

MANISTEE RIVER WILD & SCENIC RIVER FINAL STUDY REPORT & ENVIRONMENTAL IMPACT STATEMENT



FOREST SERVICE U. S. DEPARTMENT OF AGRICULTURE

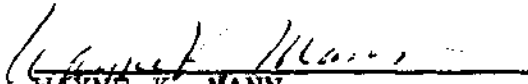
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WILD AND SCENIC RIVER STUDY REPORT

Manistee River Study Area


Manistee National Forest - Michigan

Recommended by:



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Date Feb 25, 1983



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Date Feb. 28, 1983

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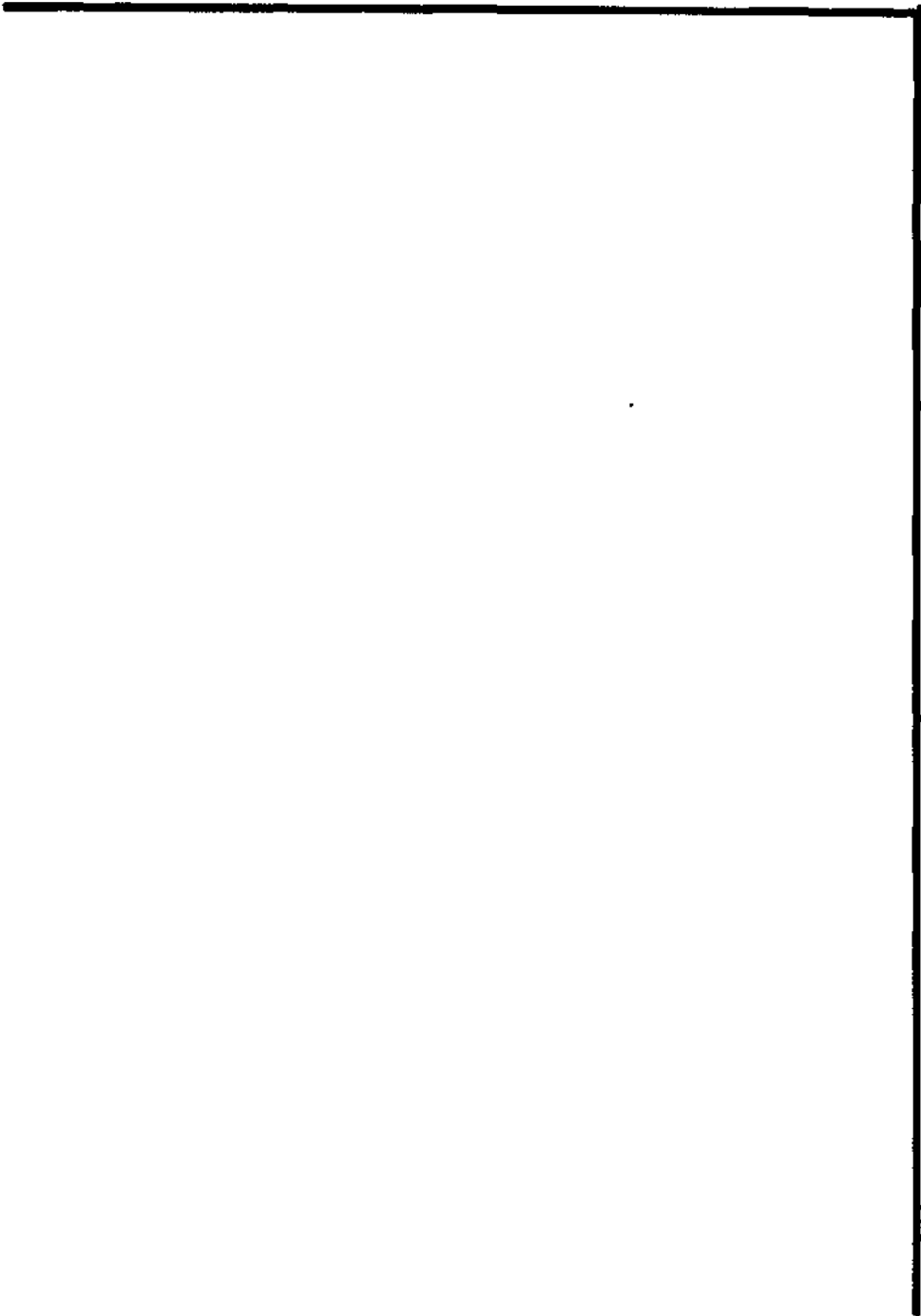
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Spring on the Manistee mainstream below Missaukee Bridge.



SUMMARY OF THE RECOMMENDATION

WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

STUDY AREA

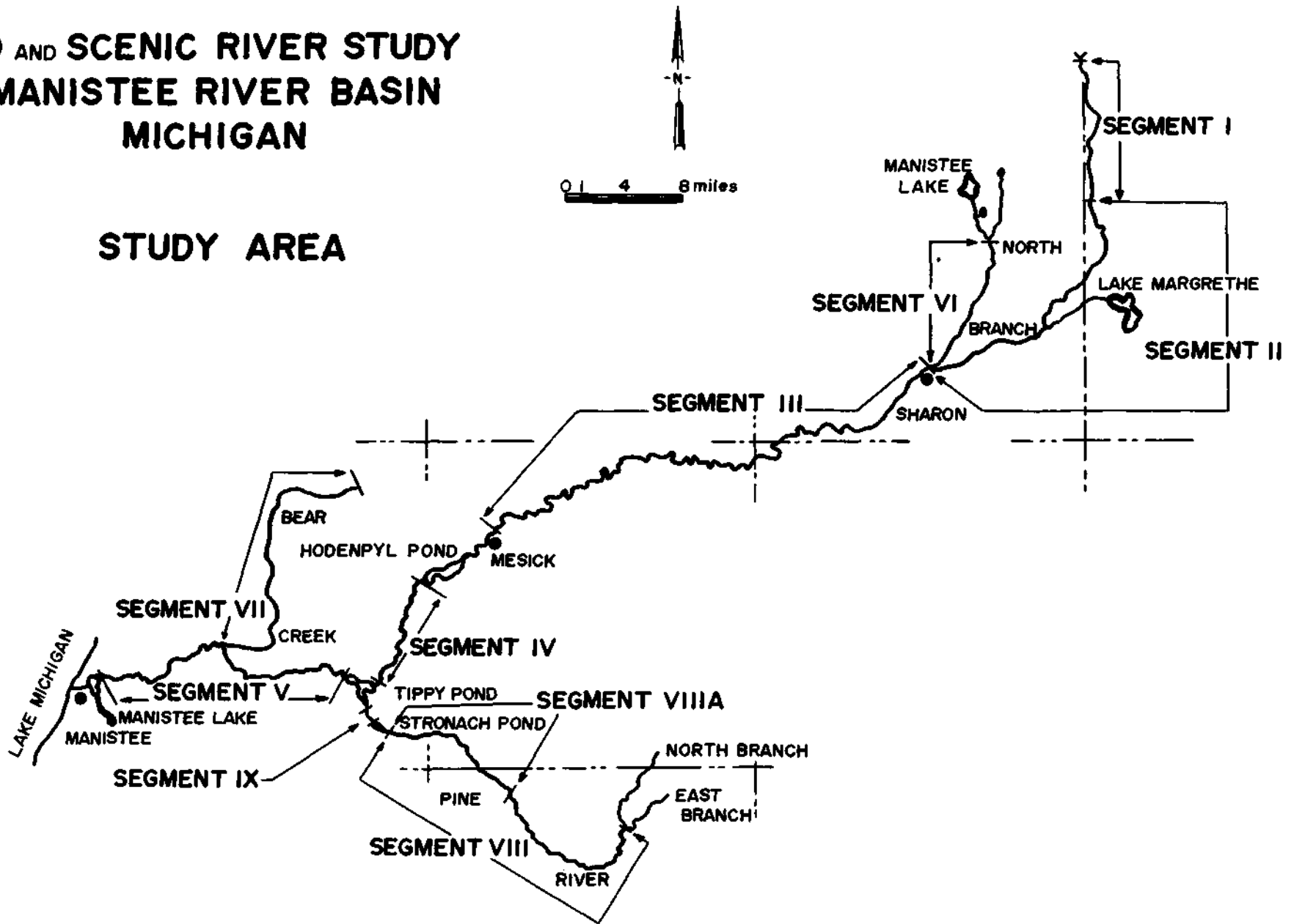


FIGURE 1

1-1

SUMMARY OF RECOMMENDATION

The recommendation is to include certain segments of the Manistee River and its Pine River tributary in the National Wild and Scenic Rivers System under the following classifications.

Proposed Action

<u>Segments of Manistee River and Pine River</u>	<u>Classification</u>	<u>Miles</u>
V. Tippy Federal Energy Regulatory Commission (FERC) Boundary To M-55 Bridge	Recreational	26
VIIIa. Lincoln Bridge to Stronach Pond	Scenic	<u>25</u>
Total		<u>51</u>

Two steps were taken in determining whether the Manistee River and segments of its principal tributaries qualified for inclusion in the National Wild and Scenic Rivers System. First, the river and its surroundings were evaluated to determine whether it met the criteria established in the Wild and Scenic Rivers Act and other established departmental and Secretary Guidelines. Second, the possible effects of designation on social, economic, and environmental values were considered. Based on these evaluations, it is recommended that approximately 51 miles of the 232 miles of river studied should be protected for the benefit and enjoyment of present and future generations. The recommendation provides for protection of approximately 13,406 acres of river corridor in the National Wild and Scenic Rivers System under the specified classifications; 1,666 acres of this corridor are privately owned, while the remaining 11,740 acres are a part of the Manistee National Forest.

Reasons for recommending inclusion of 51 miles of river include:

1. Presently, the Manistee River provides an opportunity for a river experience in a near natural setting. The impact of civilization is evident but solitude is available. Designation of the river will provide lasting protection of the natural and peaceful qualities of the river area, which are a special dimension of outdoor recreation.
2. Limitations on recreation overuse and new development, two major threats to the river area, will be emphasized. Better protection of all river values would result.
3. The scenic value would be retained in its present condition.

4. Those segments would remain free flowing.
5. The Manistee trout fishery has long been famous. Designation could provide additional protection for this high quality fishery.
6. Protection of historic values could be assured through designation. Many of these areas remain to be inventoried.
7. Better protection of visual, water, and fishery values would be assured by modifying oil, gas, gravel, and forest products extraction within the river corridor.
8. Public confusion over who is the responsible official for the management of different segments would be clarified with this proposal.

In summary, the proposed action is judged to provide protection to the highest environmental quality objective (EQA) 1/ with the least amount of cost to national economic development objectives (NED) 1/.

Reasons for changing the classification of Segment V to "Recreational" from "Scenic" as proposed in the draft study report/EIS are:

New development and changes in the amounts and type of recreation use have made the segment ineligible for a "scenic" classification. Those conditions do qualify the segment for a "recreational" classification. An increase in the number of motor boats and the noise generated by those watercraft during spring and fall fishing seasons was not considered compatible with a "scenic" classification. In addition, conditions resulting from recent reconstruction and expansion of four river access/camping facilities by the State of Michigan best meet "Recreational" classification criteria.

SEGMENT VIII

1. It is recommended that the Pine River upstream from Lincoln Bridge not be designated as a Federal Wild and Scenic River. It is further recommended that this portion of the Pine be considered by the State of Michigan for inclusion in their State Natural Rivers Act.

1/ EQ and NED objectives are defined in Chapter V, page 129.

