

Our

FOURTH SHORE



Great Lakes Shoreline

RECREATION AREA SURVEY

UNITED STATES DEPARTMENT OF THE INTERIOR—FRED A. SEATON, *Secretary*
NATIONAL PARK SERVICE—CONRAD L. WIRTH, *Director* - - - - - 1959

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON 25, D. C.

January 4, 1960

MEMORANDUM

To: Director, National Park Service

From: Secretary of the Interior

Subject: Great Lakes Shoreline Recreation Area Survey Report

The draft of the Great Lakes Shoreline Recreation Area Report has been received and is under review in this office. Because of the numerous inquiries concerning availability of the report, please proceed as rapidly as possible with its publication, using non-Government funds which have been donated for that purpose.

Three outstanding areas included in this report--the Sleeping Bear Dunes, Huron Mountains and Pictured Rocks--were recommended for consideration as units of the National Park System by the Advisory Board on National Parks, Historic Sites, Buildings and Monuments at their October 1959 meeting. It should be emphasized, however, that the Department of the Interior is supporting the enactment of legislation to permit the designation by the Secretary of not more than three shore areas as National Shoreline Recreation Areas. The shorelines of the Great Lakes will be considered along with those of the Pacific, Atlantic and Gulf coasts in determining which three areas are worthy of preservation by the Federal Government should Congress enact the legislation. Publication of this Survey Report should not be construed either as approval or disapproval of any recommendations contained herein.

In the Great Lakes area, many State and local governmental agencies have evidenced an interest in the preservation of portions of our vanishing shoreline. Because of their concurrent interest in this field, this comprehensive survey should be of great value to such agencies in their consideration of additions to State and local public shoreline areas.

W. A. Steiwer
Secretary of the Interior

Foreword



Superior, Michigan, Huron, Erie, Ontario – these are the Great Lakes. Together with their connecting waters and outlet to the sea, they form more than one-third of our International Boundary with Canada. On the following pages is a report on the recreation resources of that portion of the Great Lakes within the United States. Possessing a shoreline of 5,500 miles, these waters have been aptly called OUR FOURTH SHORE.

Like the shores of our Atlantic, Gulf and Pacific coasts, those of the Great Lakes are being threatened by the encroaching rumble of bulldozers; bulldozers designed to level, to scar and to alter forever our national lakeshore heritage. In order to determine what portions of undeveloped shoreline remained that were worthy of preservation for their scenic, natural or other recreation values, the National Park Service conducted a survey of the United States shoreline of the Great Lakes during the summers of 1957 and 1958. This survey was similar in pattern and objectives to those previously conducted along the Atlantic, Gulf and Pacific coasts.

A shoreline study of this nature had no precedent on the Great Lakes, and its accomplishment has been made possible through the generous donation of funds by private foundations. Completion within the allotted time was greatly facilitated by the wholehearted and efficient assistance of the United States Coast Guard. Other major contributions, too numerous to itemize, were made by federal, state and local agencies along with those of many public-spirited individuals and organizations.

The over-all findings and recommendations of the survey are candidly set forth within these covers. Detailed information on individual areas within the various States is included in a separate supplement entitled *The Remaining Opportunities*.





There is no true tide;
 Yet, these Lakes,
 are lined with
 massive
 Here,
 A

the water is fresh instead of salty.
 like other seas throughout the world,
 an infinite variety of sand beaches,
 dunes, marshes and rocky bluffs.
 along our FOURTH SHORE, is
 REGION FOR RECREATION!

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Nature's battles: as quiet as shifting sand.

Summary

Basic Facts

Because the "general" shoreline classification (used by the seacoast surveys) would eliminate the Lake ends, the connecting waters and the outlet to the sea, a "total" shoreline figure was used on the Great Lakes Survey. The United States portion of this shoreline equals 5,480 miles—1,480 of which encompass the many offshore islands.

Public action to preserve natural and other recreational lands along the Great Lakes shoreline has resulted in the acquisition of approximately 265,000 acres (over one-half of which is in Isle Royale National Park). However, subtracting the 197 miles of shoreline of Isle Royale and Perry's Victory National Monument (both on islands), this leaves 497 miles of shore which are devoted to recreation. This remaining public recreation ownership along the mainland shoreline is distributed thus:

National Park area—1 mile, National Forests—45 miles, State Parks—180 miles, State Forests—151 miles, State Game areas—44 miles, County, Township and Municipal Parks—76 miles.

The Survey found that 4,786 miles of the over-all shoreline are in private ownership and hence not usable by the public for recreation. Of this private ownership, 426 miles were identified during the survey as possessing important remaining opportunities for recreation and other public benefits. These were divided among 66 individual areas with 40 in Michigan, 8 in New York, 7 in Wisconsin, 6 in Ohio, 2 in Minnesota, and one each in Illinois, Indiana and Pennsylvania.

The 66 individual areas include 5 with 118 miles of shoreline for possible inclusion in the National Park System, 2 major wildlife areas of possible national significance, 39 areas for state parks, 8 state forest areas, 1 state wildlife area and 11 areas of local significance.

Recommendations

1. The shorelines of the Great Lakes, like those of the Atlantic, Pacific and the Gulf coasts, are such a valuable segment of our national heritage, that representative sections of them should be accessible to all the people. It is recommended that an over-all percentage of 15 percent in public ownership be considered an absolute minimum. In certain places, particularly around large centers of population, this figure should be 20 percent or more.

2. In addition to those areas noteworthy for their scenic or active use potential, swamps and marshlands should have high priority for public acquisition. Although many such areas may not be directly used or even seen by humans, their usefulness as resting grounds and nesting areas for migrating birds will be appreciated everywhere.

3. As natural areas gradually disappear from the scene, examples of outstanding biotic communities become more valuable for appreciation of our natural heritage and grounds for scientific study. Unique examples such as Mentor Marsh in Ohio and Tobico Marsh in Michigan, remaining today, should be preserved for tomorrow.

4. Representative examples of our cultural history, such as Fayette, Michigan, should be preserved so that our progress can be noted, so that past exploits can be commemorated, so that citizens of tomorrow can appreciate the pioneers of yester-

Guardian of the rocky shores.



day. Museums, each devoted exclusively to a particular phase of history, might be established at sites where, if possible, physical remains create a tie with the past.

5. Considerable public shoreline properties are presently devoted to maintaining safety on the waters or security of our national way of life. If and when Coast Guard installations or military reservations become surplus to existing needs, conversion to public recreation should be given first priority.

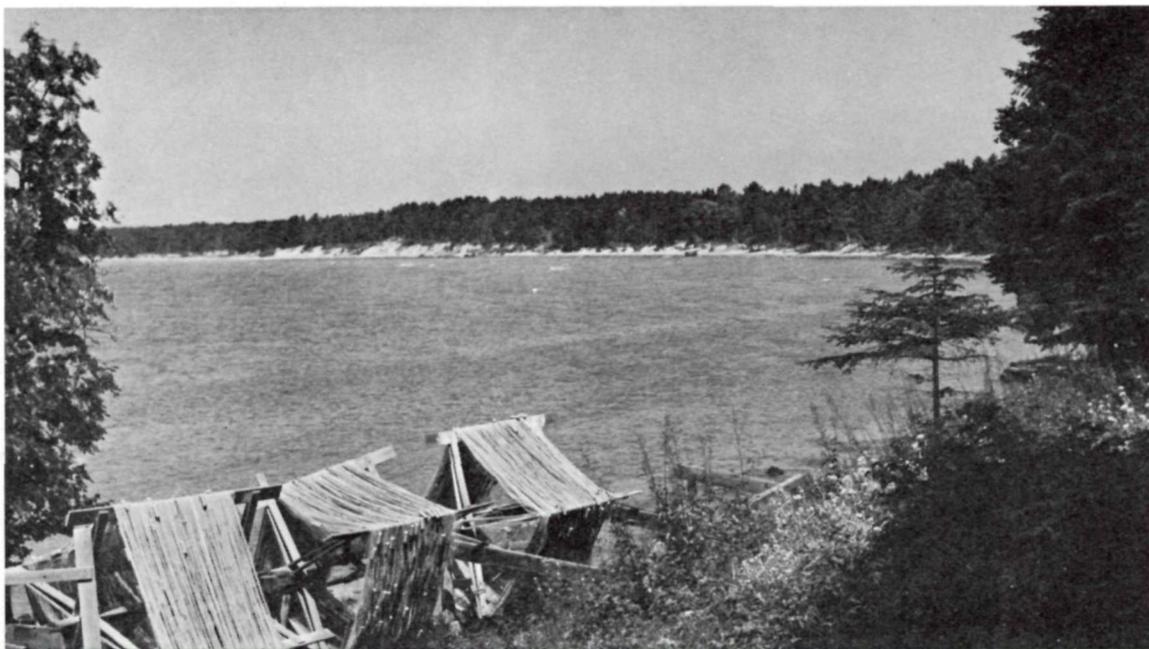
6. Because of access limitations, offshore islands will probably be the last bastions against the onslaught of intensive development. Now, while man's intrusive influences on natural values are still at a minimum, action should be taken to acquire South Manitou Island and others for their unspoiled settings and as biotic laboratories of the future.

7. One of the fastest growing recreation use demands on the Great Lakes is for additional pleasure boat mooring facilities — especially around Detroit. Although a thorough study of this problem was not possible within the time limits of this type of survey, it is recommended that provisions be made where such uses will not conflict with existing natural values.

8. Except where outstanding scenic, scientific or recreation values are involved, first consideration should be given to acquisition of potential recreation shoreline near centers of population like Cleveland, Detroit, Chicago and Milwaukee.

9. Although the primary objective of this Survey dealt with the inventory of remaining undeveloped areas, attention was given to recreation shoreline that has already "vanished." Consultation with various metropolitan planning organizations

Islands and isolation — still synonymous on the Great Lakes.





Industrial wastes – a threat to water purity.

revealed an acute awareness of the problems and sound plans for improvement. It is highly recommended that current planning for creation of additional shoreline recreation space around metropolitan areas be given every consideration.

10. The advent of the St. Lawrence Seaway has increased industrial demands for Great Lakes frontage – especially for new harbor space. Responsible planning groups should carefully evaluate long range recreation needs and select port sites where a minimum effect on recreation values would occur.

11. Outstanding scenic highways such as Minnesota's North Shore Drive and U. S. Highway No. 2 along the south side of Michigan's Upper Peninsula should receive careful planning and controls to prevent unrestricted development which could adversely affect or destroy existing intrinsic values. Alignment of any future lakeshore highways should be carefully planned so as not to restrict ultimate development of existing and proposed park areas.

12. Pollution of water is a major problem in the fresh water of the Great Lakes

– not only from a consumption basis but in relation to recreation and biotic values. Adequate legislation and strict enforcement are needed to control sewage and industrial waste disposal.

13. In view of their possible national significance, further study should be given to Pigeon Point, the Huron Mountains, the Pictured Rocks, Sleeping Bear and Indiana Dunes to determine the best plan for preservation. ■

Pigeon Point, Minnesota.



Scenic North Shore Drive.



