

The Calumet Region

ECOLOGY: Protecting, Preserving and Restoring the Adaptive Capacity of Natural Ecosystems

Pollution Control and Prevention

One of the biggest assets of the bi-state Calumet region is its Lake Michigan shoreline. Although we don't have figures just for the Calumet region, we know that Illinois and Indiana receive a variety of benefits from Lake Michigan water quality, as shown in Table VIII, and which ties into the tourism opportunities discussed earlier under economic development. We do know that marina development is part of the plan for revitalizing Northwest Indiana and the same hope redevelopment at such sites as U.S. Steel Southworks in Southeast Chicago will capitalize on lake-front access.

**Table VIII.
Annual Economic Benefits of Clean Great Lakes Waters Along the Illinois and Indiana Shore**

	Indiana	Illinois
1. Sportfishing		
Expenditures	\$404 million	\$1.1 billion
Jobs Generated	15,000	37,000
State Sales Tax	\$20 million	\$72 million
State Income Tax	\$7 million	
License Revenues	\$6 million	
Registered Boats	270,000	361,000
2. Commercial Fishing		
Pounds	1.3 million	268,000
Dollars	\$1.7 million	\$330,000
3. Tourism		
Indiana Dunes		
National Lakeshore		

Visitors 1.6 million

Revenue \$26 million

Jobs 906

Michigan City Washington Park Beach

Visitors 60,000

Revenue \$175,999

Illinois Beach State Park

Visitors 2.5 million

Revenue \$13 million

Source: 1991 National Survey of Fishing, Hunting, and Wildlife Associated Recreation; U.S. Department of the Interior, "Fisheries of the United States 1988"; U.S. Department of Commerce, National Park Service, National Oceanic and Atmospheric Administration; "Testing the Waters IV," Natural Resources Defense Council, 1994. From Coast Alliance, State of the Coast: A State-by-State Analysis of the Vital Link Between Healthy Coasts and a Healthy Economy, June 1995

The Calumet region's Lake Michigan basin is at risk. When the U.S. Environmental Protection Agency ranked human health and ecological hazards facing the Great Lakes region, it concluded that the most significant sources of environmental contaminants were concentrated around Chicago, Illinois and Gary, Indiana (as well as Detroit, Michigan, Buffalo and Niagara Falls, New York and Cleveland, Ohio). Fish and birds living around Lake Michigan and Ontario also tend to have markedly higher levels of contaminants than those of the other three lakes.⁸⁵

All of the shoreline along Lake Michigan in Illinois and Indiana meets state criteria for safety of drinking water supply, and the vast majority of the shoreline also meets the criteria for safety for swimming. However, much less of the shoreline meets the tougher standards for protecting aquatic life. In Illinois all of the 63 shoreline miles are threatened and in Indiana all of the 45 miles only partly meet the criteria for safety for aquatic life.⁸⁶

Nearly all of the shoreline miles fail to meet the criteria for fish consumption. Fish

consumption is the primary means by which humans are exposed to toxins in Lake Michigan.⁸⁷ Contaminants responsible for Fish Consumption Advisories in Lake Michigan are chlordane, DDT, dieldrin, mercury, PCBs, and toxaphene (Wisconsin advisory).⁸⁸ U. S. EPA's Great Lakes Basin Risk Characteristics Study indicates that human cancer risks related to basin-wide exposure to contaminants in Great Lakes fisheries and ambient water are primarily due to PCB exposure.⁸⁹

There are some positive signs for protecting the Calumet region's Lake Michigan asset. All of the states which border Lake Michigan are writing new rules to meet a federal requirement for more consistent water quality standards in the eight Great Lakes states. The process is called the Great Lakes Initiative. The Indiana Department of Environmental Management (IDEM) has been meeting with industry, municipalities, and environmental groups for months about this rule-making.⁹⁰

Indiana waterbodies draining into Lake Michigan include the Grand Calumet River and the Little Calumet River. To make way for the steel industry in Gary, the Grand Calumet River was moved half a mile south to flow through a straight cement-lined ditch and carry waste discharges from over 30 outlets to Indiana Harbor and Lake Michigan.⁹¹ One of biggest threats that industrial and shipping activity has created for the South Lake Michigan region is the Grand Calumet River and Indiana Harbor Canal Area of Concern (AOC).⁹² The Grand Calumet River is one of Lake Michigan's most toxic tributaries.