RATIONALE FOR THIS CHANGE

- A. There is a change in River use and ownership at this point. The adjacent public land agency is the National Forest downstream from the bridge, and the DNR upstream from the bridge. This proposal allows each agency to administer the river within their sphere of influence. Regulations and controls could be made compatible.
 - B. Current Forest Service direction is to consider only those portions of candidate rivers which have significant Federal Ownership for designation.
 - C. There is a lack of public support for designation outside of the National Forest boundary.
 - D. The strong public sentiment concerning condemnation would be mitigated.
 - E. The State Natural Rivers Act has similar provisions as the Federal Wild and Scenic Rivers Act. It should provide good protection of the river character upstream from Lincoln Bridge.
 - F. The DNR, through the State Natural Rivers Act, would administer the upstream portion of the river through local zoning ordinances. This should give the local landowner a voice in the control of the river.
 - G. Designation of the river within the National Forest will assure an added measure of protection regardless of short term policy changes.
2. That portion of Segment VIII which lies within National Forest boundaries is referred to as Segment VIIIa. It begins at a point near the National Forest boundary called Lincoln bridge and continues downstream to Stronach Pond.

Lincoln Bridge is the former site of a bridge across the river. The bridge is no longer there. It is currently popular as a put-in spot for recreation canoe traffic.

With minor exceptions, the land within Segment VIIIa is National Forest land.

The characteristics of this segment are well described throughout this report in Segment VIII.

Administration

It is recommended that administration of the Manistee Wild and Scenic River be under the U.S. Department of Agriculture -Forest Service in close cooperation with the State of Michigan and local governments.

The State of Michigan and local governments would be involved in the planning and administration of river components within their jurisdiction. Where appropriate, memorandums of understanding outlining responsibilities for management and development would be entered into between the Huron-Manistee National Forests, the State of Michigan, and local governments.

Management and Development

Facility use and development will be compatible with classification and resource protection.

Replacement of some substandard recreation facilities would be necessary to protect scenic and water qualities. New facilities would be provided for fishing access and picnicking. Development plans and management would follow the objectives of the two river classes and protect the river environment. Limitations on watercraft numbers, timing, and/or location would be implemented by special use permits, a user reservation system, state water use regulations and/or facility design.

Zoning, Easements and Acquisition

Control of 88% of the land within the river corridor is by the National Forest. Local zoning will be a supplement when possible, but will not be actively sought. Partial interests will be purchased only in very unusual circumstances to deal with a difficult problem. Fee title to private land could be acquired when the acquisition would improve management effectiveness and/or protect river values. Acquisition of whole or partial interest would be on a willing seller/willing buyer basis.

CHAPTER I - INTRODUCTION



WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

STUDY AREA

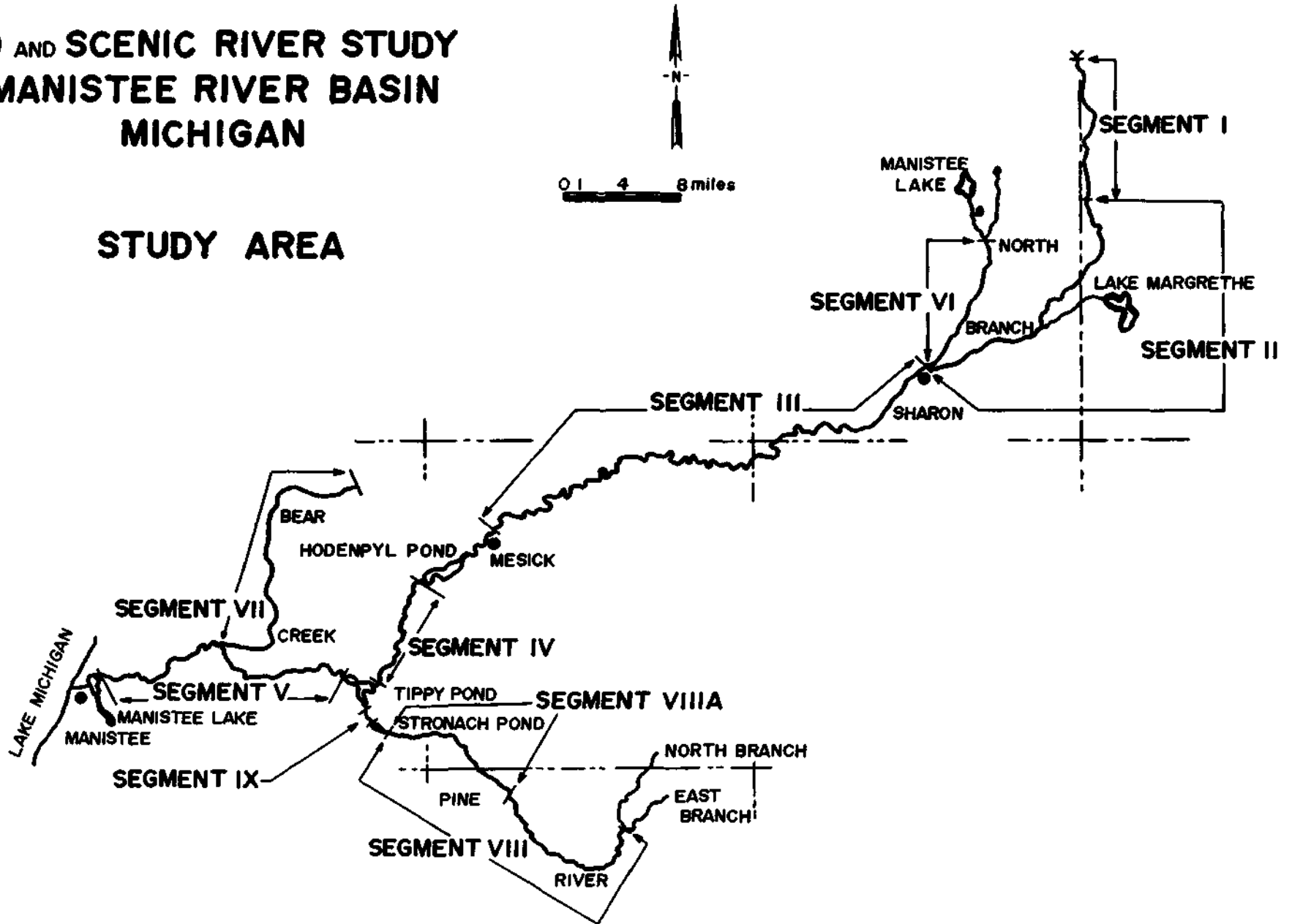


FIGURE 1

CHAPTER I

Introduction

Purpose

The Wild and Scenic Rivers Act, Public Law 90-542 as amended, became law on October 2, 1968. Its purpose is to preserve "certain selected rivers" that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife historic, cultural, or other similar values ... in their free-flowing condition ... for the benefit and enjoyment of present and future generations."

An amendment to the Wild and Scenic Rivers Act, Public Law 93-621, became law on January 3, 1975. It listed 29 new "study rivers" including the Manistee River in Michigan. The law identified the following sections of the Manistee River for study:

"The entire river from its source to Manistee Lake, including its principal tributaries and excluding Tippy and Hodenpyl Reservoirs."

Therefore, of the 200 mile long Manistee mainstream, 160 miles were studied for potential inclusion into the National Wild and Scenic Rivers System. An additional 8 miles of the North Branch, 16 miles of Bear Creek, and 48 miles of the Pine River were also studied because of their status as major tributaries.

The Study

In November 1975, a joint Federal-State of Michigan Study Team was formed to carry out the Manistee River Study. The Forest Service was designated the lead agency. It was assisted by the Michigan Department of Natural Resources, the Heritage Conservation and Recreation Service, Soil Conservation Service, Fish and Wildlife Service, Great Lakes Basin Commission, and the Northwest Regional Planning Commission.

The study has five phases:

Study Data. A substantial amount of information concerning the Manistee River was included in various reports available to the study team. A contract for securing and analyzing economic data was completed by Commonwealth Associates, Inc. of Jackson, Michigan. Field data was collected by the study

project leader. In addition, data was provided by a broad range of Federal and State agencies, regional and local organizations, citizens' groups, and knowledgeable individuals.

Evaluation. Next, the Manistee River and its tributaries were divided into nine segments by the study team and evaluated to determine their eligibility for inclusion in the National System. Direction for this phase is found in the Wild and Scenic Rivers Act and supplemented in "Guidelines for Evaluating Wild, Scenic, and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542".

A four-step process for determining eligibility was used:

1. The nine segments were evaluated in terms of eligibility for inclusion in the national system.
2. Those segments considered eligible were divided into classifiable units on the basis of length and similar characteristics.
3. Eligible units were classified as wild, scenic or recreational according to the present degree of development.
4. All public comments received to date, including information obtained at public meetings and from letters and written responses, has been carefully evaluated. This information was used by the study team in reviewing its suitability determinations and checking for errors and oversights.

The results of this process are shown in Chapter IV.

Alternatives. Six alternatives, including a "No Action alternative" were considered a reasonable range of management options and are presented in this study. The economic and environmental evaluation of these alternatives were developed in accord with the "Principles and Standards for Planning Water and Related Land Resources," published in the Federal Register, Vol. 38, No. 174, Part III (Sept. 10, 1973). Basically, they require formulation of alternative plans based on a national economic development objective and an environmental quality objective. A recommended plan should show net economic benefits, except when a deficiency in net benefits results when benefits are foregone or additional costs incurred to serve the environmental quality objective. In other words, a plan with no net economic

benefit can be recommended if it has overriding longterm environmental benefits. This process also requires assessment of the effects the various plans have on regional development and social well-being. An outline of this procedure is included in Appendix C, and the results are presented in Chapter VI.

Public Response. The public has been encouraged to respond to the Manistee River study. For the most part, reaction appeared to represent two dissimilar philosophies. Private landowners are concerned about the possibility of losing their property and/or landowner rights and the increased use and associated problems. On the other hand, conservationists and fishing-canoeing enthusiasts support wild and scenic river designation to protect and preserve the river for present and future use.

Findings and Recommendations. This phase includes evaluation of data, public comments, and selection criteria. The findings and recommendations presented at the beginning of the report and in Chapter VI are the results of this evaluation.