The Lakes and their Areas

Lake Superior

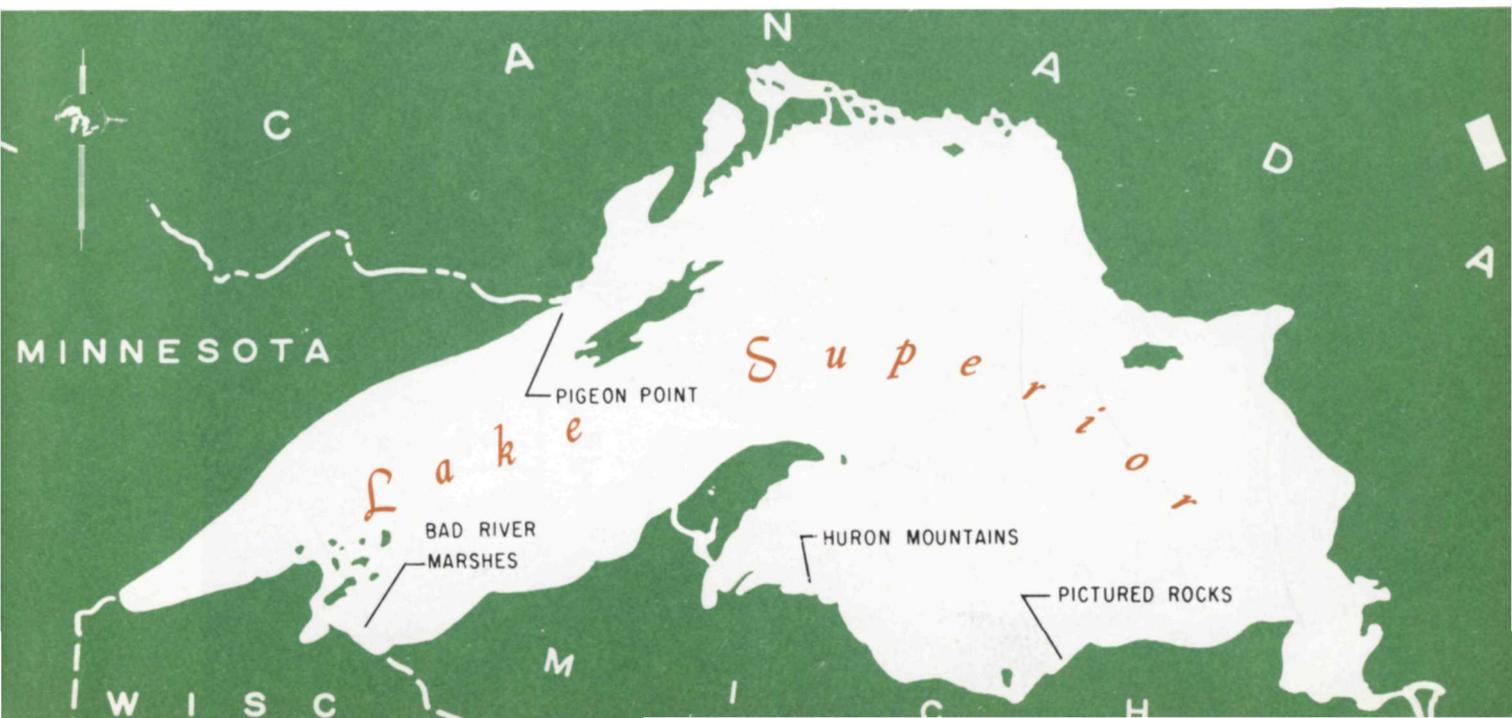
Lake Superior receives its name from its upper or northern position to the other Great Lakes, but the name applies equally well to its scenery. The shores of Lake Superior are the wildest, most untrammelled and unaltered on the Great Lakes scene. The main alterations of scenic areas have been in the removal of the climax forests and their widespread replacement by birch, aspen and pin cherry stands. Nonetheless, mile upon mile of Lake Superior shore lies essentially free of the incursions of man. Little wonder then that four of the seven areas designated by this Survey as possessing possible national

significance should be located along its shores.

The Minnesota North Shore of Lake Superior is a rugged, rock-bound coast of shore cliffs and quaint coves, waterfalls and enchanting vistas. It is rich in geologic significance and scenic attractions. The culmination of these qualities lies in the long, rocky spine of Pigeon Point. The austere coniferous forests, cliff-shrouded Wausaugoning Bay, the rocky offshore islands and the falls of the Pigeon River impart to the area an air of solemn awe.

Southeast of Wisconsin's Bayfield Peninsula are the wild rice marshes of the Bad and Kakagon Rivers. Interspersed with points of higher land, tamarack bogs and other aquatic communities, these vast marshes possess outstanding qualities for waterfowl and other wildlife. In the waters of the sloughs and of Chequamegon Bay

◀ *Pictured Rocks — triumph of a fluid medium over resistant rock.*



is one of the outstanding sport fishing regions of Lake Superior.

East of Munising, Michigan, some of the most spectacular shoreline scenery on Lake Superior occurs along the famous Pictured Rocks. Sheer sandstone cliffs stand 200 feet above the pounding crescendo of the relentless waves. Over the ages, this fluid medium has fashioned the resistant stone into concave-faced cliffs, sea caves and arches. The study area includes also portions of Grand Island with its superb forest growth, the Beaver Basin with its ancient lake terraces and the Grand Sable Bank with its beautiful perched dunes. Behind the 32 miles of shoreline are lakes, waterfalls, streams, forests and wildlife possessing the essential flavor of the great North Woods.

The spirit of the north woods envelops the Huron Mountains.

About midway along Lake Superior's south shore, south of the great projecting prominence of the Keweenaw Peninsula, lies the rugged and scenic topography of Michigan's Huron Mountains. Part of the Superior Upland of Canada's Laurentian shield, the Archean rocks of this area are the oldest known to man. Nestled in the glacial scoured depressions of the Huron Mountains and on the lake plain fronting them lies what is, undoubtedly, the most picturesque group of inland lakes along the Great Lakes shoreline. Superb climax stands of sugar maple, white pine and other northern species make the forests of the Hurons the most extensive stands of basically unaltered forest along the Great Lakes. In this primeval setting, northern mammals and birds live in much the same abundance and security as they did in the days of the Indians.



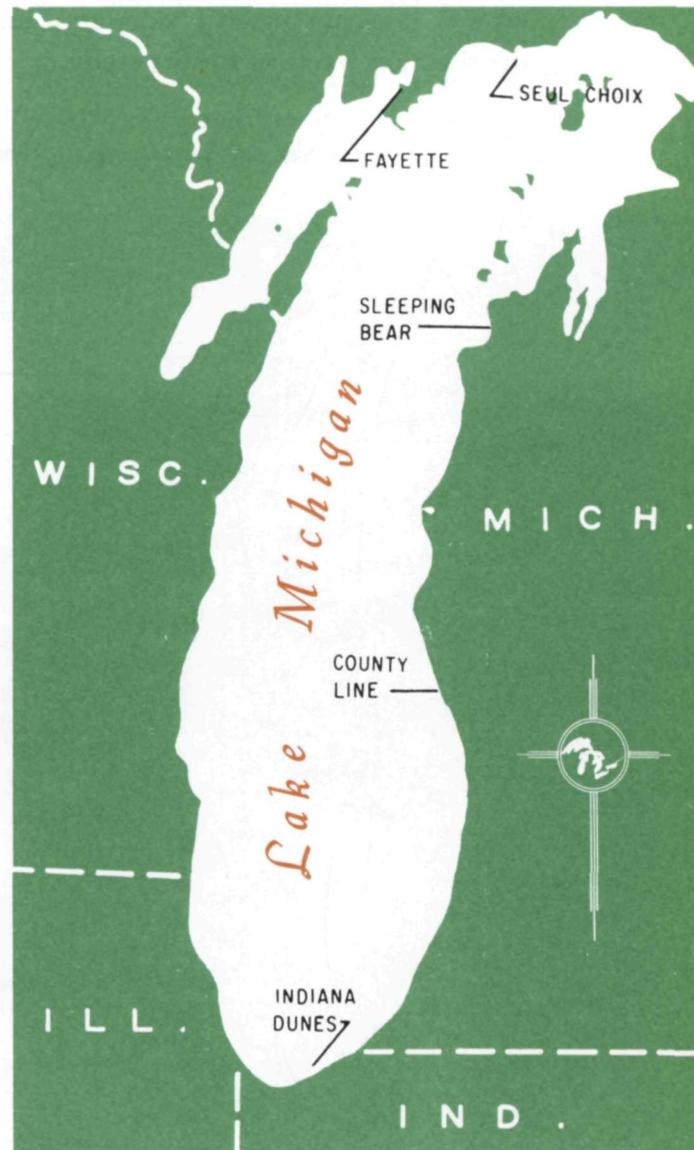
Lake Michigan

Lake Michigan lies entirely within the United States, and, consequently, has the longest shoreline of any of the Great Lakes in our country. With the numerous islands, peninsulas and bays, the total shoreline is 1,661 miles. Lake Michigan trends north and south, and its 300-mile length is sufficient to carry it from the heavily populated agricultural and industrial southern Great Lakes region to the northern forests of the sparsely populated Upper Peninsula.

Certainly the most important stretch of Lake Michigan's shoreline, from a recreation standpoint, is the eastern shore from Michigan's Leelanau Peninsula to Gary, Indiana. Fronting this shore is a wide and almost continuous beach of fine sand backed by dunes which often reach inland for more than a mile and attain heights of over 200 feet.

The dunes of Lake Michigan reach their greatest heights in the Sleeping Bear area of Michigan's Leelanau and Benzie Counties. Perched atop massive bluffs of glacial deposit, these dunes tower over 400 feet above the waters of Lake Michigan. These magnificent dunes, combined with the forest-covered Empire Dunes, the miles of excellent sand beaches, the old beach lines and pine and oak forests of the Platte Plains, the giant cedars, dunes and gull colony of South Manitou Island, the bogs, marshes, lakes and streams of the area and the variety of birds and wildlife make the Sleeping Bear region one of the outstanding recreation and natural areas on the Great Lakes.

The most heavily used part of Lake Michigan's shore is, however, not in Michigan, but in Indiana. The Indiana Dunes, of exceptional extent and height, once stretched unmolested for 26 miles along the Indiana shore. Today, caught up in the expanding industrial and suburban complex of the Chicago area, only 3-1/2 miles of shoreline in the Indiana Dunes State

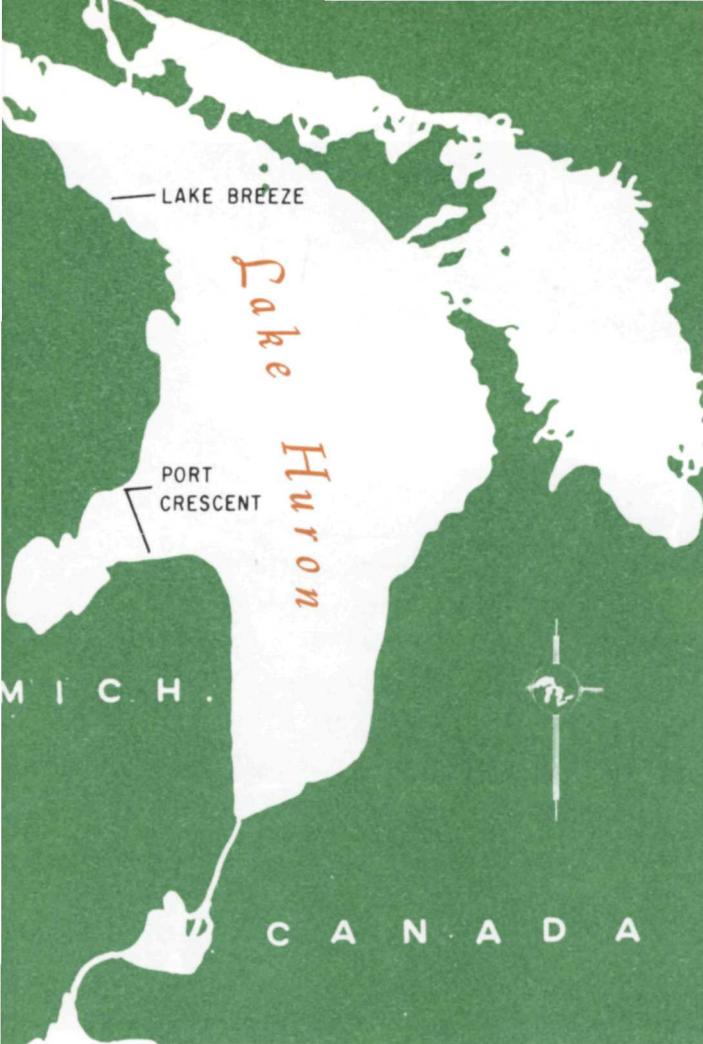


Park remain in a protected natural state. With a population of five million people in a radius of 50 miles, the recreation pressures on this area are tremendous. Besides the State Park, another 5.5 miles of undeveloped shoreline are held by three large steel companies. This portion of the dunes has been announced as the site of a harbor development and multi-million dollar steel plant, the erection of which seems imminent. Nonetheless, in view of the tremendous recreation potential of the area, it takes on immense regional importance and the situation warrants further study.