Section 304(1) of the Clean Water Act requires states to identify waterways where water quality is poor despite regulatory efforts. Two of the worst are Grand Calumet River and Indiana Harbor and Ship Canal. There are Lake Michigan Watershed fish health advisories for the Grand Calumet River Area of Concern due to PCBs and chlordane.⁹³ Preliminary data from Indiana Harbor indicate that bottom sediments are among the most toxic Great Lakes sediments ever analyzed. In the Grand Calumet River, surface sediments were also found to be highly toxic.⁹⁴

Problems in the Grand Calumet River and Indiana Harbor Area of Concern include conventional pollutants, heavy metals, and toxic organics (for example, metals, cyanide, PCBs, ammonia, dissolved oxygen, mercury, lead, copper, cadmium, and arsenic), resulting in contaminated sediments, dredging restrictions,⁹⁵ restrictions on fish consumption, degradation of fish populations, fish tumors, and biota impacts. The sources are municipal facilities, industry runoff, combined sewer overflows and especially pollutants already in place from past activity.

Other problematic tributaries include Pigeon Creek (ammonia, dissolved oxygen) and Little Calumet (cyanide, ammonia, and dissolved oxygen).

There are several positive signs for these polluted waterways. U.S. EPA and the states have undertaken major enforcement actions against industrial dischargers (including USX Corporation's steel-making facilities in Gary, Indiana, Inland Steel, LTV, Bethlehem Steel Corporation, Atlantic Richfield Corporation, East Chicago Sanitary District) which resulted in clean ups and pollution prevention programs, and undertaken programs to eliminate combined sewer overflows of untreated sewer water.

Residents of the Calumet area in Indiana have worked with public officials to develop a Grand Calumet Master Plan to restore water quality to their river and harbor. The Grand Calumet Task Force has convened stakeholders willing to partner on a project to study the present and future uses of the Grand Calumet River Corridor (the property and lands adjacent to the Grand Calumet River and Indiana Harbor Ship Canal in the cities of East Chicago, Gary, and Hammond.) Now that clean up projects are finally underway, government and industry are proposing to dredge up tons of contaminated muck from the Grad Calumet and store it in large on-ore landfill type facilities along the river bank. This is at best a short-term solution. The hope is that some day technologies can be developed to treat and recover usable elements, reduce the disposal volume, and neutralize contaminants.⁹⁶

Pollution prevention has become a key part of efforts in the Calumet region to stop the recurrence of pollution, and this means a focus on steel, chemicals, and refining. In 1989, the vast majority of the volume of wastes discharged directly into Lake Michigan and tributaries originated from the iron and steel industries, followed by the paper and allied products industry, chemical manufacturing industry, and the petroleum refining industry.⁹⁷ In Indiana, the main dischargers are petroleum refining, primary metals, chemicals and allied products, transportation equipment, machinery and equipment, and food and kindred products.⁹⁸ Contributors include two electric utility plants in Illinois and four in Indiana. There are 10 petroleum refineries that are contributors in Indiana and none in Illinois.

While government agencies are playing a key role in pollution prevention in the region, so are environmental organizations. Clean sites has already brought together oil This is atwutobo(Grammond.em u7lnyustry.)Tjcturing Tj 0 -1.2couogr bct fng the su prre usc

to water discharges of toxic chemicals is almost entirely accounted for by Inland Steel, USX Gary Works, and American Maize Products. Lake County's discharges of toxic chemicals into the public sewage system are almost entirely accounted for by Ferro Corp. Keil Division and Qaunex La Salle Steel.

Ten sources accounted for over 96 percent of all of the releases of reported Toxic Release Inventory chemicals in Northwest Indiana in 1990, including most of those listed above plus Bethlehem Steel, Amoco Oil Company, Teldyne Casting, American National, Avery Decorative, and Teldyne Casting. Inland Steel alone accounted for 52,982,076 pounds per year out of a total 79,328,377. The types of wastes discharged by these facilities include waste heat from cooling operations, toxic organics such as PCBs and dioxin, toxic metals such as lead and mercury, oxygen demanding materials (measured by BOD and COD), ammonia and phosphorus, and suspended or dissolved solid matter.

may discharge into Lake Michigan, no one has determined for sure that contaminants which reach Lake Michigan pose a significant health threat. Clarifying the extent of the threat and finding that is substantial could help focus clean up resources on the region. Even if the contamination is not a threat to Lake Michigan, people living in Southeast Chicago are exposed to contaminants which originate in the shallow aquifer when it accumulates in basements and low-lying areas or when they grow food or eat fish caught in local waterways. [105](#)