CHAPTER II - RIVER BASIN DESCRIPTION

**WILD AND SCENIC RIVER STUDY
MANISTEE RIVER BASIN
MICHIGAN**

STUDY AREA

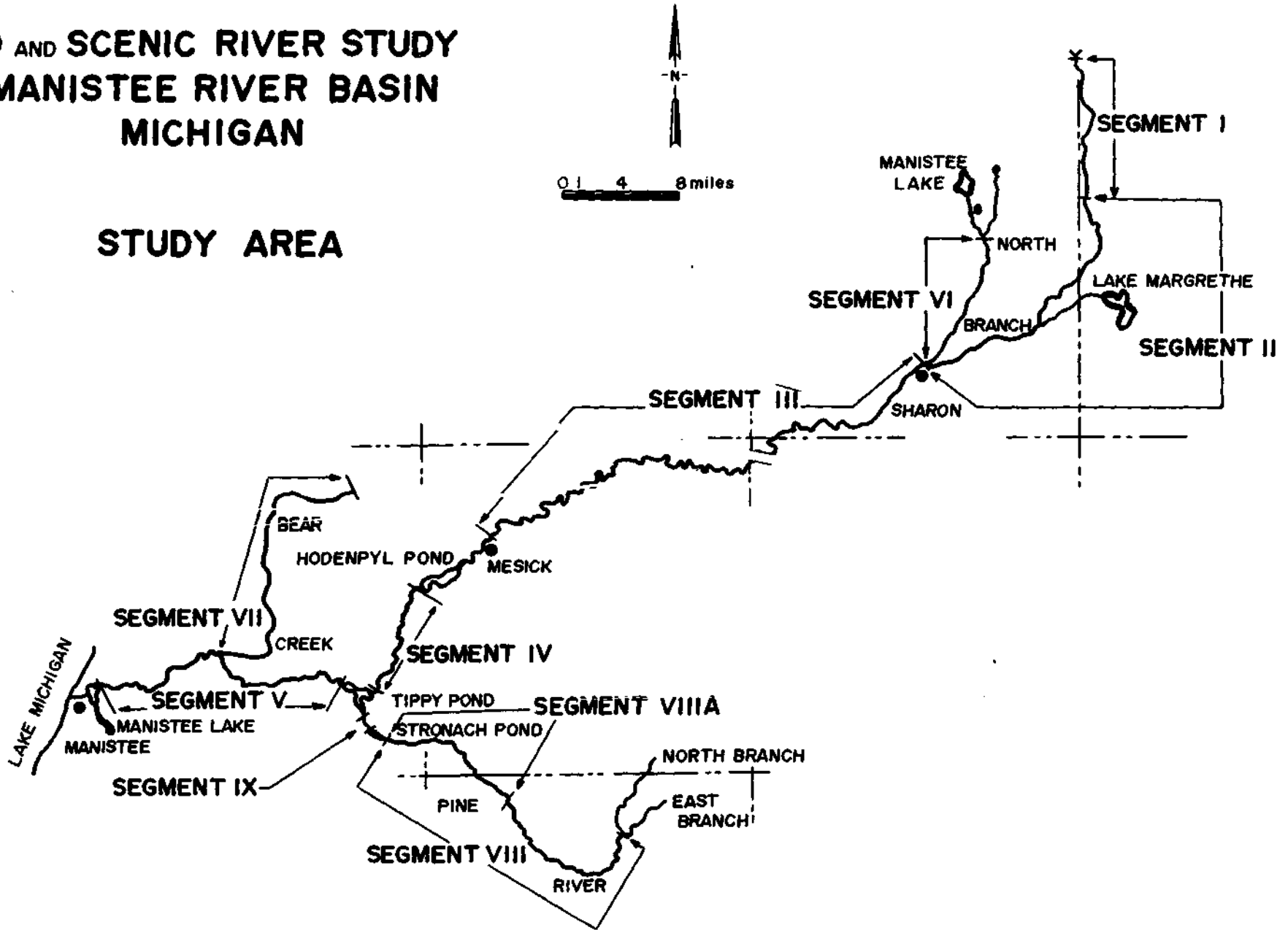


FIGURE 1

CHAPTER II

River Basin Description

Preface

This description of the Manistee River basin gives a broad picture of the natural and human environments of a potential wild and scenic river. Its purpose is to sketch a general view of the larger province for which the Manistee is a geographic and economic lifeline.

In choosing the hydrologic basin parameter rather than political boundaries, the intent is to show the Manistee River as part of a living system. Economic and social aspects will be shown on a wider than county basis to show the river's broad range of influence.

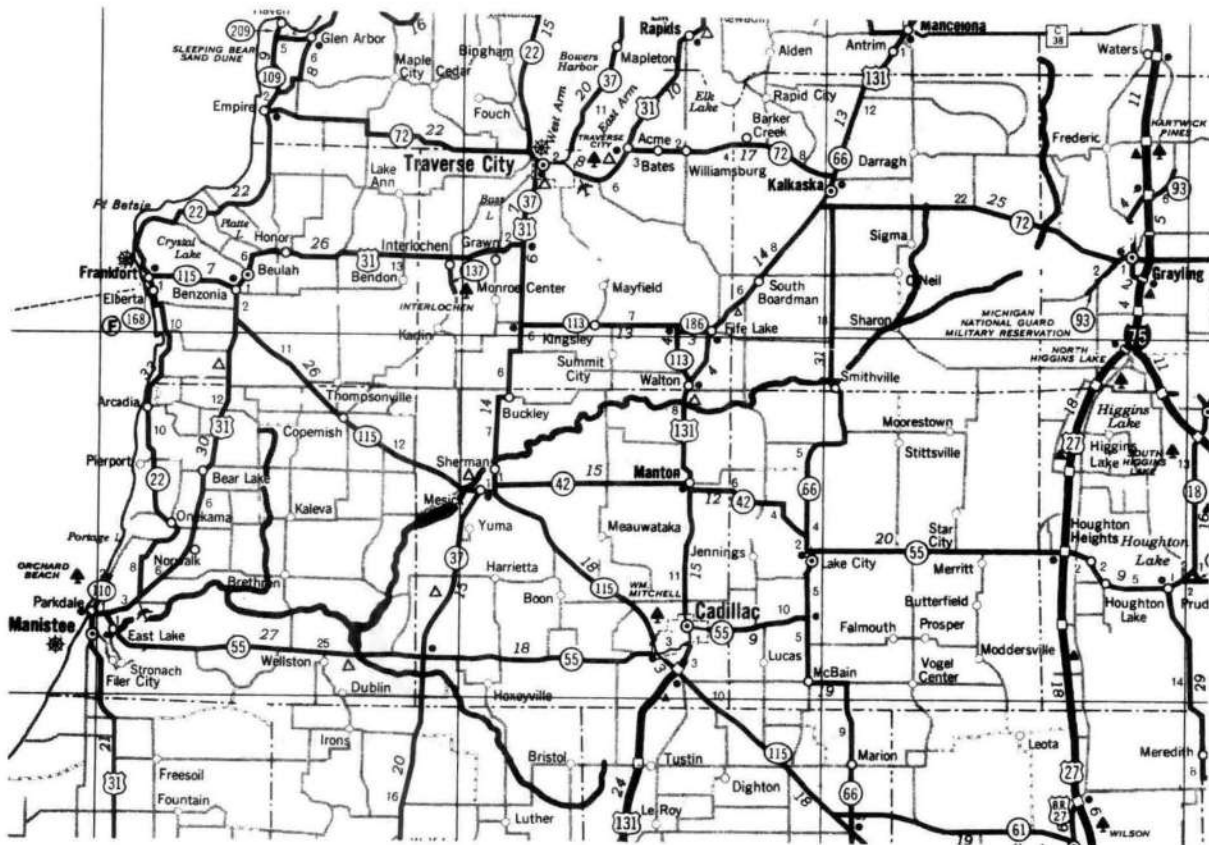
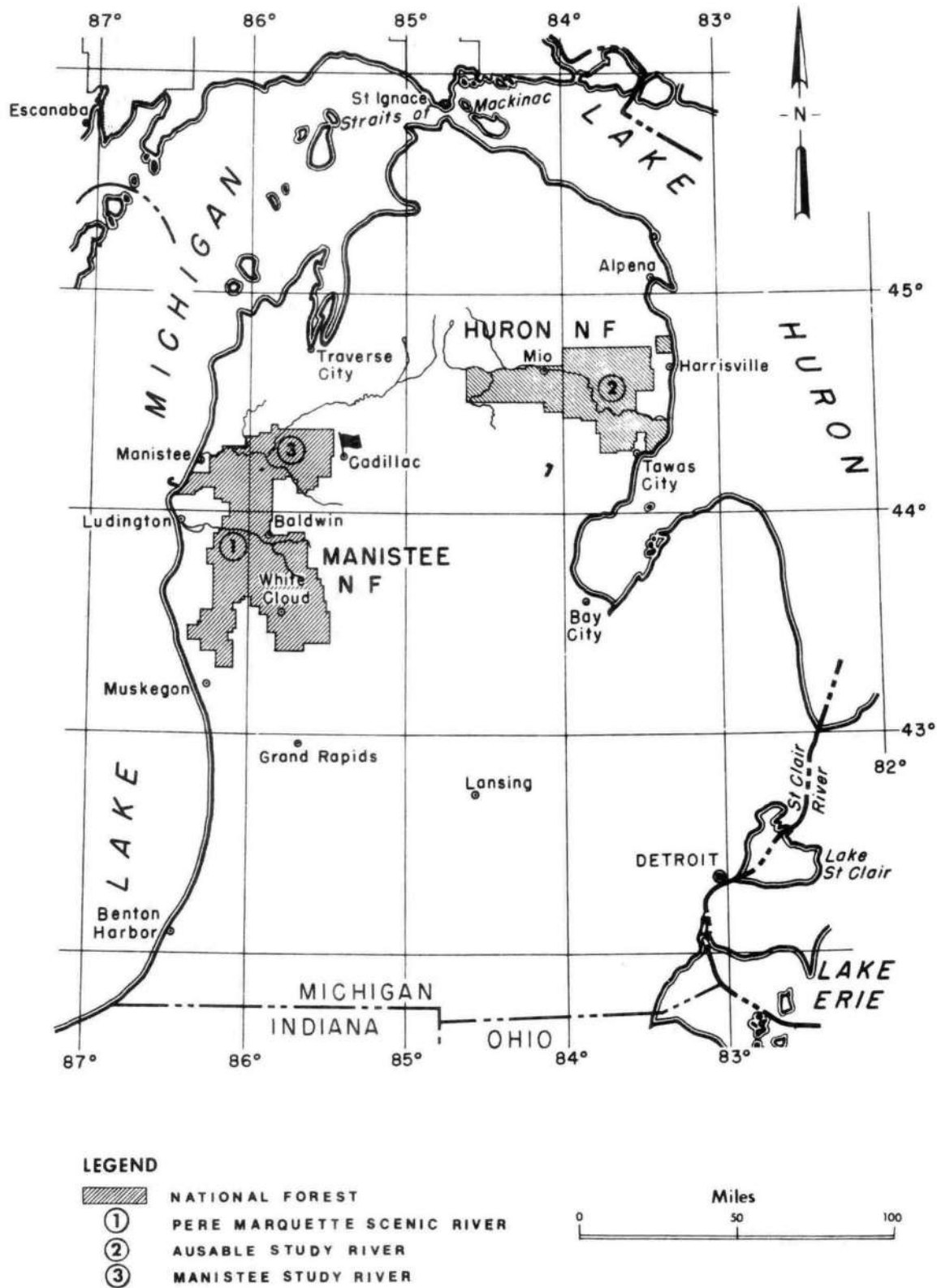


FIGURE 2

The River: The Manistee River, whose name is derived from the Chippewa word "Manistiqweita" meaning "crooked river" is located in the northwest portion of Michigan's Lower Peninsula and partially within the Manistee National Forest. It begins in Section 1, T29N, R5W about 6 miles southeast of.

Proximity Map of Potential and Existing Wild and Scenic Rivers

FIGURE 3



Alba, Michigan at an elevation of 1,250 feet above sea level. The river basin includes portions of Crawford, Kalkaska, Missaukee, Wexford, Manistee, Lake and Osceola Counties. The river empties into Lake Michigan at the City of Manistee, after meandering back and forth across slightly more than 100 land miles and dropping 600 feet in elevation. Due to logging and, in a few instances, farming, the river has lost much of its "wild" character.

Physiography

The topography of the Manistee River basin is rolling to flat. Maximum elevation above sea level is approximately 1,400 feet in the Deward area dropping to a minimum of 600 feet near Manistee in the extreme western corner of the watershed. The river basin has an overall drop of 621 feet.

The extreme northeast corner of the basin has hills ranging to 1,400 feet in elevation. The topography is rolling down to the Sherman area. The topography from Mesick to above Manistee is generally flat to rolling with deep cut stream channels. The Lower Manistee watershed occupies part of the ancient Great Lakes beds and is generally low and marshy.

Climate

The basin offers a climate typical of Michigan's "north country". It is strongly influenced by Lake Michigan. The warm days and cool nights offer a pleasant summer haven for residents and tourists alike. Winter provides excellent conditions for skiing, snowmobiling, and other winter sports.