From Chicago to Wisconsin's Door Peninsula, the western shore of Lake Michigan is characterized by rather narrow beaches backed by shore bluffs. Farmlands, cottage developments and industrial plants line the shore and only two study areas, both extensions of existing state parks, were considered. However, on Wisconsin's Door Peninsula and along the south shore of Michigan's Upper Peninsula, several important areas came to light. Two in Michigan (the Fayette ghost town and the Seul Choix beaches) are of outstanding state park caliber.

The Sleeping Bear Dunes — a scenic blending of surf, sand, forest and plain.





Lake Huron

Just as sand dunes and beaches characterize much of the eastern Lake Michigan shoreline, so limestone shores are typical of great sections of Lake Huron. Although it is the second largest of the Great Lakes, Lake Huron's 740 miles of shoreline in the United States—including its several islands—all lie within the state of Michigan. Being a lee shore, it is protected somewhat from the prevailing westerly storms. Extensive dune formations occur only along the northerly facing shores of Presque Isle and Huron Counties.

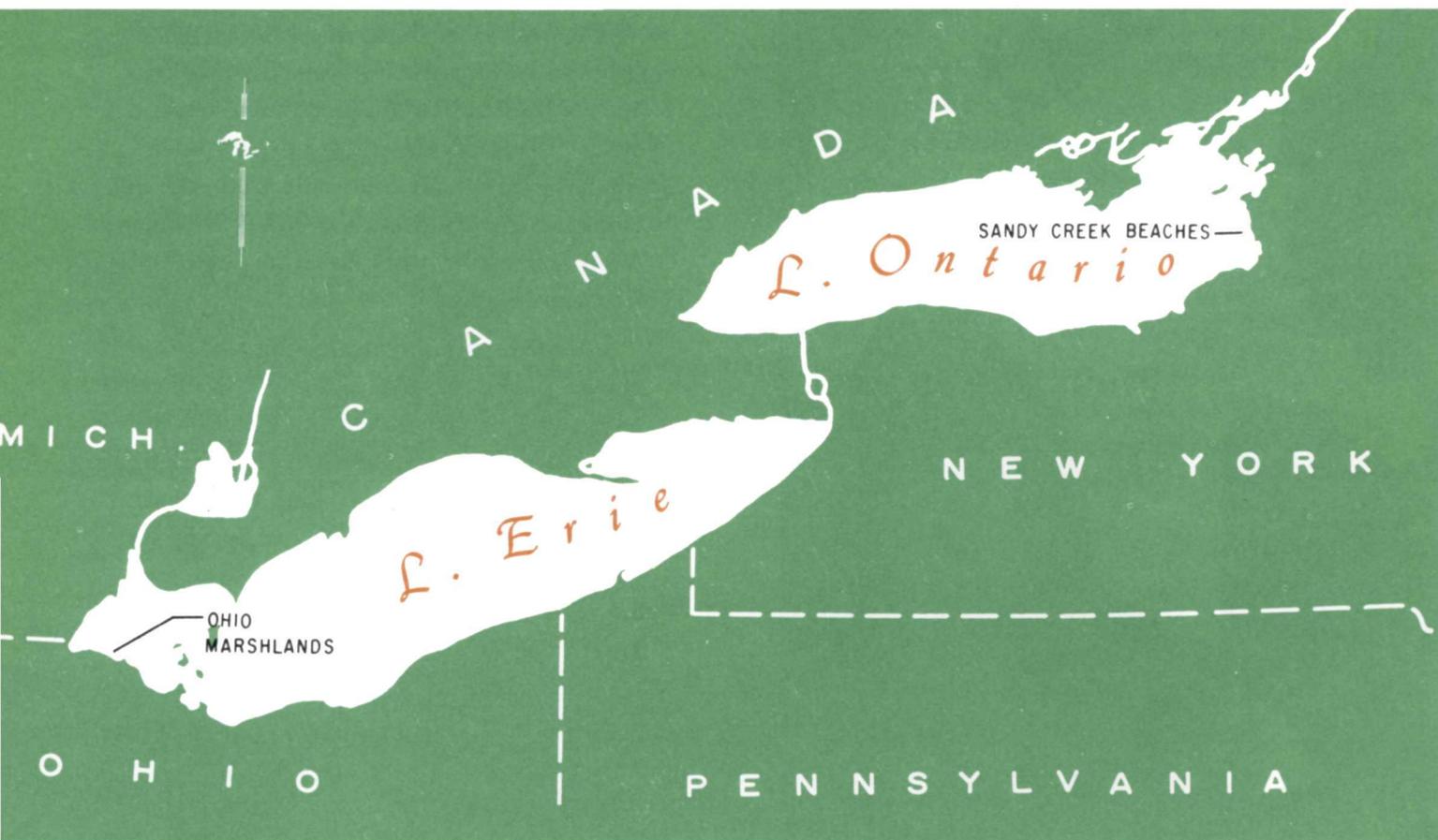
Port Crescent—sandy shores for southeastern Michigan's huge population.

The waters of Lake Huron near shore are mostly very shallow, and the lake bottom, resting on the limestone base overlaid with glacial debris, is often quite rocky. Shallow bays and shores in the lee of strong currents, however, have accumulated sufficient sand to form excellent bathing beaches.

Intensive cottage development has consumed much of the shoreline south of Saginaw Bay, but the northern shores still offer several opportunities for preserving areas for public benefit and enjoyment. Of the 14 areas studied by the Survey on Lake Huron and the St. Marys River, two are of outstanding state caliber. They are Port Crescent and Lake Breeze.

Lake Breeze Shores—Lake Huron scenery at its best.





Lakes Erie and Ontario

The eastern Great Lakes — Erie and Ontario — differ from Lakes Huron, Michigan and Superior in one highly important respect. Their shoreline in the United States lies almost entirely within an agricultural region. Where land along the shoreline has not been occupied for towns, cities, cottage developments or industrial concerns, it is primarily in farmland. Consequently, little remains of the unaltered natural scene.

Western Lake Erie is extremely shallow, the water is warm and inclined to be tur-

bid. Fish life is abundant and provides pleasant sport for anglers. Marshes which formerly extended a considerable distance inland have been largely drained, but a fringe of marsh of great importance to waterfowl remains. It is here that the Ohio Marshlands Study Area occurs. The Ohio Department of Natural Resources presently has holdings on both sides of this section of marshland. Acquisition of the area would consolidate the state holdings, making this the most significant waterfowl area in public ownership on the Great Lakes. The national significance of the marshes is currently being studied to determine the feasibility of joint state and federal management.

From Vermilion, Ohio to Buffalo, New York, the beaches are generally narrow and backed by eroding shore bluffs. Much the same situation exists on Lake Ontario from the mouth of the Niagara River to Braddock Point, 10 miles west of Rochester.

From Braddock Point to Pulaski, the most impressive shoreline feature is the presence of numerous drumlins, most conspicuous from Sodus Bay to Oswego. The shoreline is characterized by scenic, eroded bluffs alternating with sloughs, marshes, bogs and streams, making this one of the most unusual shorelines along the Great Lakes.

North from the mouth of the Salmon River near Pulaski extends a 17-mile stretch of shoreline unique on Lake On-

tario. It is largely a long barrier beach backed by a single line of dunes up to 40 feet high. Behind the dunes to a depth of one or two miles is a series of ponds and marshes. The beaches are 75 to 200 feet wide and composed of fine, white sand. The marshlands are the finest waterfowl habitat on Lake Ontario, and fishing is popular on all open water areas behind the barrier beach. Development has not proceeded to any appreciable extent because of the lack of firm ground behind the beach. However, several miles have been developed and the threat of future development cannot be discounted. The Sandy Creek Beaches, because of their multiple use possibilities and their fine state of preservation, comprise the most outstanding area on Lake Ontario. ■

The beaches and wildlife habitat near Sandy Creek are unrivaled on Lake Ontario.



Our Fourth Shore -



A Region for Recreation

Recreational use of the Great Lakes got off to a slow start in the middle of the nineteenth century. At that time, long weekends and annual vacations were non-existent for most people, and transportation limitations prevented all but the very wealthy from seeking recreational enjoyment on this inland sea. Recreational development was restricted to a few exclusive resorts and estates accessible by rail, stage-coach or boat. As a result, there were still miles and miles of undeveloped shoreline for the hardy, for the wilderness lovers, for the solitude seekers. There was no problem.

Niagara Falls became the first center for extensive public visitation and use. This primary scenic wonder of the Great Lakes region was readily accessible by train from major cities throughout the country and,



Mackinac Island – Early holidays in the grand manner.

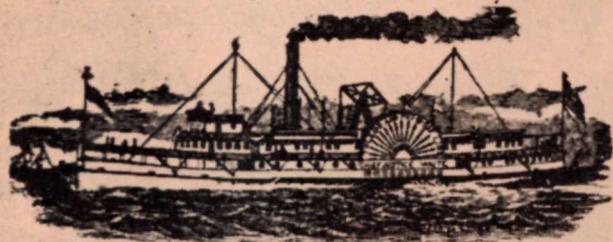
*– Michigan Historical Commission
Photograph*

although general vacations still were not the accepted thing, honeymoon travel was. Consequently, thousands of young couples initiated their marital status with a “Shuffle off to Buffalo” and public use of the Great Lakes region was under way.

“. . . a vast and prodigious Cadence of Water which falls down after a surprising and astonishing manner” – Father Hennepin (1679).



From June 10th to Sept. 10th.



THE PALACE STEAMER,

Chief Justice Waite,

Captain, E. McNELLY. C. H. COY, Clerk.

Leaves Toledo every morning at 8:30; returning, leaves Put-in-Bay at 3:00 p. m. Connecting with Boats to and from Cleveland, Sandusky and Detroit.

*Pleasure cruises — an early recreation use of the Great Lakes.
— Photograph by courtesy of Dana Thomas Bowen, author of "Memories of the Lakes."*

Next came the Industrial Revolution in the late 1800's. This brought an abundance of goods and a higher standard of living; it also increased the size and activity of a vacationing public. Escape from the confines of metropolitan existence was made possible by the advent of paid vacations, and gravitation toward the eternal attraction of water was inevitable.