The nature of groundwater contamination in Southeast Chicago makes finding solutions difficult. Possibilities include bioremediation and piping oxygen-rich water from a local aeration plant to 150 acres of wetlands (also suggested by George Roadcap, Illinois DNR). [106](#)

There has been other progress in environmental protection in the Calumet region in the past ten years. In Illinois, some landfill expansion has been stopped. Repeal of the Illinois Retail Rate law means that it is unlikely that most of eight incinerators which would have formed a ring around the southwestern tip of the Great Lakes ecosystem will be built. Air quality has improved in Southeast Chicago. Water quality is better and waterways are cleaner. Environmental fines which can be used for community projects have created opportunities to protect natural areas.

In May 1996, U.S. EPA negotiated a settlement with 11 nonprofit organizations represented by Chicago Legal Clinic. It agreed to perform a multimedia analysis of all mobile, point and area sources in Cook County, IL and Lake County, Indiana, with the goal of creating the first reliable model to define cumulative risk in a complex urban setting. In the next 2 years, U.S. EPA will (1) develop an environmental loading profile to determine potential exposures, (2) develop a cumulative risk matrix, (3) develop pollution prevention strategies targeted at the sectors because of cumulative risk, (4) establish a community-regulator dialog to determine how to incorporate cumulative risk into permitting and other decisions, and (5) design and implement remedial activities and conduct community education/outreach to address the findings. [107](#)

In Northwest Indiana, because of the U.S. EPA's Geographical Enforcement Initiative, businesses in Northwest Indiana are incorporating environmental management in ways they did not before. With the large fines imposed, it does not pay to pollute. IDEM Northwest Indiana's regional office is stronger than in the past and Northwest Indiana is a priority. Air quality is better. The Gary Works are now visible. Water quality is improving. Some coking batteries at the steel mills have closed. Pickle liquor disposal via deep well injection has been stopped, as has slag fill in Lake Michigan.

The Grand Calumet River is much improved, and thousands more regional residents are aware of the river's problems and are committed to clean up and restoration. Clean up projects are before the public that could have major portions of the Grand Calumet River dredged of contaminated sediments by the year 2000. The Grand Calumet

Corridor Planning/River Visioning Initiative is building momentum for river improvements. Lakeside Planning by NOAA (coastal zone management planning) is moving along. The Remedial Action Plan (RAP) project is helping to clarify what needs to be done to improve the ecosystem. RAP Stage 3 Implementation for Indiana Harbor Area of Concern is proceeding.

Unfortunately, the remaining problems are daunting. Improving life in the "toxic donut" around Altgelt Gardens is an overwhelming effort, in spite of success at attracting regulator attention and some research and clean up dollars.

Even though much landfill expansion has been blocked, Waste Management is negotiating with MWRD to site a landfill in the at O'Brian Lock Marsh, an area categorized as 2-3 in the SAMP and in City Space as a high priority preserve. If the landfill moratorium is lifted, Waste Management will also want to fill in the access road next to its land. However, on January 14, 1997, the Chicago City Council voted to extend the City's landfill moratorium for another year.

And, while public involvement in clean up efforts has greatly increased, residents feel government agencies still need to go beyond meetings and hearings. They also are concerned that some local leaders see a conflict between environmental improvement and economic rebirth.