Weather data for the Manistee basin indicates a record high 107°F and low of -45°F, both recorded in the Grayling-Fife Lake Area. There is considerable variation in climatic conditions in the basin depending on the distance from Lake Michigan. Temperatures can be expected to fall below zero 3 days each year near Manistee and 23 days every year near Grayling.

The summer season yields 34 percent of the annual precipitation, with 30 percent accounted for during the fall. The summer and fall seasons generally provide the greatest precipitation. The low occurs in February with an average yield of 1.44 inches. Annual precipitation averages 32.04 inches.

Table 1. -- Climatic Conditions in the Manistee River Basin - National Weather Service

Location	Average Low Temp. January	Average High Temp. July	90°F & above (days)	32°F & below (days)	Average Annual Snowfall	Average Annual Precip.
Manistee	17°	80	7	144	80"	31.03"
Grayling	10°	80	8	179	90-100"	33.06"

Summer skies tend to be generally free of cloud cover with nearly constant westerly breezes. Winter skies are generally cloud covered and windy.

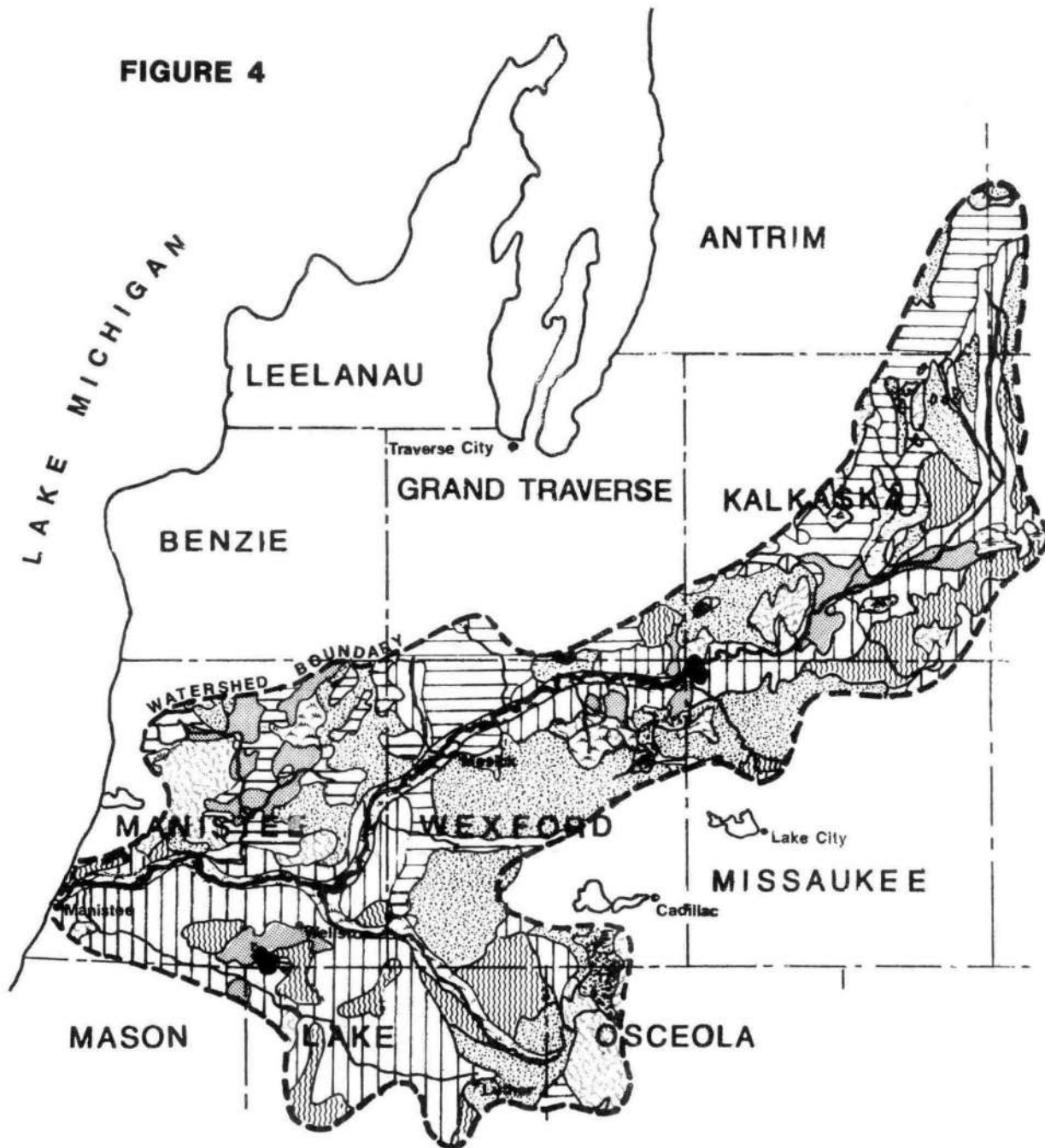
Soils

The Manistee River and its tributaries cut through pre-existing moraines as well as their own outwash; therefore, the location of different soil types does not follow a specific pattern. Along the Manistee River, there are several terraces that are gently sloping to steep. One of the main tributaries, the Pine River, has a number of steep banks. Many banks, which are composed of wet clay and sand, have severe erosion caused by mass slumping. These banks are not numerous, but are major contributors of river sediment. The steeper banks along the Manistee River do have some erosion but not to the extent of those along the Pine River.

The soils along the Manistee and Pine Rivers tend to have heavier textures and finer sands especially in the subsurface horizons. Development of these soils is strong, thus supporting northern hardwoods, aspen, and paper birch. Farming occurs in small areas on some of the finer textured, well developed soils. Areas that could be farmed often are not because of slope. There are large areas of poorly developed medium sand soils which support mainly oak and a spattering of jack pine.

Along the river floodplains and lowlands are poorly drained and organic soils. The organic layer may range from only a few inches to several feet thick. The material beneath the organic layer is usually sand or stratified with finer textured layers. Vegetation usually found in these areas is tag alder, white cedar, balsam fir, black and white spruce. There is gravel along the corridor but it occurs in small patches and is not continuous. Between the floodplain, lowlands, and the upper terraces are transition soils that are moderately well drained and intermediate in development.

FIGURE 4



SOIL ASSOCIATIONS

- | | |
|--------------------------------|--------------------------------|
| Emmet - Rousseau | Grayling - Rubicon |
| Kalkaska - Rubicon | Nester - Iosco - Emmet |
| Rousseau - Emmet - Rubicon | Ogemaw - Rubicon - Nester |
| Emmet - Kalkaska - East Lake | Newton - Finch - Rubicon |
| Rifle - Carbondale - Greenwood | Bergland - Munuscong - Selkirk |



MANISTEE RIVER WATERSHED SOIL ASSOCIATIONS and USE LIMITATIONS

Table 2

Series	Slope	Streets and Highways	Residential without Public Sewer	Cottages and Utility Building	Camp Sites and Picnic Areas	Paths and Trails	Factors Limiting Use
Well Drained	0-8	Moderate	Slight	Slight	SL Slight	0-15SL Slight	Slope, frost action, small stone (Mod. well drained) wet
	8-15	Moderate	Moderate	Moderate	8-15SL Moderate	15-25SL Moderate	
Emmet	15+	Severe	Severe	Severe	0-8GR-SL, CB-SL Mod.	0-15GR-SL, CB-SL Mod.	
Moderately Well Drained	0-15	-	Severe	Severe	8-15GR-SL, CB-SL Mod.	15-25GR-SL, CB-SL Mod.	-
	15+	-	Severe	Severe	-	-	-
Rousseau	0-8	Slight	Slight	Slight	-	Severe	(Mod. Well Drained) wet slope blowing, too sandy.
	8-15	Moderate	Moderate	Moderate	Severe	-	-
	15+	Severe	Severe	Severe	-	-	-
Mod. Well Drain.	0-15	-	Severe	Severe	-	-	-
Rubicon	0-8	Slight	Slight	Slight	Severe	Severe	Slope, too sandy
	8-15	Moderate	Moderate	Moderate	-	-	-
	15+	Severe	Severe	Severe	-	-	-
Kalkaska	0-8	0-25LS Mod.	Slight	Slight	0-15LS Moderate	0-25LS Moderate	Slope, too sandy
	8-15	25+LS Severe	Moderate	Moderate	15+LS Severe	25+LS Severe	-
	15+	0-25+S Severe	Severe	Severe	0-15+S Severe	0-25S Severe	-
East Lake	0-8	-	Slight	Slight	Moderate	Severe	Slope, too sandy, blowing
	8-15	Severe	Moderate	Moderate	Moderate	-	-
	15+	-	Severe	Severe	Moderate	-	-
Grayling	0-8	-	Slight	Slight	Severe	Severe	Slope, too sandy
	8-15	Severe	Moderate	Moderate	-	-	-
	-	-	Severe	Severe	-	-	-
Nester	0-15	-	-	Moderate	Moderate	Severe	Slope, low strength, percolate slowly, frost action, shrink-swell
	15+	Severe	Severe	Severe	Severe	-	-
Rifle	-	Severe	Severe	Severe	Severe	Severe	Excess humus, floods, wet, frost action
Carbondale	-	Severe	Severe	Severe	Severe	Severe	Wet, floods, excess humus
Greenwood	-	Severe	Severe	Severe	Severe	Severe	Wet, floods, low strength excess humus
Iosco	-	Severe	Severe	Severe	Severe	S-Severe, LS Mod	Wet, Percolates slowly, shrink-swell, frost action
Ogemaw	-	Severe	Severe	Severe	Severe	Severe	Wet, percolates slowly, slope
Newton	-	Severe	Severe	Severe	Severe	Severe	Wet, floods
Finch	-	Severe	Severe	Severe	Severe	Severe	Wet, cemented pan, floods
Bergland	-	Severe	Severe	Severe	Severe	Severe	Wet, percolates slowly, floods, low strength, too clayey
Munuscong	-	Severe	Severe	Severe	Severe	Severe	Wet, floods, percolates slowly, low strength
Selkirk	-	Severe	Severe	Severe	Severe	Severe	Wet, floods, percolates slowly, shrink-swell, frost action

The soil is evaluated to a depth of 5' or less. Soils are rated on basis of classes of soil limitations. Slight-Relatively free of limitations or limitations are easily overcome. Moderate-Limitations need to be recognized but can be overcome with good management and careful design. Severe-Limitations are severe enough to make use questionable.

LEGEND: SL-Sandy Loam; GR-SL-Gravelly sandy loam; CB-SL-Cobbly sandy loam; LS-Loamy sand; S-Sand

Aspen, paper birch, balsam fir, and white pine and red pine are commonly found growing in these soils.

Vegetation

Over 70 percent of the watershed is forested. Dominant forest vegetation in areas of limey loam to clay loam parent materials consists of northern white cedar, balsam fir, white pine, ground hemlock, red maple, black ash, yellow birch, white birch, and basswood. In the rolling areas having sand and sandy loam parentage, red pine, jack pine, and the oak group dominate. The aspens, junberry, and thorn-apple infiltrate the disturbed areas. Spagnum bogs constitute a completely different niche with their dominant black spruce and tamarack. Limey sand and loamy sand areas support hemlock, sugar maple, and elm with noticeable amounts of northern white cedar, white pine, and basswood.

Approximately 7 percent of the watershed is in some form of agricultural production. Christmas trees are being grown in many areas on what was formerly land used for grazing and crops. Soil fertility diminished on these "played out fields" and the Christmas tree plantations that followed have become a significant vegetative type and economic stimulus.