Land travel limitations were still a deterring factor, but during this period the Great Lakes cruises from Buffalo to Duluth flourished along with the popular resorts in the Thousand Islands and Mackinac Straits. Summer home development along the lakeshores was initiated but not to any extensive degree. Public use was still limited in scope to the vicinity of major cities. There still was no problem of available shoreline for recreation and wildlife — no major concern over the preservation of the natural scene.

THEN CAME THE AUTOMOBILE!

In 1907, Henry Ford at his little Piquette Street factory near downtown Detroit, brought the Model T to the common man and America found itself on wheels, demanding a place to go. In answer to this call, roads were improved, the network was extended, and the wilderness was pushed back. Great Lakes recreation was no longer an exclusive privilege; everyone who wanted a place in the sun could now get to it. The problem became one of finding the place.

Not everyone could afford the investment necessary to buy shore frontage and erect a cabin which would be used only on weekends or summer vacations. Thus, the need for public recreation areas and parks arose, and, in time, was answered by legislative bodies which appropriated money for land acquisition and development.

The automobile provided more extensive recreational activity.





*Michigan's Porcupine Mountains State Park
— recently saved from the encroachments of
industrial exploitation.*

Giant strides were made in this respect and grave injustice would be committed if the foresight and preservation efforts of men like Stephen Mather, Robert Moses, Judge Magney were to be overlooked. Through the public-spirited planning of these men and others like them, many significant natural areas were set aside for public benefit. In most cases, such long range planning also included areas over and beyond existing needs. However, in those days the ultimate threat of insufficient public lands was not apparent to appropriating bodies.

In all fairness to the situation, though, it must be stated that the 111 state and federal areas which encompass 620 miles of Great Lakes shoreline were adequate to handle public use until the present decade when we entered the "Age of Travel" and, at the same time, were faced with the "Urban Sprawl."

Never before in the history of recreation and wildlife conservation have the Great Lakes been faced with the magnitude of recreational use that has roared into the parks, game areas, fishing sites. The reasons are simply these: Our national population continues to grow. Incomes have risen. Living standards have constantly improved. Leisure time has increased. And in most Americans, as in most other people, there is a hunger for the outdoors.

On the Great Lakes this hunger is now being satisfied through the use of automobiles and power boats. The horse and buggy has been replaced by horsepower and, unless steps are taken now to keep ahead, transportation improvements are apt to deplete forever the public recreation resources still available on the shoreline of the Great Lakes. ■



Sands and Scenery

The endless variations of Great Lakes shoreline hold a tremendous appeal for all of us. This is true of those who live along Lake Michigan's "Riviera" or along Lake Superior's North Shore. It is even more true for our landlocked citizens who flock to the Great Lakes beaches whenever they can – for swimming, for fishing or merely for enjoying the sun, the sand and the refreshing breezes.

Great Lakes shoreline means many things to many people. To some it is symbolized by the Sturgeon Point Lighthouse guarding a lonely stretch of Lake Huron shore. To others it means pounding surf on the rockbound shore of Lake Superior. Still others think of the Lake Erie and Lake Ontario marshlands that shelter the elusive mallard, the migrating goose or the stately heron. To most people, however, the Great Lakes shoreline is a combination of surf and sand as seen along eastern and southern Lake Michigan. Here, the beaches are backed by rolling dunes and forests that create an atmosphere of solitude – a soul-refreshing contrast to our hurried, everyday way of life.

The recreation use of the Great Lakes is as varied as its shoreline. This use, of course, is predominant during the warm summer months when proximity to the cool water climate offers a relief from the

heat of city pavements and inland dust. However, plentiful game and waterfowl attract hundreds and hundreds of hunters to this region every fall along with those who enjoy the annual display of spectacular autumn colors.

Until recently, the winter climate was considered too severe for recreational use other than occasional ice fishing. This is no longer true. Skiing has now become a major winter activity in the rugged terrain surrounding the northern lakes. With improved equipment and shelters, the popularity of ice fishing now attracts anglers from near and far.

Generally speaking, though, the recreation spotlight remains on summer use of the Great Lakes. During this warm period, activities run nearly the full gamut of those usually associated with large bodies of water. However, specialized factors – unique with the Great Lakes – alter the intensity of use and offer variations found only on this inland sea.

Along the southern shores of Lakes Ontario, Erie, Huron and Michigan, swimming is a popular pastime. On a hot summer's day, the beaches there are crowded over and above accepted capacity standards. On the beaches further north the emphasis switches to sun bathing – and with good reason. On Lake Superior, for instance, the summer water temperature seldom rises above 50 degrees. This fact apparently doesn't deter the swimming enjoyment of



The tenuous line between water and land, sand and forest.



Recreation Boating – also flourishing on the Great Lakes.

– Michigan Waterways Commission Photograph

young children, but it does affect adult participation – the latter being limited primarily to shallow, sheltered coves where the water is more temperate.

Water temperature is not a limiting factor on boating, though, and the Great Lakes have become one of the major centers for this fast growing activity. Twenty years ago motor cruises were still considered a luxury. Not so today. Improvements in design and materials have brought costs down to the average family man's budget. In the Detroit area alone, an estimated 100,000 motorboats are used to

enjoy the lure of open water and for escape from the restrictions of crowded highways.

Calm as millponds one hour and covered with raging seas the next, the Great Lakes have justly earned a reputation for occasional treachery. Until recently, this has kept pleasure boats near the plentiful refuge harbors in the southern waters. However, the lure of the upper lakes has created a demand for northward expansion of small boating. In answer, the Corps of Engineers, in cooperation with state and local authorities, has set up a program to establish small craft harbors every 30 to 40 miles along all shores. This program is active, and considerable progress has been made. Soon, round-the-lakes voyages will be feasible; inaccessible areas will be opened to the boating public and natural areas, formerly considered inviolate, will become vulnerable. Consequently, a new concept in recreation travel and accommodation will have to be incorporated in shoreline planning. Because of these possibilities, additional emphasis will have to be placed on preservation of the natural scene.

Sailing, water skiing and lake cruises also play their part in the recreation use of the Great Lakes waters. But, in many cases, the water itself serves primarily as a backdrop for associated activities. Primary among these land uses are scenic enjoyment, camping and general appreciation of the natural habitat.

The Straits of Mackinac Bridge – a ribbon of steel tying the population of the southern lakes to the recreation opportunities of the northern shores.

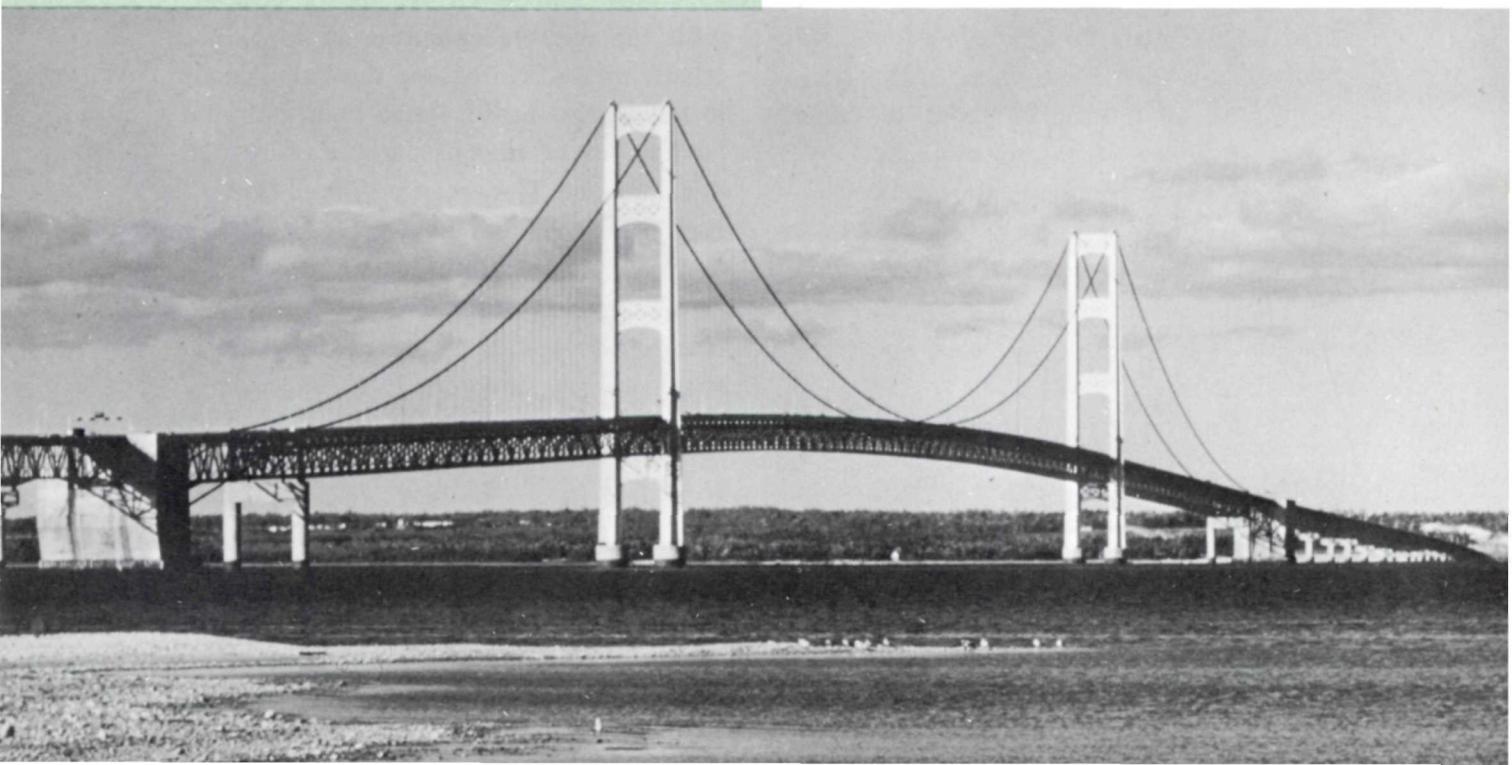
– Photograph by National Geographic Society

The Great Lakes, with their abundance of scenic variety, have long been a mecca of the sightseeing public. Round-the-lake tours have been popular since the advent of the automobile and improved highways. With the new Straits of Mackinac Bridge and an expanding highway program at the federal, state and local levels, these tours and scenic enjoyment of the Great Lakes shoreline are bound to receive a bigger play.

Closely associated with this touring public is the increased emphasis on camping. The Great Lakes scene is ideally suited to such a summer recreation pastime. Here where the cool lake breezes cut through the heat waves, here where hay fever is blotted out by the verdant forests, thousands of people come every year to pitch their tents within earshot of waves lapping on the lakeshores. Unfortunately, however, insufficient facilities exist to provide for them. In Michigan alone, every fifth camper (or some 28,000) in 1958 was turned away for lack of space.

The Great Lakes region also possesses much interest from the standpoint of natural history. Whether one be interested in geology, zoology or botany, the remaining natural areas on the lakes, provided they can be protected, will serve as outdoor laboratories and museums in telling the story of the natural world for countless future generations. And with the passage of time, their importance to education will be heightened as they become, in fact, all that is left of nature.

One of the surest ways of protecting and perpetuating such areas is through an intelligent program of interpretation. There are few people who do not enjoy the works of nature, but probably fewer yet who understand them well. A sound nature program interesting both to children and adults, using all the subtle and appropriate methods of audio-visual interpretation, lectures, hikes and nature trails, would go a long way toward arousing the public consciousness for the necessity of nature preservation.



