solution.

PLANNING & IMPLEMENTATION			
Identified Need/Gap	**Potential Solution**	**Source Category**	**CNPC Lead Staff**
Not capturing boaters that do not have dock slips at the Clean Marinas	CMP already funds IL/IN Sea Grant Clean Boat project - continue funding	Marina	CMP
BMPs not implemented on private or public properties with ravines	319 program can provide funding if there is a conservation easement	Hydromodification	IEPA
Lots of places to improve and connect hydrology in wetland areas	319 program can fund wetland hydrology	Hydromodification	IEPA
Protection and management of riparian lands	Grants for restoration projects	Wetlands	CMP
More comprehensive planning at watershed scale; develop, adopt,	Funding for 319 plans (ongoing)	Urban Areas	IEPA

implement more 319 plans			
Monitoring/follow up on implementation of watershed plans	319 program staff	Urban Areas	IEPA
Implementation of green infrastructure practices	Provide grants for green infrastructure implementation	Urban Areas	CMP
	Illinois Green Infrastructure Grants (IGIG) - not available anymore/on hiatus	Urban Areas	IEPA
Daylighting storm sewers	319 program funding	Hydromodification	IEPA
TECHNICAL ASSISTANCE			
Identified Need/Gap	**Potential Solution**	**Source Category**	**Agency**
Repair and maintenance of new or existing structures (seawalls, piers)	Develop operating and maintenance procedures and guidelines	Hydromodification	IEPA
Protection and management of riparian lands	Technical assistance about easements and acquisition	Wetlands	CMP
More comprehensive planning at watershed scale; develop, adopt, implement more 319 plans	New joint ICMP/IEPA staff person to focus on outreach/education	Urban Areas	CMP/ IEPA
Knowledge gap about boat sewage discharge	Provide legal information; workshops	Marina	CMP/ IEPA
Consistent standards for monitoring and maintenance of BMPs	Operating/guidance manuals (such as Illinois Urban Manual)	Urban Areas	IEPA
Integration of sustainable design practices	Operating/guidance manuals (such as Illinois Urban Manual)	Urban Areas	IEPA
Provide more guidance to local governments on the use of best management practices	Provide guidance and practical assistance	Urban Areas	CMP
Consistent and regular maintenance of grey infrastructure	Operating/guidance manuals	Urban Areas	IEPA
COORDINATION/CLEARINGHOUSE			
Identified Need/Gap	**Solution**	**Source Category**	**Agency**

BMPs not implemented on private or public properties with ravines	Coordinate with IEPA 319 planning	Hydromodification	CMP/ IEPA
Several existing ravine restoration programs	Coordinate among programs	Hydromodification	CMP
Coordinate with riparian landowners re management of lands	Coordinate with agencies	Wetlands	CMP
Additional water quality monitoring of the watershed and strategic placement of monitors	Organize a consortium to bring together agencies conducting monitoring	Urban Areas	CMP/ IEPA
Coordination of mapping efforts and assistance with implementing restoration plans		Wetlands	CMP/ IEPA
Coordinate with public agencies such as MWRD on restoration projects		Wetlands	CMP
Coordinate with Chicago Wilderness and forest preserve districts or FPD on restoration projects		Wetlands	CMP/ IEPA
REGULATORY			
Identified Need/Gap	**Potential Solution**	**Source Category**	**Agency**
Regulation of stormwater discharges into ravine systems	IEPA regulates program but not where discharges; develop legislation (long-term)	Urban Areas	IEPA
Improved/more specific stormwater regulations to address redevelopment and retrofits	Implement post construction stormwater standards	Urban Areas	IEPA
Use of salt (roads, sidewalks, parking lots)	Create a licensing program (EX: Minnesota)	Urban Areas	IEPA
Management of snow	Enforcement of existing regulations (can't put in lakes and rivers, etc.)	Other	IEPA
INFO SHARING/INVENTORIES/RESEARCH/DATA COLLECTION			
Identified Need/Gap	**Potential Solution**	**Source Category**	**Agency**