Terrestrial Wildlife

The watershed contains an interesting variety of wildlife. Hunting for both large and small game and waterfowl are popular recreational activities as are nonconsumptive uses of wildlife such as photography and observation. Two thirds of the users are not residents of the area. The bulk of this use comes from areas south of the Forest. Trapping of fur bearers is popular with local residents.

In the big game category, white-tailed deer is the most important species. Deer benefited from plant succession following the logging and wildfire era in the late 1800's and early 1900's. Carrying capacity of the range, and subsequently deer populations, rose dramatically during the 1920's. Populations exceeded the carrying capacity in the 1930's, leveled off in the 1940's, declined again in the 1950's and has now risen again and leveled off. A controlled harvest has helped to balance the population with habitat conditions. Stream flood plains and adjacent uplands are used by deer as winter habitat. A list of mammals common to the watershed is included in Appendix F.

The river basin area contains 10 percent of the wild turkey population and is one of three such hunting areas in Michigan. Hunting is controlled by a permit system. The bird's presence is the result of an intensive management and stocking program by the Department of Natural Resources in cooperation with the Forest Service. The presence of these magnificent birds adds dimension to local wildlife populations.

The river area and associated bottom lands are used extensively by waterfowl and shore birds for nesting and brood rearing during the spring and summer and by migrating waterfowl during the spring and fall. Mallards, black ducks, wood ducks, red-breasted and American mergansers, coots, teals, bitterns, and herons nest in the flood plain marshes and woodlands. The diving-duck group -- redheads, golden-eyes, greater and lesser scaup, etc., use the river mostly during the spring and fall migration. A few ducks, primarily golden eyes, overwinter in the open water areas of the river. Shore birds such as sora, and Wilson's snipes are common in the area. Dutch elm disease has killed large stands of American elm trees in the river flood plain. As a result, associated ecological changes have been beneficial to many species of woodpeckers, nuthatches, and many cavity nesters.

Ruffed grouse, wild turkey, and woodcock are the primary upland game birds found in the area. Some of the far areas have populations of ring-necked pheasants. Ruffed grouse, and woodcock are the major targets of upland shooting. Small game mammals include cotton-tail rabbits, snowshoe hares, foxes and gray squirrels.

At least 70 species of nongame birds are known to nest in the watershed. A list of the nesting bird species is included in Appendix F. In addition, many other species migrate through the area. A complete list of nesting and migrating species would number well over 100 species.

Fur bearers which are open to trapping include beaver, muskrat, mink, otter, red fox, raccoon, and skunk. The price of furs has increased so that trapping has become a commercial venture as well as sport.

Fish and Aquatic Life

The Manistee River is considered one of the best rivers in Michigan for fish production and the maintenance of a quality trout fishery. Two other rivers of the Huron Manistee National Forests are equal or better in this

respect. They are the AuSable and the Pere Marquette. Innovative special fishing regulations have been applied to various stretches of the Manistee River and intensive stream improvement work has been conducted to stabilize eroding river banks and improve trout habitat. Anadromous fish runs have provided a unique fishery - particularly below Tippy Dam. In 1973, the Manistee River provided 153,450 angler days and forecasts indicate increases of 10 percent by 1980 and 19 percent by 1990.

Fish and aquatic life in the Manistee River and its tributaries indicate excellent water quality. However, water tends to become progressively warmer downstream due to the influence of Tippy and Hodenpyl Reservoirs. Water temperatures also tend to be higher in the headwaters where the river passes through open marsh country and is warmed by sunlight.

Manistee River fish populations, fishing pressure, adequate habitat, and potential are evaluated in Appendix F.

Other Animals

Many lesser creatures are indigenous to the area. The massauga (a small venomous snake) occurs in this watershed in very low numbers. In and along the river, several species of nonpoisonous reptiles such as the blue racer, common water snake, hog nose snake, snapping turtle, painted turtle, and soft shelled turtle can be found. Various frogs, toads, lizards, and salamanders are also regularly observed by river users. Appendix F lists those breeding species found in the river basin.

THREATENED AND ENDANGERED SPECIES

The northern bald eagle has been listed under federal law as threatened in Michigan, Wisconsin, and Minnesota. Elsewhere in the lower 48 states it is classed as endangered. It is not classed in either category in Alaska where a relatively large population is being sustained. It is also classed as threatened under Michigan law.

Four active bald eagle nesting territories were located on the Manistee River in the early 1960's. During the past decade, three of the pairs occupying these nests have disappeared. It is not known if this loss is simply coincidental or the direct result of increased user activity and the presence of pesticide laden fish due to salmon introduction in the Manistee River. However, these three pairs, found below Tippy Dam and at the upper limit of salmon runs and fishing



Wildlife inhabiting the
Manistee River area
include the:

Snowshoe Hare...

Courtesy - R. McNeill -
FSC



Northern Bald Eagle...



Ruffed Grouse...

Courtesy - R. McNeill -
FSC

activity, rather abruptly disappeared. The pair nesting above this dam have had no success in fledging young since 1964.*

Disturbance during the nesting season and the eating of fish laden with persistent pesticides may have been factors causing the demise of these eagles. With the decline of pesticides in the anadromous fish running the Manistee and the protection of potential nest sites along the lower Manistee River, there could be a possibility of newly mated eagles establishing nesting territories here once again. Without a decrease in pesticide loads and the reservation of some relatively undisturbed areas within the Manistee River corridor there is no chance that the bald eagle will ever again be a part of the fauna of this area.

Water Resources

The Manistee River drains an area of 2,018 square miles and drops approximately 620 feet from its source. Water resources are used largely for recreation and hydro-electric power production. Approximate average discharge at Tippy Dam, with a drainage area of 1,457 square miles, equals 1,200 cubic feet per second (ft³/s). On a direct drainage area ratio, the average discharge at the mouth is estimated to be 1,665 ft³/s.

There are two existing hydroelectric power plants in the Manistee River Basin with a total installed capacity of 38,000 kilowatts and an average annual energy output of 99,000 megawatt hours. The power plants are operated by an investor-owned utility company - Consumers Power Company of Jackson, Michigan. Tippy Dam began operation in 1918 and Hodenpyl in 1925.

Geology and Minerals

The predominating influence on the Manistee River is its geological background. The unique conditions left by the Pleistocene glaciers that advanced and retreated across this

*This pair is still seen in the vicinity of the two nests in their territory. However, neither of these nests were used during the 1981 nesting season. It is felt that the pair may have a new nest but so far searches have not been successful in locating them. There was an adult sitting on one of these nests in an incubating position on April 1, 1982. A bird was seen on or near this nest prior to the April 1 survey.

portion of Michigan's Lower Peninsula provided the ecological framework for the plant and animal world. The very conditions that makes this river worthy of consideration for federal designation, its sustained flow of cool, clear water and the thickly mulled forest floor covering most of the morainal areas, is directly attributable to the porous nature of the glacial outwash deposited between the Lake Michigan border and Port Huron moraine. Meltwaters pouring off the Port Huron ice sheet carved out two large discharging channels that run east and west. Judging from river terraces in Section 5, T24N, R8W, the river at peak melt drainage measured at least 12 times wider than its current 80 foot average width at this point. Since maximum flow, the river has cut a bed 70 feet into the glacial material at the above indicated terrace location. Present day Manistee and Au Sable Streams underfit these channels and would appear strange to a first time visitor who did not understand the geological history of the area -- "How could such a little stream carve such a big river valley and build such a huge delta?"

Near the end of the river system a delta has built up where the stream discharged into an ancient great lake that occupied the present Lake Michigan Basin but at a higher level.

In the vicinity of the old Manistee delta, the waters of a later glacial stage discharged out of the lower Manistee River mouth from the ancient Boardman River system. Subsequent capture of the upper reaches of this river system by streams emptying into Grand Traverse Bay resulted in Bear Creek draining a broad glacial valley across north central Manistee County.

The glacial till deposits in western Lower Michigan are some of the thickest glacial deposits found anywhere in the world. Depths in excess of 1,000 feet have been recorded in Wexford and Osceola Counties. Some of the clay tills in this part of the State are so tough and unyielding that they form rapids in some of the tributaries of the Manistee River. This is very unusual for what is considered to be "an unconsolidated deposit."

The Manistee River, like most other streams emptying into Lake Michigan, enters through a drowned river mouth. These unique features are caused by sand laden, lateral lake currents blocking many of the old embayments on the western side of the Lower Peninsula. Contorted channel connections to Lake Michigan like the Platte River mouth today, were usually straightened out to provide shipping or boating

access to harbor cities in this area. These drowned river mouths made excellent collection basins for logging operations in early settlement days and provided the sites for several sawmill towns and lumber ports.

Streamflow and water temperature characteristics are strongly influenced by the geology of the basin. Permeable sand and gravel in the outwash areas contribute relatively large amounts of groundwater discharge to the river. This ground water maintains the flow during drought periods and cools the stream during the hot summer months. These areas also buffer sudden changes in river stage, thus reducing the probability of flash flooding.

Relatively shallow oil and gas fields are scattered over much of the watershed. In addition to oil and gas, bromine, calcium chloride, and calcium magnesium chloride are either obtained directly from wells or produced from materials derived from the wells.

The general area, including all the lands contained in the watershed, is being subjected to a great amount of oil and gas lease activity and exploration. Geophysical work has been conducted over a large portion of the area. The present exploration activity is directed toward locating and testing coral reef developments in the older limestone formations. A few tests have been successful but exploration activities in the deeper horizons are in a very early stage.

Other than sand and gravel deposits, oil and gas are considered the only mineral resources with significant value in this area.

Population and Lifestyle

Residential population within the Manistee River watershed has experienced a steady increase during the past 20 years. The 1970* census indicated a population of 79,190 people in the seven county area. An increase of 21 percent is expected to occur within the same area during the next 20 years. The State of Michigan population is expected to increase 12 percent during the next 20 years.

The seven county study area covers 7 percent of the total land area of the State of Michigan and is inhabited by less than 1 percent of the total State population. So, the

*1980 census data is not available in final form at this time. However, there is little apparent change from the 1970 data.

average population density for the State is better than six times greater than the average population density in the study area.

The study area population density is much lower than that of the State and has grown at a slower rate. While the State population grew at a rate of 13.4 percent between 1960 and 1970, the study area population only grew 11.9 percent. Manistee and Wexford Counties are the most populated counties in the area. Cadillac is the major urban center, with a 1970 population of 9,990.

Except for Cadillac and Manistee, which are taking on some urban social and cultural attributes, the basin is rural in lifestyle. A distinctively "small town" atmosphere prevails in the four other towns of significance in the basin: Manton, Mesick, Wellston and Luther. In each town, recreational and forest products, industries and light industries are the major employers and help determine residents' lifestyles.

Economy

The present economy of the Manistee River basin is highly resource oriented. Primary industries include forestry, recreation, petroleum, and light manufacturing and are largely dependent on regional resources. Collectively, they employ 37 percent of the local work force. In addition, many of the basin's secondary and tertiary service-type industries are significantly tied to its natural endowments and the visitors these attract.

Approximately 32 percent of the work force is engaged in manufacturing, which includes processing of forest products and producing component parts for the auto industry. Retail trade occupies about 30 percent of the total work force and has shown steady growth. Services employ 17 percent of the work force and include community service, utilities, and accommodations for visitors.

Transportation

The entire river basin is easily accessible by major State, county, or federal roads which intersect the river at regular intervals. Interstate 75 is a major link between the upper Manistee River and the large urban areas in southern Michigan. State highways 66, 131, 31, and 115 cross the Manistee River at nearly equal intervals and access is further improved by other State and county roads (See Map V - Transportation System).