Present Situation

Steeped in history and legend, abounding in natural resources, the Great Lakes and their surrounding eight states have played an important role in the discovery, expansion and development of our nation. Lumbering, mining, agriculture and industry have, through the past 350 years, attracted the adventurous, the ambitious, the assiduous in such numbers that the Great Lakes States now encompass over one-third of our country's entire population.

Progress in this respect has been steadily accelerating, and along with its advantages and benefits have come the usual problems and detrimental effects. Of general concern has been the destruction of natural resources. The particular concern of this report is that scenic and natural shoreline values around the Great Lakes have been pre-empted for residential, commercial and industrial purposes without due regard to public needs and benefits.

With a few exceptions, development is concentrated near the large population centers along the southern and eastern lakes. One notable exception to this generalization is the north shore of Lake Superior where string development and ore-rendering plants have already used up approximately 40 percent of this scenic shoreline. Other string developments along the St. Marys River, around Green Bay and the Straits of Mackinac are contrary to the general rule.

Conversely, the remaining undeveloped areas are primarily in evidence along the south shore of Lake Superior, the northern and eastern shores of Lake Mich-



Taconite ore plant on Lake Superior's scenic North Shore.

igan, the northern section of Lake Huron and, in most cases, on the lake islands. This latter category is significant because, with the notable exception of Mackinac Island in Lake Huron and the Bass Islands in Lake Erie, these isolated bodies of land have withstood the onslaught of residential development. They may very well become the last strongholds against the "Urban Sprawl." Although inaccessibility factors presently limit intensive public use potential, the same factors also offer the best opportunities for preserving examples of the natural scene.

Some provisions for public use of the Great Lakes shoreline have already been made. Two areas within the National Park

System (Isle Royale National Park and Perry's Victory National Monument), encompassing 197 island shoreline miles, have already been established. A third, Grand Portage National Monument, with a mile of frontage, has been authorized.

Each of the eight states has at least one major state park on the Great Lakes. Michigan has 33, New York 24, Minnesota 7, Ohio 5, and Wisconsin 3, for a total of 75 which encompass some 163 miles or 3.3 percent of the entire shoreline. This, plus the frontage contained in existing national forests, national wildlife refuges, state forests, state wildlife areas and municipal parks, brings public shoreline holdings to a total of 700 miles or nearly 13 percent of the over-all Great Lakes shoreline.

At first glance, it appears that 13 percent of shoreline should be sufficient public

ownership. On the Great Lakes, however, this is not true. First of all, much of the public holdings are along rockbound shores bounded by icy water. Less than 100 miles, or 2 percent, are of the Indiana Dunes State Park caliber, where people can actually enjoy active use of both the water and shore.

Secondly, the distribution of public ownership is such that the majority of it is far removed from population centers. In fact, 66 percent of public shoreline is located on Michigan's Upper Peninsula and Isle Royale where less than 1 percent of the Great Lakes' 40 million people live. Around the large metropolitan areas of Milwaukee, Chicago, Detroit and Cleveland, existing public ownership provides for only one-quarter inch of frontage per person living within 50 miles of the shore.

Isle Royale National Park — scenic wilderness in an island setting.





Such signs are becoming more numerous every year around the Great Lakes as the growing pressure for public shoreline use overtakes the present capacity. Even where capacity limits are not recognized, the overcrowded conditions are such that outdoor recreation is becoming a chore rather than a pleasure.

From all indications, this situation is going to get worse before it recovers. In the Great Lakes region, as everywhere else, increases in population, leisure time, travel and popularity of outdoor recreation are at work. By themselves, these trends will be sufficient to overrun present public recreation facilities in a few years. They are not alone, however; certain factors singular to the Great Lakes region are adding to the critical situation.

The most current, single event was the opening of the Mackinac Straits Bridge. In addition to being a major tourist attraction itself, this spectacular ribbon of steel ties together the recreation lands of the northern and southern lakes. Replacing the former ferry bottleneck across these vital Straits, the new bridge provides rapid access to Michigan's scenic Upper Peninsula and encourages round-the-lake tours that will affect tourist travel on both sides of the Canadian boundary.

Another far-reaching influence on recreation area future is being brought about by

the St. Lawrence Seaway. Here again, the locks, dams and impoundments along the St. Lawrence River are tourist attractions. However, the broad effects are of a different nature. Instead of creating a



The St. Lawrence Seaway — a new era for the Great Lakes.

—Photograph by courtesy of Power Authority of the State of New York

demand for additional recreation space, this project for opening the Great Lakes to world-wide shipping will encourage industrial expansion on undeveloped shoreline. This, in many cases, is already threatening lands with high recreation potential, and careful evaluation of relative benefits must be made to determine the best land use program.

Active highway expansion programs around the Great Lakes are posing both a boon and a threat to recreation lands. Improved access to former isolated areas — such as Minnesota's North Shore Drive — provides for increased enjoyment by larger numbers. At the same time, however, many of the natural values and inherent charms are lost to the general public because private residential development beats public acquisition to the draw. Here again, careful planning is needed in conjunction with highway improvements so that thousands instead of scores of people will receive the over-all benefit.

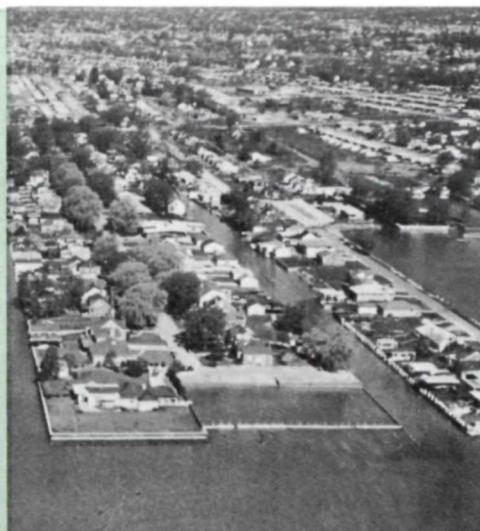
Then we come to the "Urban Sprawl" which is actively consuming the Great Lakes shoreline. Recently, Henry T. Heald, president of the Ford Foundation, made a statement in Philadelphia that in 20 years there would be "unrelieved urban areas . . . from Milwaukee along the Great Lakes to Buffalo." This situation is well on its way to reality and is extending beyond these defined limits. High concentrations of private development have already used up most of the St. Lawrence River frontage, Lake Ontario and Lake Erie shorelines

along with the majority of the lower Lake Michigan and Lake Huron shores.

This again has increased use pressure on the existing public areas so that they are overcrowded to an extreme. In answer to these overcrowded conditions, many lakeshore communities (especially around Chicago, Detroit and Cleveland) have restricted beach use to local residents only. This, of course, is fine for the residents of these cities but it makes shoreline access a greater problem for the inland dwellers, weekend vacationers and the tourists.

This problem is not one that can be treated lightly from the standpoint of either the economy of the region or the threat to its recreation resources. The recreation industry constitutes a major source of income in many segments of the Great Lakes shoreline. The potential exists for increasing the contribution recreation can make to the economy. However, to realize this potential as well as to insure the preservation of this resource for future generations, steps must be taken now to provide adequate public beaches and to preserve the natural environment. ■

Modern superhighways link our mushrooming suburban population with overcrowded beaches.
— Photographs by courtesy of Chicago Park District





The Land and its Life

Geology

As in turning a gem we see flashing facets of its character, so with the Great Lakes we find endless and enchanting variety in their ever changing natural landscape. And since this is so, it seems difficult to place any one, all-inclusive stamp upon their surface to remind us that, wherever we may be along their shores, these are the Great Lakes. Yet, as surely as Mauna Loa speaks of vulcanism and the Grand Canyon of erosion, these inland seas speak of glaciation. From the “granite knobs” of the St. Lawrence to the glacier-scoured vastness of Lake Superior’s shores, the imprint of the Ice Age and its subsequent developments lies everywhere upon the land.

Look at the flat farmlands of Saginaw Bay and you sense the presence of a fore-runner of Lake Huron, substantially larger than today, fed by the meltwater of retreating ice caps. Study the long lines of parallel ridges and troughs along Lake Michigan’s north shore and you will see in graphic detail the slow lowering of the great body of water as the surface slowly sought its present level. Pick up a pebble from the morainal bluffs of rock, sand and clay deposited along the Leelanau peninsula and you may hold a segment of Canada’s Laurentian Highlands, carried tediously south by the advancing glaciers.

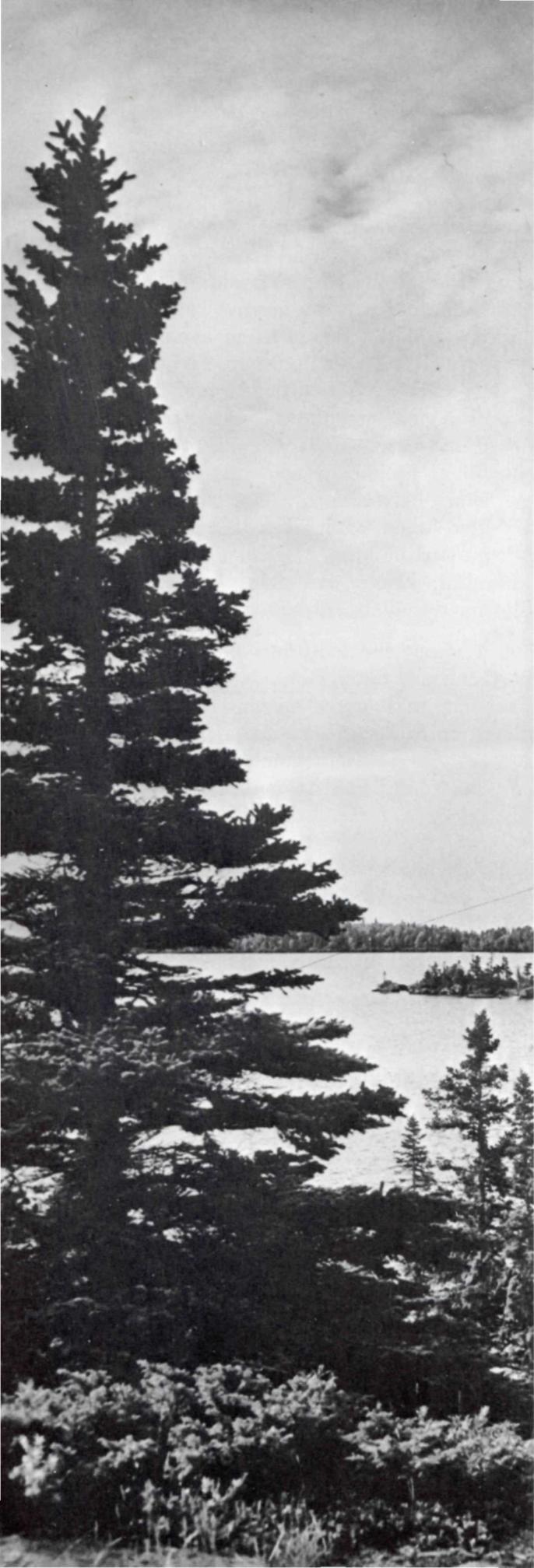
In many ways did the ice alter the landscape. Because it was no respecter of pre-

existing order, it altered previous drainage patterns. Because it was a massive carrier, it buried the entire region in an average of 40 feet of glacier drift. Because it was a tireless carver, it whittled away the trunks of ancient mountains, leaving only the hard and barren roots. Because it was an ingenious builder, it constructed vast ridges along its terminus called moraines and dotted them with lakes. Because it was a curious builder, it fashioned fields of drumlins, kames and eskers to pose riddles for the minds of men.