Collapsing sea walls that are holding back contaminated land and brownfields	Create inventory or survey of landscape for brownfield and/or contaminated sites in coastal zone	Other	IEPA
Several ravine restoration programs	Help prioritize restoration projects with technical tools; inventory of sensitive areas; priority locations	Hydromodification	CMP
Lots of places to improve and connect hydrology in wetland areas	Help prioritize restoration projects with technical tools; inventory of sensitive areas; priority locations	Hydromodification	CMP
Inventory of restoration opportunities	Create inventory; gather data	Wetlands	CMP
	319 watershed plans identify projects	Wetlands	IEPA
Protect sensitive ecological areas	Create data inventory	Urban Areas	CMP
Identify baseline of priority pollutants	Create data inventory	Urban Areas	CMP
Assessment of public vs private ownership, to increase restoration on privately owned properties	Create data inventory	Wetlands	CMP
Clean Marinas program does not cover commercial marinas (Navy Pier, Windella boats, water taxis, Calumet marina)		Marina	CMP
Outdated/incomplete inventory of ravine restoration programs	Create comprehensive inventory and make available on website (NOT A PRIORITY)	Hydromodification	CMP
Consistent standard for monitoring and maintenance of BMPs	Create operations/maintenance guidelines	Urban Areas	IEPA
Mapping restoration opportunity areas	Mapping/data collection	Wetlands	CMP
OUTREACH/EDUCATION			
Identified Need/Gap	**Potential Solution**	**Source Category**	**Agency**
Enforcement of fish waste regulations (to help with gull programs)	Part of Clean Marinas program	Marina	CMP
Clean Marinas program does not cover commercial marinas (Navy Pier, Windella boats, water taxis, Calumet	CMP to conduct outreach re BMPs	Marina	CMP

marina)			
Voluntary program – how to get all marinas (lakefront and river) certified?	More education and outreach; Part of Clean Marinas program	Marina	CMP
Interstate coordination to make sure boaters are aware of other state programs, regulations	Coordinate with Great Lakes Clean Marina program	Marina	CMP - in progress
Asphalt sealants	Provide more guidance about what types of sealant to use at point of purchase	Marina	CMP/ IEPA
Balance sand management and erosion control; coordinate local control with federal and state programs	Work with local communities to provide more info about state and federal programs; outreach to local communities	Hydromodification	CMP
Guidance on ravine restoration and new structures on the shoreline	Provide better communication about existing programs and resources to communities and municipalities	Hydromodification	CMP
Protection and management of riparian lands	Education and outreach programs to riparian landowners	Wetlands	CMP
Use of salt (roads, sidewalks, parking lots)	Education and outreach about use and alternatives	Urban Areas	CMP/ IEPA
Urban wildlife and nuisance control (gulls, pets)	Education and outreach about management tactics	Urban Areas	CMP/ IEPA
Lack of knowledge about Clean Marinas program	Additional outreach; in progress	Marina	CMP
Provide more guidance about maintenance facilities	Additional outreach; in progress	Marina	CMP
Working with architects/landscape architects (ex: Chicago River projects with Studio Gang)		Wetlands	CMP

IV. RECOMMENDATIONS

Top Issues Identified

Over the course of the months in which the Advisory Panel met, several issues received a lot of attention. While all of the gaps identified are very important, some of the issues already have

clear agencies or organizations leading efforts to provide solutions, while others have no clear leaders yet identified and/ or need additional support in the short term. Currently, the issues of greatest need for support (in no particular order) were identified as:

- Coordination among the many agencies working in the Illinois Coastal Zone
    - Need for more streamlined or integrated permitting processes
    - Wetlands data, for example, is often inconsistent among various agencies or organizations; need a consistent method or dataset for the Coastal Zone
    - Coordinating with the IEPA 319 funding program cycles to ensure planning and implementation projects are receiving priority in sync
    - Coordinating among IDNR offices to ensure issues and processes are being managed consistently
- Water quality monitoring
    - Monitoring is extremely important to track progress, but continually underfunded
    - Monitoring results are not shared effectively, when available, and need better reporting standards
- Stormwater BMP maintenance
    - Many agencies and organizations are installing BMPs, but the long term maintenance and management is not monitored or enforced
    - Consistency in maintaining and monitoring installed BMPs also lacks; not all owners using the same methods or guidelines
    - Illinois Urban Manual is dense and difficult to interpret, but an easier guide could be beneficial
- Green infrastructure (GI) implementation
    - Good planning and siting of GI opportunities exists, but funding and will to implement is limited
- Addressing the actual pollutants causing nonpoint source pollution
    - Cleaning up/ capping brownfields – especially in the Calumet region – where pollutants are exposed and directly polluting the waterways
    - Regulating the chemicals in or use of asphalt sealants (i.e., parking lots at marinas, etc.)
    - Controlling the amount of road salt used in the Coastal Zone

To address the needs above, the CNPCP would use a mix of the capacity categories to implement solutions, based on workplan capacities within the two implementing agencies. The Advisory Panel identified the above issues as having the most pressing needs over the next three to five years.

Several gaps or needs identified currently have good momentum and leaders, but could also benefit from additional support. For the following gaps, the CNPCP could provide funding to

those leaders – municipal and nonprofit partners – through its grant programs for education and outreach, or other efforts currently being initiated by those groups.