Highway construction plans provide for replacing Highway 131 with a four-lane link to Grand Rapids. This proposed project would cross the basin near Manton and provide ready access into the central basin area. This access would have a major impact on recreation use in the river basin.

Republic Airline flights service Traverse City. Air commuter flights serve Ludington, Manistee and Traverse City. Although Grayling has an airport, it is presently available only to private flights. There are six private landing strips in or very near the study area.

Michigan interstate, Michigan Northern, and ConRail Railroads all provide rail freight service to the river basin area. Passenger service to major towns in the basin is available via North Star bus lines.

Land Use and Ownership

Throughout the river basin, historic settlement patterns have led to the fairly predictable land ownership patterns that exist today. Since 1817, choice, productive agricultural lands, especially those with water and fertile soils, have been homesteaded and thereby taken out of public domain. The heavily timbered lands were acquired by timber companies and private individuals.

The remaining area became public land and today are managed as the Manistee National Forest and Grand Traverse Area State Forests. The original heavy timbered land was cutover and repeatedly burned by wild-fire. Consequently, the productivity of the land decreased; it became a tax liability and conservation problem. Unwanted land was sold to the only willing buyers -- the State and Federal Governments or became tax delinquent and subsequently public land. Massive reforestation programs were initiated by the public agencies.

Attempts at agricultural production in the river basin have been largely unsuccessful. Early settlers tried promising areas but moved on when the land "played out". Today about 2,250 acres in the river corridor and about 183,300 acres in the watershed are in agricultural production.

Since 1938, large portions of unclaimed lands in the river basin, especially unproductive timber land, have come under public domain and National Forest was established. Tax delinquent tracts and lands sold by willing sellers were also acquired until today the National Forest comprises about 14 percent and State forests 17 percent of the basin area.

Private interest in the land has increased during the past 25 years but it is directed primarily toward the basin's recreation value and residential development. This increased development has led to extensive subdividing and seasonal-retirement home development, primarily along the river. Private land accounts for 69 percent of the basin land area.

Recreation

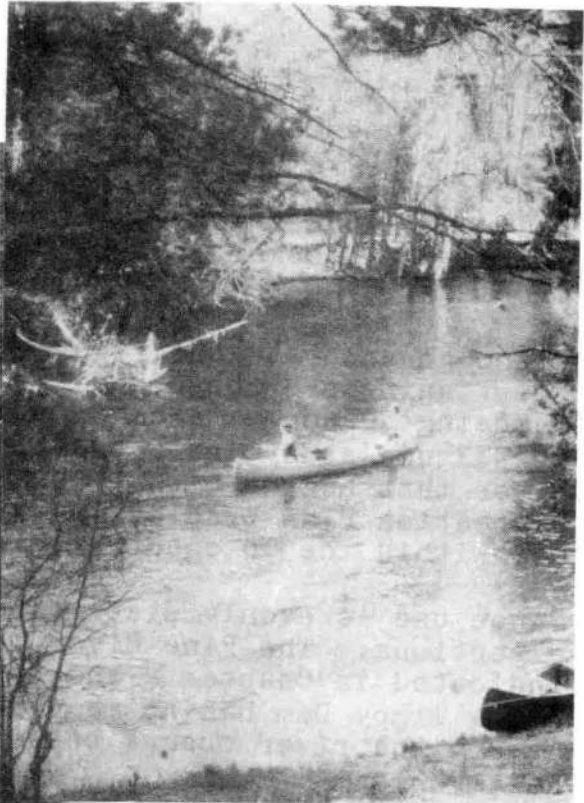
There is a high proportion of public and quasi-public* recreation land in the basin - State forests, National Forests, and Consumers Power Company property. In addition, a number of State, federal, local government, and private facilities and areas are available - most are adequately developed. Of the 33 developed access points on the river - 23 were developed exclusively for access and 10 serve as access and camping areas. Camping and access facilities are well located and developed to meet public needs. Several camping and access facilities have been upgraded during the past 2 years to better protect the sites, screen them from the river, and improve site quality.

Manistee River fishing has attracted anglers since the very early 1900's and may be the greatest single attraction of the river today. The river was particularly well-known for its steelhead fishery prior to construction of Tippy and Hodenpyl Reservoirs. The Michigan grayling was also found in the Manistee River, but to a lesser degree than in the neighboring Au Sable River. Today, trout fishing remains excellent but salmon-steelhead runs below Tippy Dam attract the greatest interest.

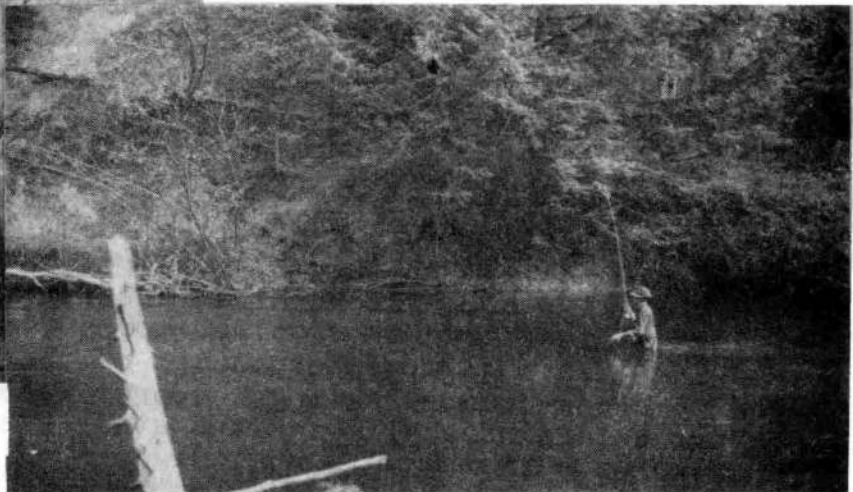
Trout fishing develops in early spring and tapers off in the summer. It is a major attraction, offering excellent fishing opportunities and attracting anglers from throughout the mideastern United States. The Michigan Recreation Plan indicates fishing activity in the 10 county region, which includes the Manistee River area, at 1,198,000 days annually with use projected to increase 10 percent by 1980, and 19 percent by 1990. A significant portion of the increased fishing use may be for anadromous fish in the rivers and Lake Michigan. Chapter V and Appendix C and H give expected fishing demand and capacities within the river corridor.

The anadromous fishery has developed in the lower portions of the Manistee River during the past 10 years. Fish migration upstream is restricted by Tippy Dam. The program has

*Consumers Power Company Lands



Popular recreation activities on the Manistee River - canoeing, camping, salmon fishing and fly fishing for trout.



been highly successful and attracts vast numbers of anglers during the spring and fall seasons. However, during the past 5 years, the program has received steadily increasing criticism due to its alleged environmental damage and the heavy use it attracts. Salmon runs into the Bear Creek tributary were blocked in 1977 to help alleviate these problems.

Although accurate use figures are not available, canoeing and fishing are the highest uses of the stream. The canoeing season extends from late spring through Labor Day. A 1973 use study indicated 4,500 canoes on the Manistee River that season with 11,800 people. The Michigan Recreation Plan predicts a 12.1 percent increase in canoe use within the 10 county region from 1972 through 1980.

Canoe use is evenly distributed along the river with few exceptions. The Pine River receives extremely heavy use, as indicated in Chapter V and Appendix H. The Manistee River below Tippy Dam has no measurable canoe use. The heaviest use on the river occurs between Highway 72 Bridge and Smithville.

Tippy and Hodenpyl Reservoirs are Consumers Power Company ponds available for public recreation use. The two reservoirs provide 2,881 acres of water for warm water fishing, boating, canoeing, and swimming. In addition, there are about 12 public use sites along the shoreline with access to each reservoir.

In the fall, deer, ruffed grouse, and rabbit hunting are the primary recreational pursuits in the basin. Waterfowl are also hunted but to a lesser degree, as are woodcock and squirrel. Wild turkeys are hunted in the spring during a limited permit season.

More leisure time and increased interest in snowmobiling and cross-country skiing have opened the winter season to more recreationists. More and better winter sport facilities and equipment have also encouraged people to enjoy the winter out-of-doors.

Cross-country and downhill skiing and snowmobiling have increased significantly during the past 10 years. The 10 county area has 18 ski areas or 33 percent of the State's downhill ski runs. The Michigan Tourist Council reports skiing has increased from 65,000 to 350,000 skiers between 1954 and 1970. A large percentage of the increase is attributed to cross-country skiing. Approximately 87,500 cross-country skiers have utilized the study area. Although a



Sawlogs - lodged in the river bank - stark reminders of early river log drives and the lumbering era.

large percentage of the snowmobiles are registered in the downstate urban areas, the heavy use occurs in the north country. The availability of heavy snow cover, public lands, and developed trails are the main attractions.

Historic Significance, Archaeological, and Cultural Resources

Although the city of Manistee was settled in the 1840's, its population remained very small until after the Civil War and there was virtually no settlement along the interior portions of the Manistee River. Beginning in the latter 1860's, however, the lumbering industry, which had been concentrated in the Saginaw Valley, expanded northward. Areas adjacent to the Manistee River contained huge stands of highly prized virgin white pine and attracted many fortune hunters. Several rags-to-riches sagas are local legends. Louis Sands of Manistee, a Swedish immigrant who arrived in the area in 1853, logged enormous tracts along the Manistee River and became one of the city's most prominent citizens. The Sands Mill on Manistee Lake was one of the world's largest, and his network of lumber camps stretched far into the interior. For most, however, lumbering meant long hours for low pay in remote, frigid camps. Until 1870, most loggers came from the Eastern States, but Michiganders and immigrants predominated thereafter.

The Manistee River basin's lumber bonanza helped make Michigan the lumber capitol of the world, and spawned such well-known industries as Grand Rapids Furniture. By the 1890's, however, it was apparent that the clear-cutting policies of the lumbermen were depleting the forests. While technological innovations, such as the narrow-gauge railway and "Big Wheels", were an improvement over sled transport and increased production, they hastened the depletion process. The massive timber cutting industry slowed and was nearly extinct by World War I. Attempts to develop the area's economy in other directions such as farming and recreation met with minimal success, although Manistee's salt deposits provided some positive impetus. While it is unfortunate that few physical signs remain of the "White Pine Era," except for a few deserted lumber camps, this does not detract from the historic importance of the lumbering era.

The Manistee River was a transportation route for the rafting of logs to the Sand Mill in Maniste and to the Lumber Schooners at Manistee where they were moved to other locations in the Great Lakes.

Archaeological Significance 2/

Actual scholarly study of Manistee River archaeology has been limited. Nevertheless, it is certain this waterway played a significant role in the lives of Michigan's first residents. Alexander Henry, the explorer reported the existence of a local Indian population in the late 1700's. It is believed that Upper Peninsula tribes made periodic hunting trips to this region. The Manistee and Au Sable Rivers provided a nearly unbroken route across the Lower Peninsula that may have been used as a canoe-portage passage.

The most extensive scholarly investigation of Manistee River archaeological sites took place in 1865. The site survey, which covered an area from Sharon (Kalkaska County) to Sherman (Wexford County), disclosed the existence of numerous sites. These included burials, village locations and transient campgrounds; most were dated between 8,000 B.C. to 500 A.D. Most settlements were oriented toward hunting rather than agriculture. The study concluded, however, that the upper Manistee River basin contains a wide range of archaeological sites and noted that further study of the area was necessary.

There has been little study of the Lower Manistee River basin, but small-scale surveys and accidental discoveries of sites indicate its potential significance. Damming of the river at certain points has almost certainly destroyed sites, yet the higher terraces adjacent to the river probably contain evidence of occupation. Further survey work is required in this area as well.