But it is not the footprints of glaciers alone that mark this region. Geology is as old as time, and in the ancient rocks of northeastern Minnesota is part of the dim record of the earth’s beginnings. In the shales, limestones and dolomites exposed by the relentless force of the waves lie the implication of ancient salt water seas with a fossilized record of corals, molluscs, crustaceans and myriad other forms long extinct. The countless basalt flows of Lake Superior speak of fiery eruptions along that rockbound shore; events giving that coast a character all its own, dark and ominous, yet surpassingly beautiful.

The story is still being told in the battle between water and rock where the towering sandstone cliffs of the Pictured Rocks stand massively above the battering waves of Lake Superior — waves that rework the rock faces into new and changing patterns. The story still lives in the sands — ground by the glaciers, washed by the waves, and built by the winds into dunes of great extent and beauty. In this respect, the eastern and southern shores of Lake Michigan have been especially blessed.

◀ *Miners Castle in the Pictured Rocks — the architecture of wind and wave.*



Flora

After the lakes lay free of the glacier's grip, the forests re-established their old hold on the land. On nature's gutted battlefield, the ancient forces of erosion, deposition, soil building and growth began fashioning the new landscape. Back to the northern lakes moved the coniferous forest, scattering isolated remnants along the way. Back from the south came the hemlocks and northern hardwoods to establish their claims on the middle reaches of the lakes. Up from the south moved the species-rich deciduous trees of the central forest to take up residence on the southern shores.

The exploitation and alteration of these forests in the building of our country is a story already well known. Timber was cut for the hundred and one uses to which it is put. The pineries of the northern Lake States played out before the turn of the century. Logging, followed by incessant destructive fires, destroyed the grandeur of the old climax forests and prepared the ground for the stands of aspen, white birch and pin cherry that clothe so much of the land today. Farther south, where climate and soil permitted, the forest was cut and converted to farmland.

The picture of the forests on the Lakes today is not reassuring, but neither is it futile. Along Lake Ontario, Lake Erie and southern Lake Michigan, the forest that once lined the shores has been largely

Stately evergreens stand sentinel over the rocky shores of the northern lakes.

removed. This is the most prosperous agricultural area on the Lakes. It is also an industrial region and possesses the bulk of the Great Lakes human population. These people are mainly town and city dwellers with a very real need for open spaces and natural lands.

This was a region characterized by rich deciduous forests: oaks, hickories, yellow poplar, maples, and 50 or more other species that make our eastern deciduous forests so rich, stately and varied. Few other forests on earth, outside of the tropics, offer such variety and charm to the discerning eye. These are the forests of the seasons. In spring, before the dense shade of the leaves shut out the sun, the spring flowers stipple the landscape with limpid and transient beauty. Summer is the season of the green sea of light that bathes the very special environment between ground and tree top. Fall in these woods is all fire and color, for the leaf pigments of each of the many species of trees reacts differently to the arrival of frosty nights.

The deciduous forest never completely leaves the Great Lakes scene. The species diminish northward to mainly sugar maple, yellow birch and beech, or white birch, aspen and pin cherry in the disturbed areas, and though sharing the land with the conifers, they remain an integral part of the landscape.

Look on the floor of these forests and you will discover a rich flora of herbaceous flowering plants. Here, in ever appealing variety, are wood leek, cucumber root, merrybells, foam flower, trillium, wild sarsaparilla, may apple, and jack-in-the-pulpit. In the few remaining segments of mature forest along Lake Ontario and Lake Erie, and particularly in the dune forests of Lake Michigan, these are especially well represented. In the unbelievably precipitous topography of the dune forests, one is apt to discover such charming plants. Cancer root, coral root, heart leaf lily, many ferns, and a host of curious and beautiful mushrooms make any hike a voyage of discovery.

Vast deciduous forests crown the dunelands.



This is not to imply that this type of plant environment surpasses all others. The flowers of the cool, moist dune forests are not the flowers of the sandy jack pine flats, though the two may be closely adjacent. In the latter case, cow wheat, white camass, harebell, wood lily, pyrola, and partridge berry can be equally enchanting.

The delicate lady slipper — a touch of color to the somber bogs.



No mention of the plant life of this region would be complete without mentioning the bogs. These curious little worlds-in-themselves are a characteristic feature of this glaciated landscape, particularly northward. The poorly drained, acid and

sterile soil, usually with a plush carpet of sphagnum moss, sets up rigid conditions for survival and the plants that have met these conditions have largely become victims of their adjustment. Pitcher plant and sundew, both ingenious insectivorous plants, thrive in this austere environment. Bog bean, sweet gale, cranberry, leather-leaf and orchids of rare beauty are fascinating examples of nature's continuous adjustment to fill every possible niche with some form of life.

People who are familiar with the Atlantic Coast beaches and dunes will recognize an old friend on the Lakes and probably guess a basic truth also. Similar environments have similar inhabitants, indeed the same inhabitants provided they can breach the intervening distances. Spring and summer, the same beach pea that makes gay the sand regions of Cape Cod, enlivens the actively moving faces of the dunes and beaches of the Great Lakes. Further investigation would disclose the presence of bearberry, and "heather grass" and, in fact, a number of other plants not commonly found through the connecting regions.

These raw and moving dunes have an entirely different group of plants than the stabilized dune forests further inland. Scattered cottonwoods, balsam poplar, isolated copses of jack pine, balsam fir, white cedar and spruce in the dune valleys, and buffalo berry and sand cherry take up the struggle with wind and sand. That they do not always win is mutely attested to by the buried hulks of old forests emerging from the windward faces of the dunes.

Fauna

Part of the charm that we associate with nature comes from contact with its wildlife. A red squirrel barking defiance from a secure retreat in a fir tree animates the natural scene. A raven calling hoarsely from a lake cliff gives a voice to wilderness.

Wildlife, like plants, is controlled by its environment. The ruffed grouse dwells in the depths of the dense forests; the spotted sandpiper teeters and bobs along the lake shores. The otter makes a playground of the lakes and streams. In similar manner, every form of animal life registers distinct environmental preferences.

A very special environment is the marsh — not only for its unique assemblage of plants, but for its wildlife as well. Around the margins of the marsh prowl the raccoon, mink, otter and other predators. The muskrat is abundant enough in the marshes of the Great Lakes' to make it the area's most important fur bearer. Snakes, turtles and frogs find protection and sustenance in this semi-aquatic world.

Birds, however, are the most obvious forms of marsh life. Ducks, coots, and gallinules swim and feed in the shallow waters. Rails, herons and bitterns skulk through the dense vegetation. Long-billed marsh wrens and red-winged blackbirds fill the marsh with song. Black terns, swallows and marsh hawks patrol the air, and in the edge between marsh and forest upland forms are particularly abundant.

In the wildlife management picture, marshes are vastly important as migration stopovers and nesting sites for ducks and other waterfowl. Along the shores of the Great Lakes are numerous marsh areas that could contribute much as refuges, game management areas or public hunting grounds. Some have already been acquired for such purposes, others should be. Among these are the great wild rice marshes of the Bad and Kakagon Rivers in northern Wisconsin, the marshes of Saginaw and Green Bay, the vast stretches of western Lake Erie, and eastern Lake Ontario, including parts of the St. Lawrence River.

To save our wildlife, we must preserve their environment. — Photograph by U. S. Fish and Wildlife Service





Gulls — an integral part of the Great Lakes scene.

The islands of the Great Lakes range in size from Isle Royale to small rocky outcrops and transient sand and gravel bars. Because of their relative isolation and usual freedom from predators, many of the islands are used as rookeries by colony nesting birds. The United States Fish and Wildlife Service administers several of these islands, amounting to about 270 acres, as Federal Wildlife Refuges. Other important colonies, however, are not afforded this protection. Herring gulls, ring-billed gulls and great blue herons constitute the bulk of these colonies, but lesser numbers of common terns, cormorants, Caspian terns, black-crowned night herons, common egrets (on Lake Erie), and bald eagles also occur.

Bird life on the Great Lakes has many engrossing aspects. Enormous flocks of waterfowl move across the area in the seasonal rhythm of migration. Shore birds of many kinds migrate across the lake or follow the north-south shores of Lakes Huron and Michigan.

Of the 300-odd species of birds found in the Great Lakes region, a number characterize the upper lakes and give a distinct Canadian or northern flavor to the area. Brightly colored warblers, known only as migrants further south, nest in the cool coniferous and deciduous forests. The loon, great gray owl, goldeneye, ring-necked duck, goshawk, spruce grouse, three-toed woodpecker and gray jay testify to the Canadian character of an area like Pigeon Point, Minnesota. In winter, arctic gales occasionally drive south an assorted assemblage of far northern or arctic species including the jaegers, great black-backed gulls, murre, old squaws, scoters, eiders, hawk owls and boreal owls.

Many of these birds that live on the lakes or their tributary waters are fishers or scavengers on fish. And a varied fare they have, for around 173 species of fish inhabit this drainage system. About 30 of them are of sufficient size or abundance to enter the commercial catch; an equal number, though not necessarily of the same species, are caught by the sports angler.

The whitefish family, containing chubs, ciscos, whitefish and round whitefish, compose the most significant commercial group. The lake trout, once supplying an important fishery on Lakes Huron, Michigan and Superior, has been reduced to an unimportant position by the sea lamprey.

This eel-like, jawless parasite entered the upper lakes via the Welland Canal in the twenties and after gaining a foothold, spread like disease. Control of lamprey predation is difficult, but a possibility exists in a species-specific poison that is currently being tested which kills the young in the streams before they reach the parasitic stage and drift back to the lakes. Provided this is successful, a giant step will have been taken in restoring the lake trout fishery.

Man has long been on the Great Lakes scene, and, as everywhere where human interference operates, changes have and are taking place in the native flora and fauna. Though no well known species around the Great Lakes appear headed for outright extinction, many are in danger of being exterminated locally. The mammals provide an insight into this process, particularly the larger, widely ranging forms or those associated with specific environments.

Only four big game species remain on the Great Lakes. Of these, only the white-tailed deer is widespread and common. The black bear is found solely on the northern lakes, and the gray wolf and moose are encountered only rarely or locally on Michigan's Upper Peninsula and northeastern Minnesota. The elk, caribou, buffalo and cougar and, perhaps, the lynx have been eliminated from the Great Lakes fauna. The elk, however, has been reintroduced on the northern tip of Michigan's Lower Peninsula and seems to be thriving. Provided reserves of sufficient size could be created, other species such as the caribou and moose might be re-established.

The ranges of about 63 native mammals touch on the Great Lakes, and those not mentioned in the preceding paragraph are probably not in any immediate danger of elimination except locally. Small, shy, nocturnal or burrowing forms such as shrews, moles, bats and rodents are generally inconspicuous and can exist in close proximity to man. However, most species around the lakes are forest or woodland dwellers whose continued presence on the local scene requires that some vestige of the natural environment be left intact.

Many remaining species of Great Lakes fauna are being eliminated primarily because of lack of suitable habitat. Only through the establishment of protected natural areas can these species be saved. The natural areas should be held in public trust to assure their continued existence. ■

Denizens of our northern shores.