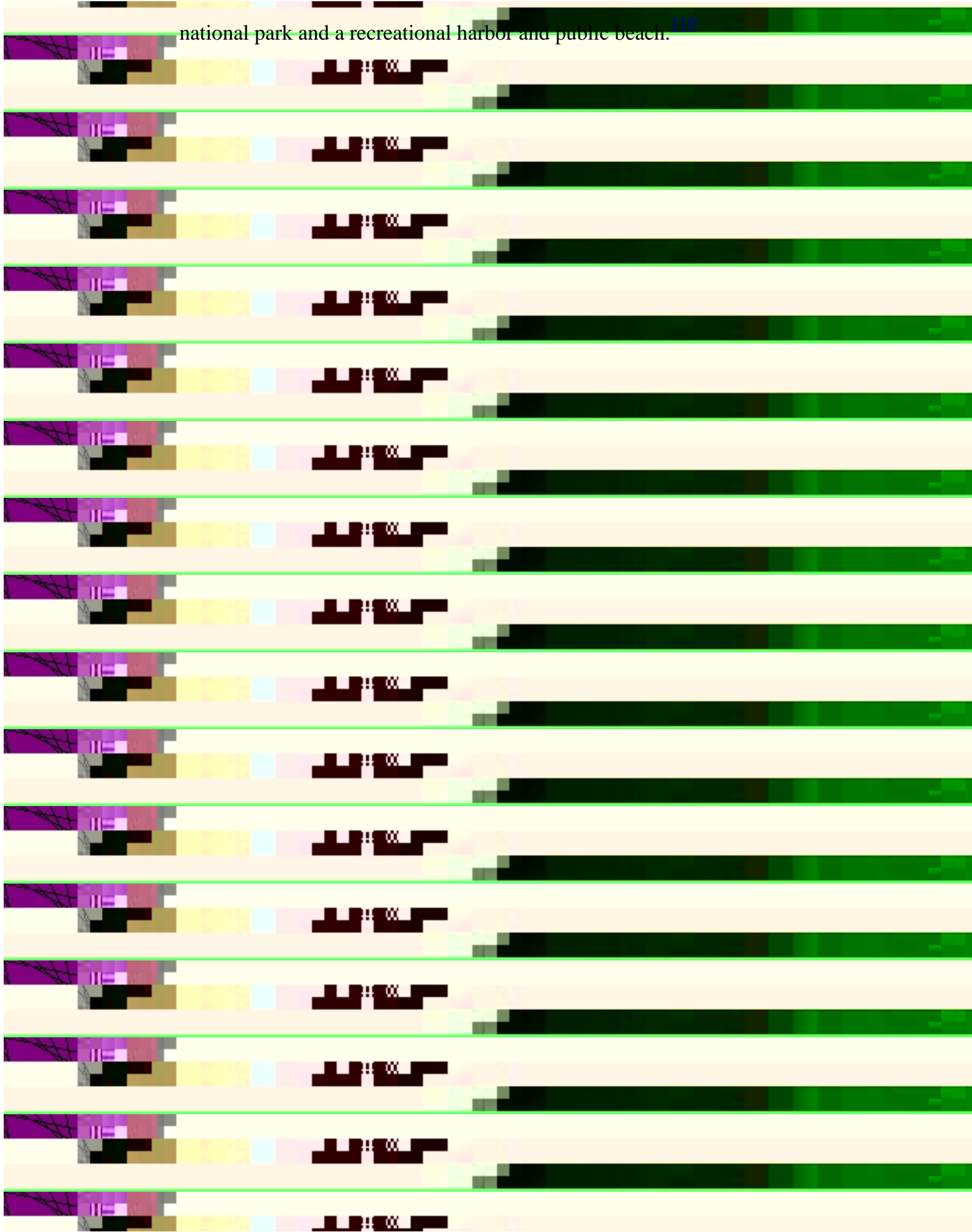
Ecological Conditions

The Calumet Region has some of the most valuable natural areas in Illinois and Indiana. There is huge and significant biodiversity in the Calumet region and a great variety of endangered and threatened species of plants and animals.¹⁰⁸ Perhaps even more important, there is an opportunity in the Calumet region for learning how to co-exist with other species because of the natural remnants which exist along side of densely populated and industrial areas.

The bi-state Calumet region is part of the Chicago/Calumet Lacustrine Plain ecological region which extends 112 kilometers from Winnetka, Illinois, to 13 miles northeast of the state line of Michigan in a crescent shape. Many of this region's historical habitats are preserved in the Indiana Dunes National Lakeshore, a natural shore of narrow beaches and high dunes. All of the remaining shoreline along the Chicago/Calumet Lacustrine Plain has been altered by coastal development.

In Indiana, about half of the 45 miles of shoreline is publicly owned local, state and national parks for recreation, about one-third is occupied by industry, and the remainder is used for private homes.¹⁰⁹ In Lake County, industry occupies most of the shoreline. In Porter County, the shoreline includes four residential communities, two major steel mills, a commercial harbor, a power plant, and the Indiana Dunes National Lakeshore. In LaPorte County, at Michigan City, a coal-burning power plant stands between a

national park and a recreational harbor and public beach. ¹¹⁰



which provided convenient disposal options for the mills, refineries, and manufacturing plants.¹¹⁸ The Lake Calumet area has the distinction of being a "combination landfill and nature area."¹¹⁹

It is estimated that approximately 25,000 acres of wetlands once existed in the Lake Calumet region prior to European settlement. Only about 600 acres remain. So little remains of these areas-- and so much of it is in fragmented patches -- because industry has filled and eliminated large expanses. Developers filled marshland with dredge spoil from the rivers to enable industrial development.