The Manistee River basin is of considerable significance to Michigan's history. The probable presence of numerous small sites (despite developmental activity) combined with the relative lack of systematic archaeological survey work, presents management challenge to planning authorities at all governmental levels.

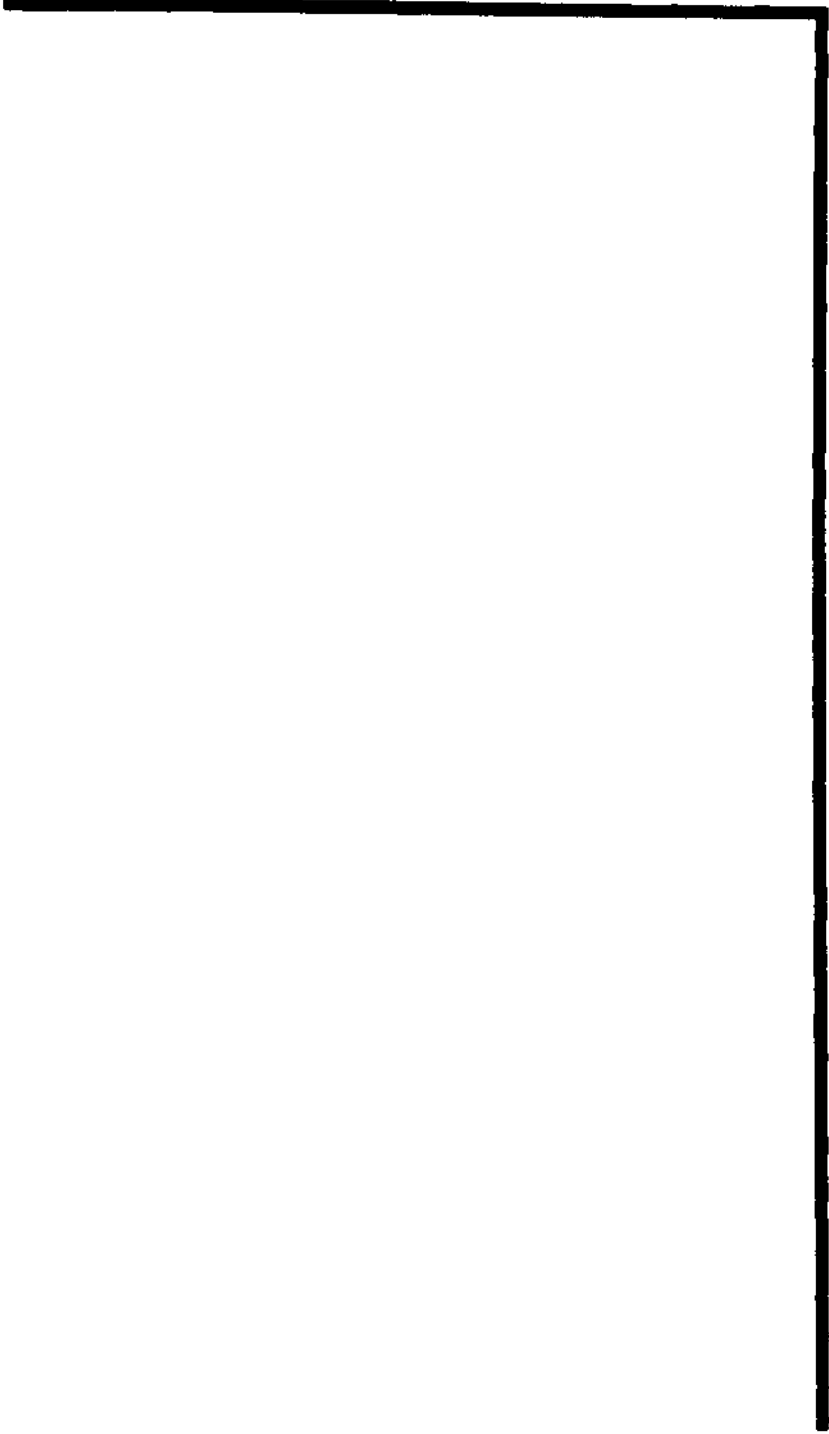
2/ George Sabo, Michigan History Division, Michigan Department of State.

Cultural Significance

The Manistee River's cultural value is most evident in the way it has influenced people's lifestyles since early times. The American Indians depended on the river for transportation, food, and water - it was vital to their existence. Early settlers depended on it in much the same way, later becoming the sole means of transporting logs to the sawmills and thereby vital to early residents way-of-life. Today the river fills different purposes but is important to everyday life. It is a recreation resource to many people, thus providing a livelihood for local people. Current local culture has been determined by the need to meet the demands of other river users.

The river has also influenced the way people spend their time. A large portion of local people's time is spent either enjoying the river's recreational opportunities or working to enable others to benefit from the river. Their thoughts and activities are determined by the river's character. Daily conversations center on how the existing river mood will affect personal pursuits or the activity of visitors, which in turn effects the areas economy and subsequent lifestyle.

CHAPTER III - RIVER CORRIDOR DESCRIPTION



WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

STUDY AREA

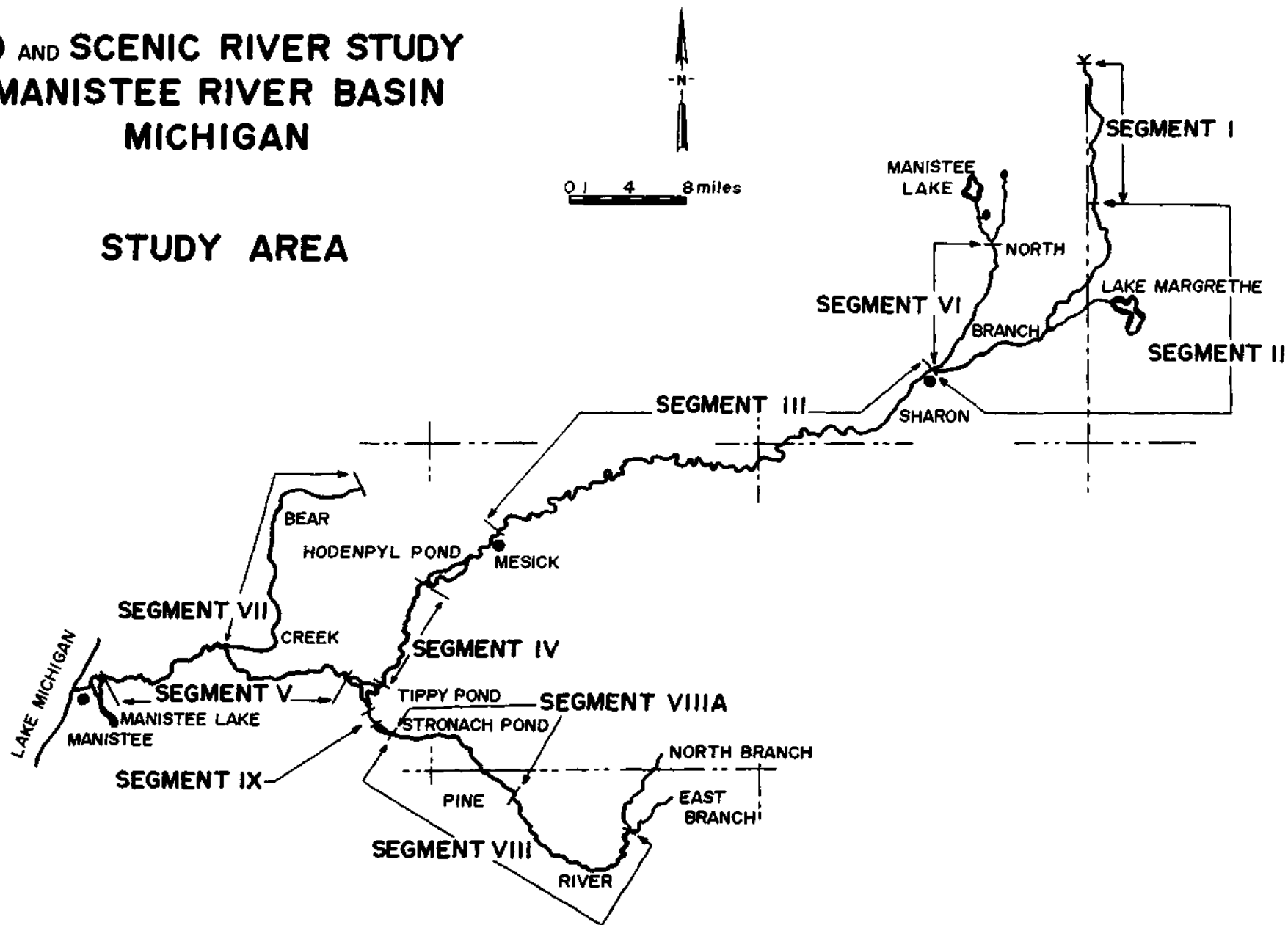


FIGURE 1

M-4

CHAPTER III

River Corridor Description

Preface

This description of the 232 miles of Manistee River and its 52,000-acre corridor presents a closeup view of a potential wild and scenic river area and the lands associated with it in a river corridor 1/8 to 1/2 mile wide, occupying approximately 41,160 acres. It includes information on the various resources within the corridor, their uses, and potential conflicts between those uses. This is the basic data used by the study team in its evaluation.

The river study considered nine segments. (I) the Manistee mainstream from its source to County Road 612 Bridge; (II) County Road 612 Bridge to County Road 608 Bridge (Sharon); (III) County Road 608 to Hodenpyl FERC (Federal Energy Regulatory Commission) boundary (Sherman Bridge); (IV) Hodenpyl FERC boundary to the Tippy FERC boundary; (V) Tippy FERC boundary to M-55 Bridge - Manistee; (VI) North Branch - source to mainstream; (VII) Bear Creek -source to mainstream; (VIII) Pine River - source to Stronach Pond; (IX) Pine River - Stronach Pond to Tippy FERC boundary. (See Map 1 and Background - page 3).

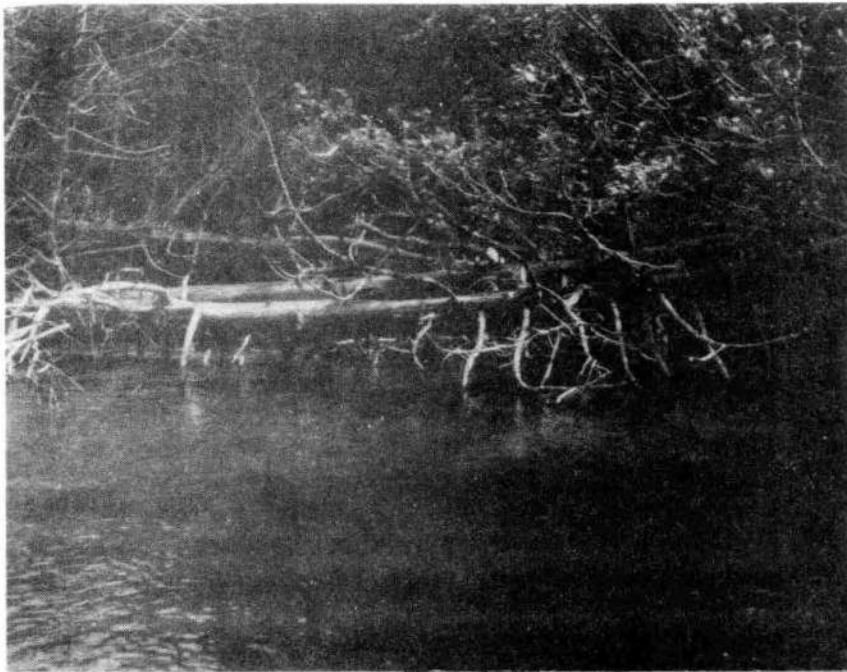
A. Overview of Segments

Segment I - Mainstream - Source to County Road 612 Bridge (11 miles)

The Manistee River originates 6 miles southwest of Alba from groundwater seepages and marshland 1,250 feet above sea level. This is an area of lowland conifer swamps, small areas of tag alder swamp, and scattered upland birch-aspen types. It is a small creek, 2-3 feet in width, widening to 20-40 feet at 612 Bridge. Development and access are sparse to non-existent until Cameron Bridge. The "Ghost Town" of Deward and "stump fields" are points of interest. There is also considerable mineral activity in this area.