Discovery and Development

The history of the Great Lakes is a truly amazing epic. Preceding the coming of the Europeans, the great mid-continent wilderness was the forest home of the Indians. Into the heart of this unknown region came the French explorers, the fur traders and the missionaries. Control of the region passed from the French to the British during the French and Indian War. After the Revolution, the region was divided between the United States and Canada. Though contested during the War of 1812, the boundary was unaltered and so remains to this day.

Following the turbulent early days of the creation of our country, the era of national expansion began. The natural resources of the region and the cheap, water transportation brought waves of diverse European nationalities to settle along the lakeshores. Towns were born, roads were built, forests were logged, ore was mined and industry was initiated, all in swift succession. The Great Lakes country prospered and finally emerged as one of America's foremost economic regions.

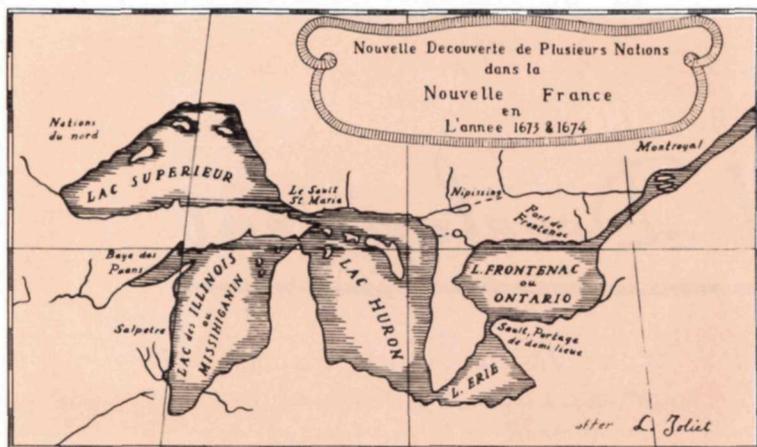
Perpetuation and interpretation of the tangible evidence of these events provides an important form of recreation — a means by which we can appreciate the struggles, the hardships and the accomplishments of our pioneer ancestors. Today, those people who fashioned the history of the Great Lakes are gone, but they have left marks by which their efforts can be traced: the ruins of a fort, a deserted iron-smelting town, or the printed word tying the past to the present.

Within this short article it is impossible to provide a definitive history of the Great Lakes. Instead, it is the function here to outline significant historical events and to relate them, wherever possible, to sites with recreation potential. In most cases, public interest has already resulted in establishment of commemorative units to perpetuate these events. Nonetheless, some historic features on the Great Lakes have not received public recognition.

The Indians

The Indians played a conspicuous role in American history. They taught the white settler how to live in the wilderness and fight in the forest; they supplied him with agricultural crops and showed him how to raise them. The Indians fought an irresistible tide of settlement and lost. In scattered reservations, the Indians still hold vestiges of their former hunting grounds, but more and more the Indian is turning to Western culture. In the Great Lakes area, the American Indian has already been largely assimilated into the mainstream of our contemporary life. However, adequate facilities already are in existence to keep alive the memory of their own way of life before Europeans came to the lakes.

The Indians' place in Great Lakes history is already recognized through exhibits at the authorized Grand Portage National Monument and Fort Mackinac. Other opportunities to perpetuate the Indians' culture exist through public protection of their unique cemeteries.



The discovery of all five lakes spanned an era of 64 years.

Discovery

No specific site appears to be particularly apt to commemorate the diffuse drama of Great Lakes discovery and exploration, but the exploits of these hardy, dedicated men deserve mention. Discovery of the Northwest Passage, laying claim to new lands for France, fur trade with the Indians and their conversion to Christianity supplied the impetus for early exploration.

One day in July 1615, Samuel de Champlain — the Father of New France — emerged from the mouth of the French River and gazed over the waters of Georgian Bay. Thus, Lake Huron, the first of the Great Lakes to be discovered, was duly recorded by the white man. Later, during this same trip, he crossed Lake Ontario.

Probably Champlain was not the first white man to look upon the waters of the Great Lakes, but he was the first to record the fact. Father Le Caron, a missionary, was traveling ahead of him by a few days, and Etienne Brule, who had roamed the country since 1610, may have been the first to see all of the Great Lakes, except Michigan. However, neither recorded the events. Father Le Caron was more inter-

ested in saving souls, and Brule could neither read nor write.

Jean Nicolet's westward journey in 1634 is next on the chronological list of exploration. To him goes the honor of being the first white man to visit Lake Michigan, Green Bay and present day Wisconsin.

Curiously, Lake Erie, whose shores were bypassed because of the Iroquois threat, was the last of the Great Lakes to be seen and recorded by white men. In the summer of 1669, Louis Joliet left the Lake Superior region with a ransomed Iroquois prisoner. At the Indian's suggestion, they traveled the southern route across Lake Huron to the St. Clair River, through Lake St. Clair, down the Detroit River, and thence into Lake Erie. The final Great Lake was ready for exploration and exploitation.

Missionaries

The men of God, asking for nothing more than to save souls, were the last of the triumvirate that threw open the gates to the Great Lakes. These missionaries followed close upon the heels of the explorers and wood rangers, plunging deeper and deeper into the interior, prepared to build missions, conduct services, or care for the Indians. Their lives were filled with hardships, starvation, poverty, and even martyrdom. The list is too long to enumerate all, but each missionary played his role, great or small, in the discovery, exploration and settlement of the Great Lakes.

The Wars

The control of the lower Great Lakes was an important factor in the broader struggle for imperial supremacy between England and France. Though the French scored early successes, their small numbers and limited resources finally told against them. Fort Frontenac fell with comparative ease in August of 1758. Fort Niagara fell in July of 1759. Two months later, Quebec passed to the British and New France was nearly dead. The *coup de grace* was delivered at Montreal a year later, thus ending the French and Indian War.

During the War of American Independence, no important battles occurred on the Lakes nor on their shores. The battle for the Lakes was fought in Paris in 1783 when the peace commissioners sat down to draw the boundary line between Canada and the United States. They agreed to the present border which splits four of the Great Lakes.

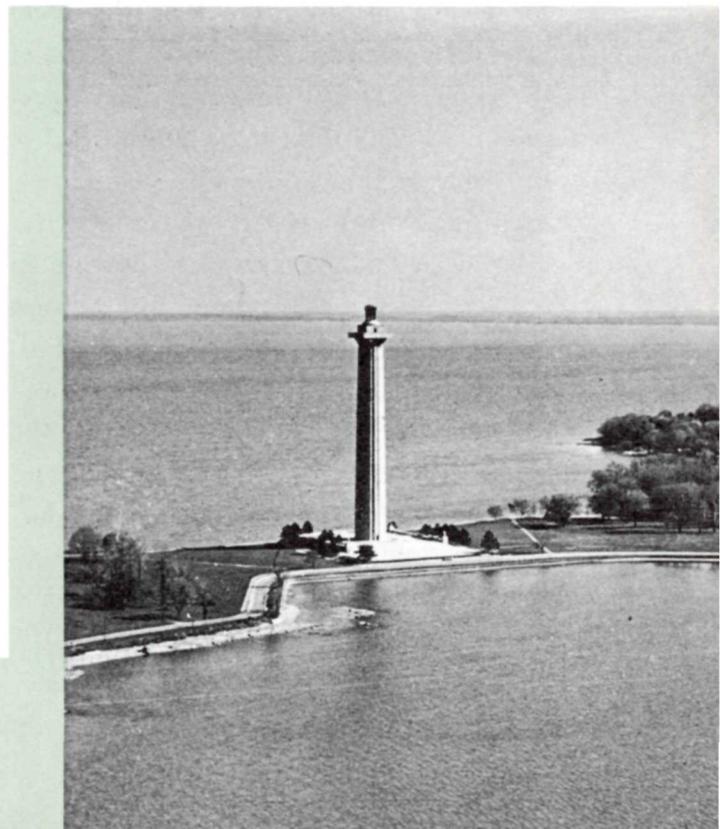
However, the Indian menace continued, boundary lines remained in dispute, British subjects were allowed to carry on the fur trade on American soil, and nothing was said about impressment of American seamen. These and other grievances were not resolved. Once more the two nations drifted into war.

The Great Lakes were on the front line of the War of 1812. They were the key to the retention of the American Northwest. The Lakes in military operations were of prime importance, particularly in view of the undeveloped condition of land communications. Transportation of men and supplies was more rapid by water than by

land. In short, control of the water routes was the decisive factor in the over-all military picture. For proof of this, it is only necessary to cite Perry's victory over the British fleet on Lake Erie as one of the important engagements of the war. This decisive victory gained control of Lake Erie and cleared the way for an American invasion of Canada and subsequent victories.

Physical evidence still remains of this military era. Forts Oswego, Niagara, Wayne, Mackinac and Wilkens have been restored and protected. Perry's Victory and International Peace Memorial commemorates our Canadian treaty. The decaying ruins of Fort Collyer at Drummond Island, Michigan, however, have no public protection and offer an opportunity for restoration and further interpretation of Great Lakes history.

Perry's Victory and International Peace Memorial National Monument on South Bass Island in Lake Erie.



Development

After the termination of the War of 1812, westward migration took a tremendous upsurge. A fort building program was launched to protect the settler from the Indians until such time as the Indians were brought under American control. Economic distress, prior to and during the war, was followed by a post war depression in the East that provided additional impetus to drive the people westward.

Later, the Industrial Revolution, and the unsettled conditions in general, turned thousands of New Englanders westward. Michigan felt the impact first as ships carrying settlers put into the harbor at Detroit. Roads were constructed and soon it was possible to travel to Chicago over the Chicago-Detroit Road. From Chicago, people moved north into Wisconsin and Minnesota.

As the Great Lakes were the highways for people so also were they the highways of commerce. The bulky freight of the region was well suited to water transportation. With the completion in 1855 of the canals and locks at Sault Ste. Marie — now the world's busiest — Lake Superior was linked to Lake Huron to provide an uninterrupted seaway from the western end of Lake Superior to Chicago and Buffalo. This, with the railroads, was one more highway linking East and West in the crucial period before the Civil War, and proved a tremendous aid to the North during that conflict. The war and reconstruction provided an impetus for further eco-

nomie development of the Great Lakes region.

The copper country of Lake Superior was known to Champlain, but it was over 200 years before it was utilized for industrial purposes. In the 1840's and 1850's the copper lodes were being tapped and mining reached its peak during the third quarter of the nineteenth century. But it was iron ore and not copper that converted Lake Superior into a region of major mineral importance.

The discovery of iron ore in the 1840's witnessed a rush to the ore fields of Michigan's Upper Peninsula. Railroads were built to haul the ore from the mines to the lakes. Docks were constructed, and larger and larger vessels were built to carry their bulky cargoes of ore to the furnaces of Ohio and Pennsylvania. There the ores from the Lake Superior iron deposits were wedded to the coal of the Appalachian Highlands to produce steel.

The birth and growth of wooden cities on the shores of the Lakes and on the paths of westward migration called for unprecedented exploitation of the forests. The lumbering industry eventually declined with the reduction of its supply. However, through timely conservation measures and sustained-yield forestry programs, lumbering continues today but on a much smaller, though consistent, scale than during its heyday in the late nineteenth century.

Fishing on the Great Lakes goes back to the era of the Indian and his dependence on lake fish for much of his food supply.

Following the Indian came the explorer, trapper, trader and soldier, and each in turn used fish for part of his diet. The fish were plentiful, and commercial fishing was begun in time to help feed the thousands of immigrants who settled the West. Fishing became a big business, but with the advent of the lamprey, the fish supply, particularly of lake trout, has dwindled on the upper lakes.