The occurrences of wetlands in this area is the result of low topography and underlying clay strata in the soil which lead to poor drainage conditions. Most of the wetlands are open water characterized by permanent standing water. Many are emergent wetlands, i. e. freshwater marshes dominated by grasses and grass-like plants.¹²⁰

In the Lake Calumet Area, most of the existing wetlands are clustered along the eastern shore of Lake Calumet and along the Little Calumet and Grand Calumet Rivers. Some wetland complexes also occur adjacent to Wolf Lake and Powderhorn lake. There are also a large number of small isolated patches of wetland through the region.¹²¹

Landfills, hazardous waste sites and pollution are a continuing threat to the remaining wetlands.¹²² The surface and ground waters of the remaining wetlands have been polluted, so that plant diversity and wetlands functions are lowered. There are some small tracts that are intact of forested wetlands in public woods and wet prairies associated with the sandy lake ridges and swales.¹²³ However, it is hard to survive with 51 hazardous waste disposal sites in the area including sanitary landfills, on-site settling ponds, and general refuse dumps.

Although what is best known about the Calumet region is its wetlands, the Calumet region also has lake plain prairie remnants, savanna, and dune swales. The complex of wetlands, prairie/savanna sites, and wetlands in the Lake Calumet area may be the most important bird stopover point in the Chicago metro area.¹²⁴

The mix of high-quality and highly degraded natural areas in this region serves as a staging area for migrants using the Lake Michigan shore for their migration.¹²⁵ There are about twenty-eight hundred acres of wetlands and open water in the Calumet region providing nesting grounds for thousands of birds, and stopovers for many more thousands of migratory birds in spite of intense pollution. There are 20 species of threatened or endangered birds observed in the area and nine plant species, all of which are associated with wetlands and aquatic systems. These birds are found in Lake Calumet, Wolf Lake, Lake George and nearby marshes, such as the Big Marsh which supports a large colony of nesting Black-crowned Night-herons.

In the meantime, the remaining natural areas have little or no protection from industrial development and expanding landfills, and there are a variety of threats. Many natural areas are not actively managed as ecological sites because they are privately owned, abandoned or owned by quasi-public authorities which don't have an open space mission. Many businesses don't see how they will benefit from restoration. Corporations in the midst of settlements for remediation may reserve their natural areas so they can negotiate protection as part of their settlements. In the meantime, it is hard to interest landowners in landscape improvement even when there is likely to be a big payoff in land values. Railroads are interested in developing their property, not preserving open space.

The Sanitary District, for example, is conservative in its support of open land because it may need its land in the future for sludge disposal. This is important because the District owns a lot of land in Southeast Chicago and a growing quantity of sludge which it must dispose of. The Port Authority also does not have a strong thrust for open space preservation, and it has large natural resources in Southeast Chicago.

Many properties in the region could be acquired, but no one is pursuing them yet and there is not enough money for acquisition, especially when there are hazardous waste problems. There is not much local government support for setting aside open space (but this could change if someone helps bring local governments together to attract grant funding, portion out responsibility, piece together parcels, and integrate trails and corridors with economic development. The Openlands project may increasingly play this role.

Even though his agency staff members are supportive, Mayor Daley himself has not focused on the region or open space preservation. There are still many open

to attracting new economic development.

Still, there has been progress in improving ecological capacity in the past decade in the Calumet region. One sign of progress is the growing recognition of the valuable assets in the region. In Illinois, all Chicago environmental organizations have developed an interest in the region. As a result of 1000s of field trips, many more residents of the metropolitan area know where the Calumet region is and know that there are valuable resources there. Most high value areas are well documented and promoted. The City Space Plan, a project of the Chicago Department of Planning and Development, says

are five nature preserves, and environmental agencies and some companies see the need to move beyond saving specific sites to dealing with the ecological health of the region. Residents now recognize the biodiversity in the region more. Habitat protection and restoration efforts include Clark and Pine, Ivanhoe Cluster, Gibson Woods, and the Hoosier Prairie.

The attention which U.S. EPA has paid to Northwest Indiana through its Geographic Enforcement Initiative has produced broad-ranging results. Planning has progressed to restore wetlands along the Little Calumet River using federal money for flood control through the Conservation Service. There have also been fisheries enhancement efforts, particularly the small mouth bass in harbors, and efforts to stem the reduction in yellow perch.

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