- Ravines restoration and maintenance
    - Need for an updated inventory of ravine projects
    - Need for better regulation of stormwater discharges to ravines
- Urban wildlife and nuisance control
- Clean Marinas program expansion
    - The CNPCP inherently addresses the Marinas Source Category through its Clean Marinas program; the program is well funded and developed, but could be expanded or include additional outreach
- Lack of baseline data, information or inventories
    - The causes of nonpoint source pollution are well documented and known, but several issues lack baseline data for evaluating progress
    - Several issues have leaders but could use updated inventories or assessments, such as restoration opportunities, approved watershed plans and priority projects, and areas to improve and connect hydrology in wetland areas

Stakeholder Survey

The Advisory Panel assisted with the development and distribution of a survey to a broader stakeholder group; of that, 20 people took the survey. The full list of survey questions and results can be found in Appendix 2.3. Following are the highlights from the responses received.

- The top issues that respondents feel need attention in the short term were:
    - Implementing natural infrastructure methods (57.9%)
    - Protection of sensitive ecological areas (36.8%)
    - Water quality monitoring (31.6%)
    - Nutrient loading and management (31.6%)
- Most respondents said that funding (through grant programs) would be the most useful way to address the top issues; the second most useful tool would be better coordination among agencies.
- In the open ended questions, respondents made the following suggestions:
    - Need for consistency between municipal ordinances for stormwater management
    - Need for more natural lawn care to reduce pesticide and nutrient use
    - Methods for meeting TMDL coliform limits for stormwater
    - Reducing impervious surfaces in the Coastal Zone
    - Grant funding for full time staff to address issues

Capacity Categories

As outlined above, the CNPCP will have several capacity tools to use in addressing the identified nonpoint source pollution solutions. Of the six capacity categories – Technical Assistance, Coordination/ Clearinghouse, Regulatory, Information Sharing/ Inventories/ Research/ Data Collection, Planning & Implementation (Funding for), and Education & Outreach (Funding for) – the Advisory Panel and survey respondents identified the top services the CNPCP could provide. Both the Advisory Panel and the survey respondents said the biggest need for assistance was funding. This indicates a strong priority for the CNPC program to provide funding (via grants) to programs and projects that address nonpoint source pollution, most importantly for the particular issues identified above and high priority. In addition, the Advisory Panel stressed a need for better coordination among agencies, specifically as that relates to permitting processes and rotating funding program priorities to complement each other. Further, the survey respondents highlighted the need for assistance with data collection and inventories as well as technical assistance.

Based upon the above-noted input, the CNPC should consider focusing its efforts on serving the role of providing funding, agency coordination, and data and information sharing focused on implementing and monitoring natural (green) infrastructure techniques, water quality monitoring and nutrient load management.

Looking to the Future

The above information represents the current needs, as of the completion of the Advisory Panel workshop series in June 2014. The CNPCP will flourish beyond the short term view of three to five years in which these needs were identified; as such regular stakeholder engagement to track progress and needs should be built into the Program. This ensures real time evaluation and program revisions as may be needed. To accomplish this, CNPCP staff should consider the following strategy for future engagement.

1. Annual Stakeholder Survey
    a. This process generated a list of stakeholders in the Illinois Coastal Zone; that list should be maintained and added to as staff in the region conduct projects or otherwise engage with practitioners in the field.
        i. Stakeholder list to not only include municipal partners, nonpoint source pollution managers and affected landowners, but also the business community.
    b. Advisory Panel members should be recruited to assist with survey development and distribution.
    c. The survey should focus on key information needs about the CNPCP, such as: gauging how effectively stakeholders feel the Program has identified and

addressed needs; polling for new or emerging trends or issues related to nonpoint source pollution; and assessing gaps or needs consistently not being met.

2. Advisory Panel Annual Meeting
    a. A group of engaged expert advisors has guided this process and their current level of commitment should be recognized as opportunity for support and coordination.
    b. The CNPCP should convene the Advisory Panel on an annual basis to share best practices, discuss emerging trends and develop the broader stakeholder survey identified above.

3. CNPCP Workshops
    a. Workshops are a great way to engage stakeholders and practitioners in the region; to the extent the CNPCP will host technical assistance workshops, these should be considered excellent opportunities for engagement.

4. Five Year Programmatic Needs Assessment
    a. After the fifth year of CNPCP implementation, ICMP should reconvene the Advisory Panel to evaluate the program's overall focus and effectiveness. At that point, ICMP should establish with the Advisory Panel a regular schedule for evaluation and assessment of the CNPCP and its focus.
    b. The goal of the five year assessment would be to revisit priorities to ensure the most current priority areas are always being addressed and to look at strategic planning and staff capacity to implement the program.

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