The shores of the Great Lakes are dotted with cities, large and small, turning out a variety of manufactured goods. Perhaps the best known of all is the automobile. The supremacy of Michigan in this field is explained by its nearness to raw materials, previous experience in making carts and wagons, the use of its numerous small shops to make machine parts, previous experimentation with marine engines, and, finally, the spirit of the businessman. The Midwest is looking forward to even greater production and commerce with the completion of the St. Lawrence Seaway,

linking the port cities of the Lakes with foreign markets by a direct all-water route.

Much of this commercial and industrial development has been so current, so dynamic that we have tended to lose sight of the earlier history of the Lakes. The romance of Great Lakes shipping and the role of the Coast Guard in manning the lonely lights on island, reef and point are rich in historical associations. A surplus lighthouse, located on a busy shipping lane, could be turned into a memorial to the men who man the ships and the lights. It would tell the story of the growth of Great Lakes shipping, its evolution, and its future. The restoration of the quaint, iron-smelting village of Fayette could help us appreciate the native ingenuity of early industrial undertakings. The story of the lumbering era that once made the Great Lakes the greatest lumber producing area on earth is waiting to be told. Suitable settings for such stories exist; they merely await an interpreter. ■

Fayette, Michigan — a nostalgic reminder of an era past.





Appendix

Eight states border on the Great Lakes. In the following paragraphs is a short breakdown of individual state shorelines and areas suitable for public recreation use.

NEW YORK

New York has 563 miles of mainland frontage on Lakes Erie and Ontario and on the St. Lawrence and Niagara Rivers. Island frontage amounts to 212 miles. Eight areas with 28.4 miles of shoreline were selected for various recreation values. One area, including an island, was selected in the Thousand Islands region of the St. Lawrence. Seven sites were selected on Lake Ontario. Three are recommended extensions of existing state parks. No areas were selected on either the Niagara River or on Lake Erie.

PENNSYLVANIA

Pennsylvania's 51 miles of shoreline on Lake Erie are composed primarily of bluffs, broken only where small streams enter the lake. The sandy peninsula, occupied by 7.8 miles of shoreline in the Pennsylvania State Park at Erie, breaks the continuity of this shore. Only one study area was selected in Pennsylvania: an area around the mouth of the Elk Creek with 1.5 miles of frontage.

OHIO

Ohio has 248 mainland miles fronting on Lake Erie plus 66 miles of island shoreline. Six areas with 11.0 frontage miles were selected in this state. One, the Ohio Marshlands, is of outstanding value to waterfowl and its significance may be national in scope.

MICHIGAN

Michigan, with frontage on Lakes Erie, St. Clair, Huron, Michigan and Superior plus the St. Marys, St. Clair and Detroit Rivers, has a total of 3,222 shoreline miles. Of this total, 948 miles are in island frontage. Forty study areas with 257.3 shoreline miles have been selected, of which three – the Sleeping Bear Dunes, the Pictured Rocks and the Huron Mountains – are of

such an outstanding nature that they justify serious consideration for national acquisition. A breakdown of the study areas shows a proposed 90.8 miles of shoreline for state parks, 69.0 miles for state forests, 82.7 miles for national areas and 14.8 miles for local and county uses.

INDIANA

Indiana has but 46 miles of frontage on Lake Michigan. This shore is highly industrialized, but the 5.5 miles of fine sand beaches backed by high dunes possess exceptional values to meet the recreation needs of the highly populated region.

ILLINOIS

Illinois, like Indiana, has limited frontage on southern Lake Michigan. One state park occurs along the 63 miles of shoreline, but needs more area if it is to adequately handle the throngs of weekend users from the adjacent metropolitan areas. Northward from the park are 3.5 miles of shore frontage which are recommended for state acquisition.

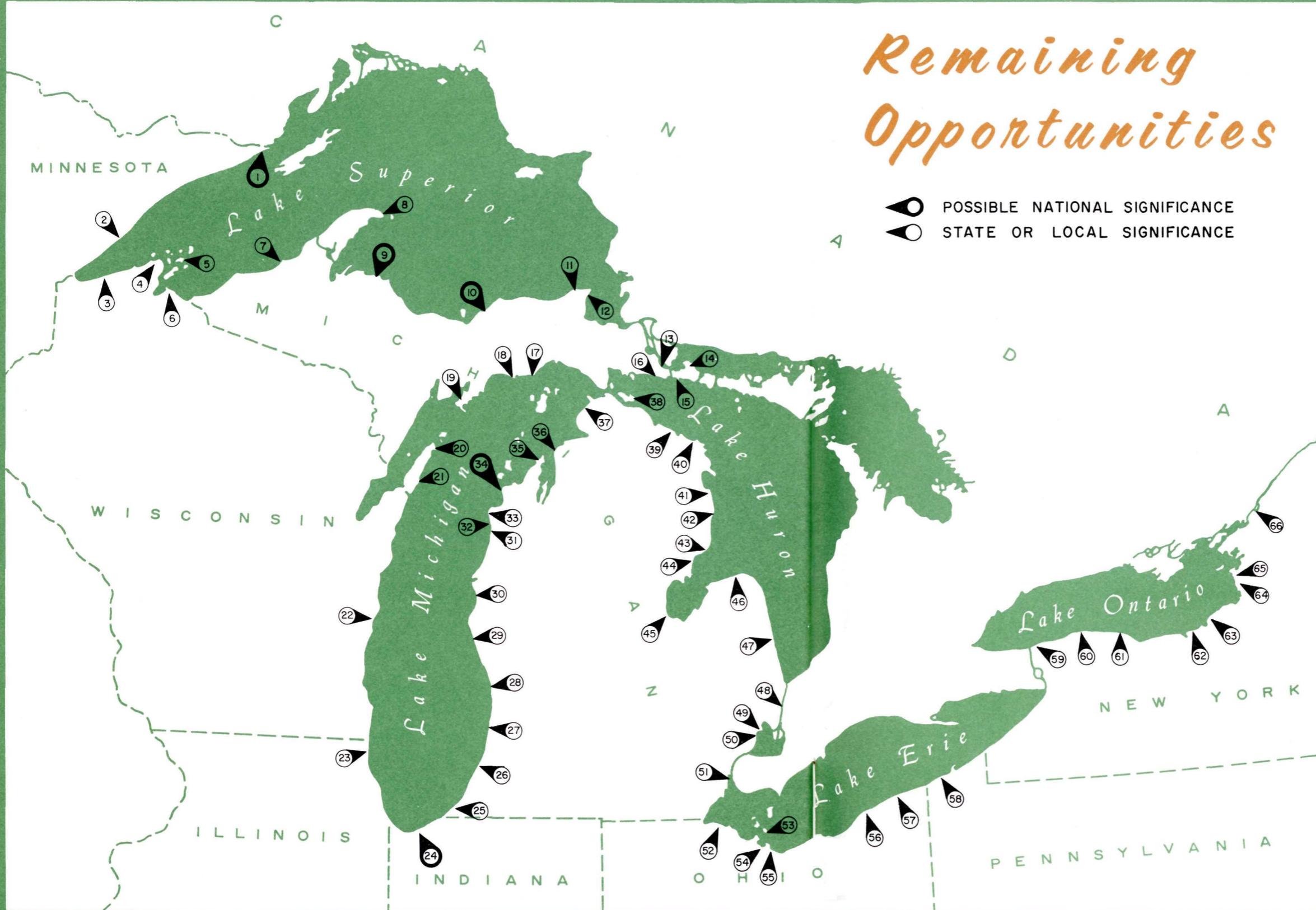
WISCONSIN

Wisconsin, with frontage on Lake Michigan and Lake Superior, has 820 miles of island and mainland shoreline. Three study areas were selected on Lake Michigan; one as an extension of an existing state park, another as a state park possibility and a third as an extension of a state forest. These total 15.0 shoreline miles. On Lake Superior, four areas were designated with a total of 71.5 miles of shore frontage. These include a state park area, an extension of a state forest, areas of local value and a marsh with possible national significance as a waterfowl area.

MINNESOTA

Minnesota's shoreline on Lake Superior is a rock-bound coast with 189 miles of mainland and island frontage. U. S. Highway 61 – the North Shore Drive – follows closely along the lakeshore, and is recommended for a parkway-type development. Two study areas with 32.8 miles of frontage are recommended for public acquisition.

Remaining Opportunities



LEGEND

Minnesota

- 1 PIGEON POINT
- 2 SPLIT ROCK

Wisconsin

- | | |
|----------------------|---------------------------|
| <u>LAKE SUPERIOR</u> | <u>LAKE MICHIGAN</u> |
| 3 BRULE RIVER | 20 TOP O' THE THUMB |
| 4 BAYFIELD PENINSULA | 21 WHITEFISH BEACH |
| 5 STOCKTON ISLAND | 22 TERRY ANDRAE EXTENSION |
| 6 BAD RIVER MARSHES | |

Michigan

Upper Peninsula

- | | |
|-----------------------|-----------------------------------|
| <u>LAKE SUPERIOR</u> | <u>L. HURON & L. MICHIGAN</u> |
| 7 FOURTEEN MILE POINT | 13 RABER POINT |
| 8 KEWEENAW POINT | 14 POTAGANISSING BAY |
| 9 HURON MOUNTAINS | 15 FORT DRUMMOND |
| 10 PICTURED ROCKS | 16 ST. VITAL POINT |
| 11 VERMILION BEACH | 17 POINT PATTERSON |
| 12 WHITEFISH BAY | 18 SEUL CHOIX |
| | 19 FAYETTE |

Lower Peninsula

- | | |
|-----------------------|-----------------------------------|
| <u>LAKE MICHIGAN</u> | <u>LAKE HURON</u> |
| 25 STEVENSVILLE | 38 BOIS BLANC |
| 26 THUNDER MOUNTAIN | 39 LAKE BREEZE |
| 27 SAUGATUCK | 40 THOMPSONS HARBOR |
| 28 COUNTY LINE | 41 SOUTH POINT |
| 29 FLOWER CREEK DUNES | 42 STURGEON POINT |
| 30 BASS LAKE DUNES | 43 AU SABLE POINT |
| 31 ARCADIA | 44 TAWAS POINT |
| 32 HERRING LAKE | 45 TOBICO MARSH |
| 33 BETSIE POINT | 46 PORT CRESCENT |
| 34 SLEEPING BEAR | 47 PORT SANILAC |
| 35 CAT HEAD BAY | <u>ST. CLAIR LAKE & RIVER</u> |
| 36 FISHERMAN ISLAND | 48 ST. CLAIR SOUTH |
| 37 STURGEON BAY | 49 DETROIT NO. 1 |
| | 50 DETROIT NO. 2 |
| | 51 DETROIT NO. 3 |

Illinois

- 23 ILLINOIS BEACH EXTENSION

Indiana

- 24 INDIANA DUNES

Ohio

- | | |
|--------------------|-----------------------|
| 52 OHIO MARSHLANDS | 55 PLUM BROOK |
| 53 KELLEYS ISLAND | 56 MENTOR MARSH |
| 54 CEDAR POINT | 57 GENEVA-ON-THE LAKE |

Pennsylvania

- 58 ELK CREEK

New York

- | | |
|---------------------------|-------------------------|
| 59 FORT NIAGARA EXTENSION | 63 FAIR HAVEN EXTENSION |
| 60 PARKWAY OVERLOOKS | 64 SANDY CREEK BEACHES |
| 61 DEVILS NOSE | 65 STONY POINT |
| 62 CHIMNEY BLUFF | 66 CROOKED CREEK |