Segment II - County Road 612 Bridge to County Road 608 Bridge (33 miles)

This segment follows a sometimes narrow, winding course through frequent heavy development and is highly scenic. Access is frequent and there is occasional evidence of mineral activity. Water retains a high degree of clarity and reveals a predominantly gravel-rubble bottom.

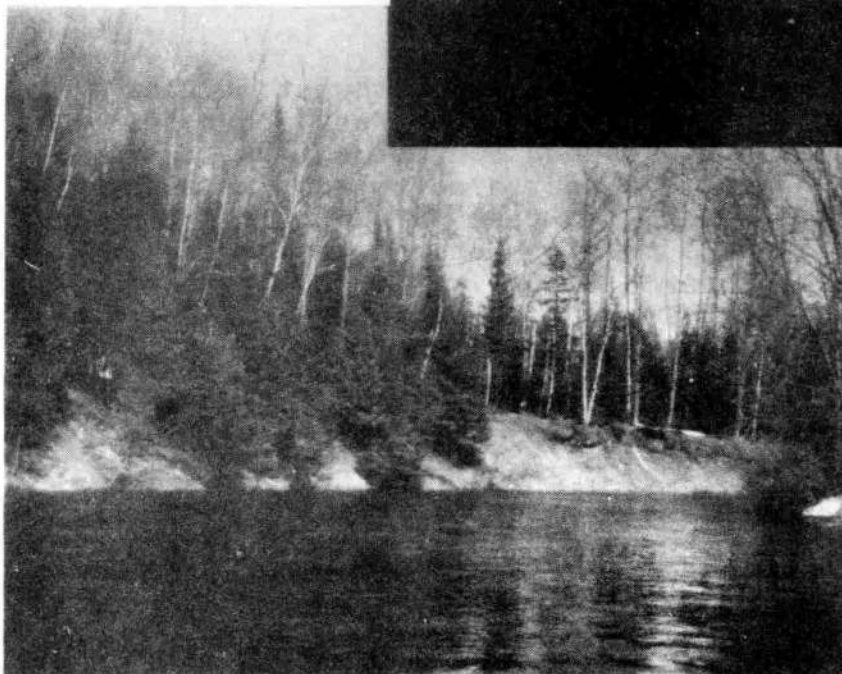


Typical physiographic
features along the
Manistee River...

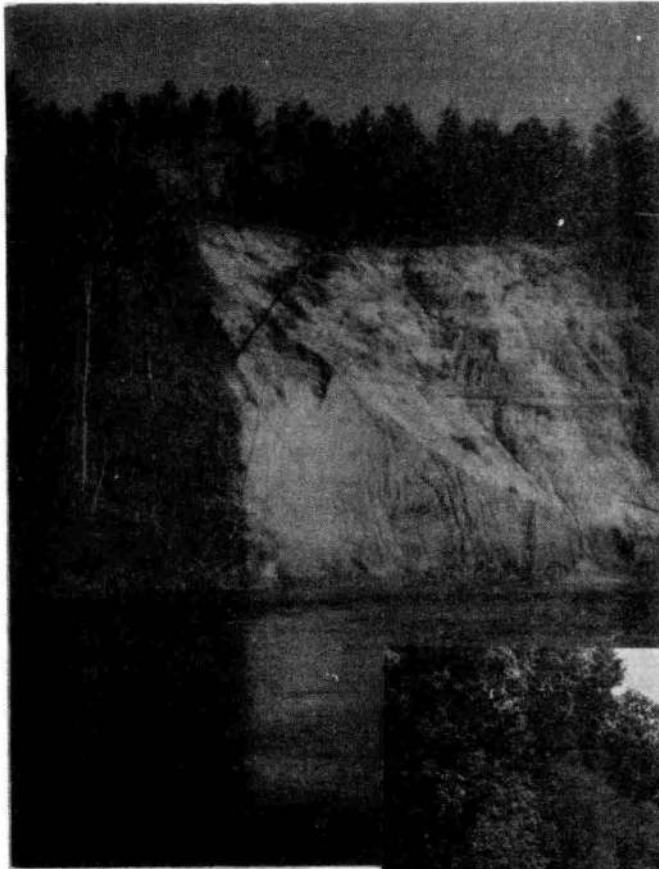
River Source -
Segment I...



Below Highway 72 -
Segment II...

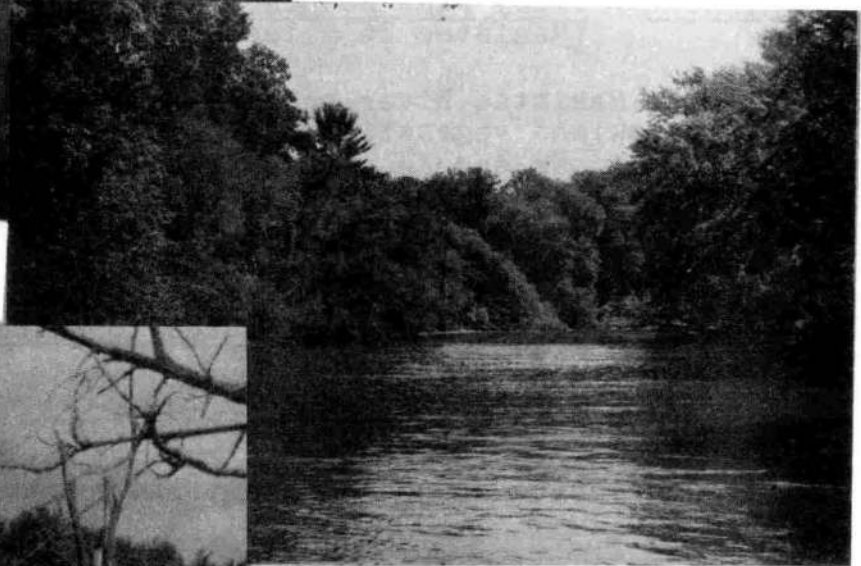


Below Baxter Bridge -
Segment III.

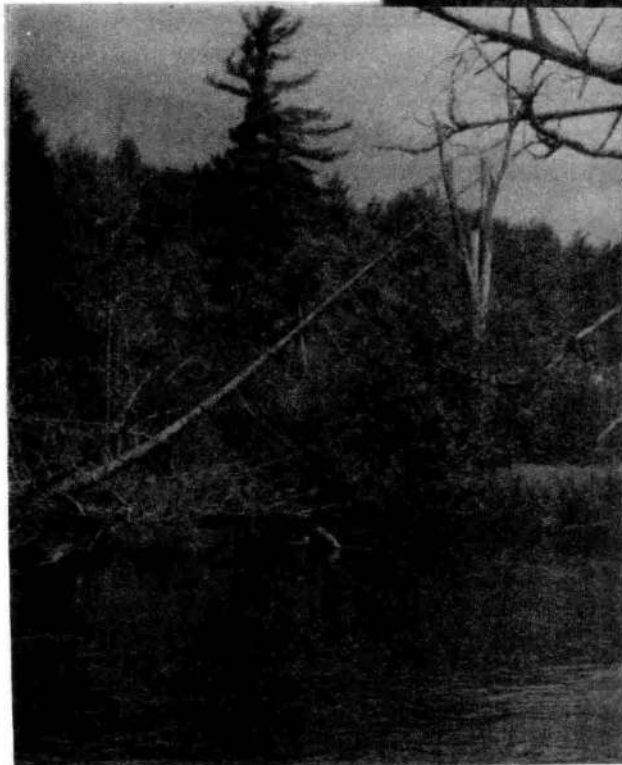


Typical physiographic and vegetative conditions along the Manistee River -

Between Tippy and Hodenpyl Reservoirs - Segment IV...



Above the City of Manistee - Segment V...



North Branch - Segment VI.

Segment III - County Road 608 to Hodenpyl FERC
Boundary (Sherman Bridge) (83 miles)

Large, gentle, and often sharp curves dominate this segment. River width may average 125 feet and the water loses some of the clarity found upstream. Lowland vegetative types occur more frequently, although highly attractive banks are very common. Development and access occur infrequently.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC
Boundary (Reservoir area - 7 miles)

Very high and severely eroded banks, many sharp bends, and the impression of a deep powerful river characterize this segment. It is totally undeveloped and lacks access. The fluctuating water level from Hodenpyl Dam is an overriding influence on this segment.

Segment V - Tippy FERC Boundary to M-55 Bridge
(Manistee 26 miles)

The lower Manistee River becomes a large river flowing through lowland vegetative types and large, undulating curves. It has sparse development and infrequent access. The fluctuating water level from Tippy Dam drawdown influences this segment. Its logging history and anadromous fishery attract many visitors.

Segment VI - North Branch - Source to Mainstem
(8 miles)

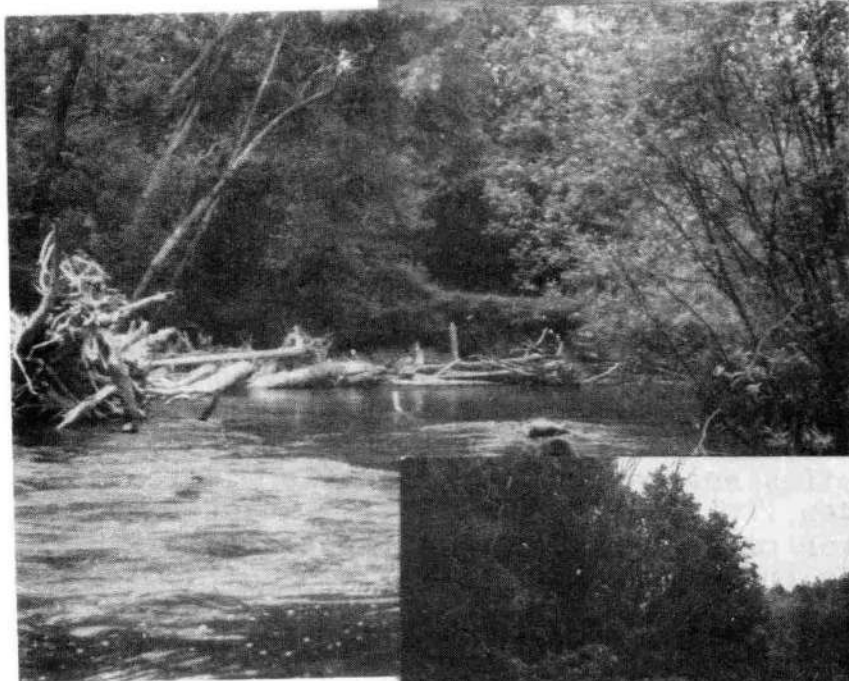
The North Branch flows through open marsh and tag alder and the upper half is difficult to navigate. It is aesthetically attractive and development and access are largely nonexistent.

Segment VII - Bear Creek - Source to Mainstem
(16 miles)

Bear Creek follows a narrow, deeply cut corridor through an area devoted largely to agriculture. The banks are well-forested but heavily developed in spots and access is readily available. Bear Creek has an excellent anadromous fishery.

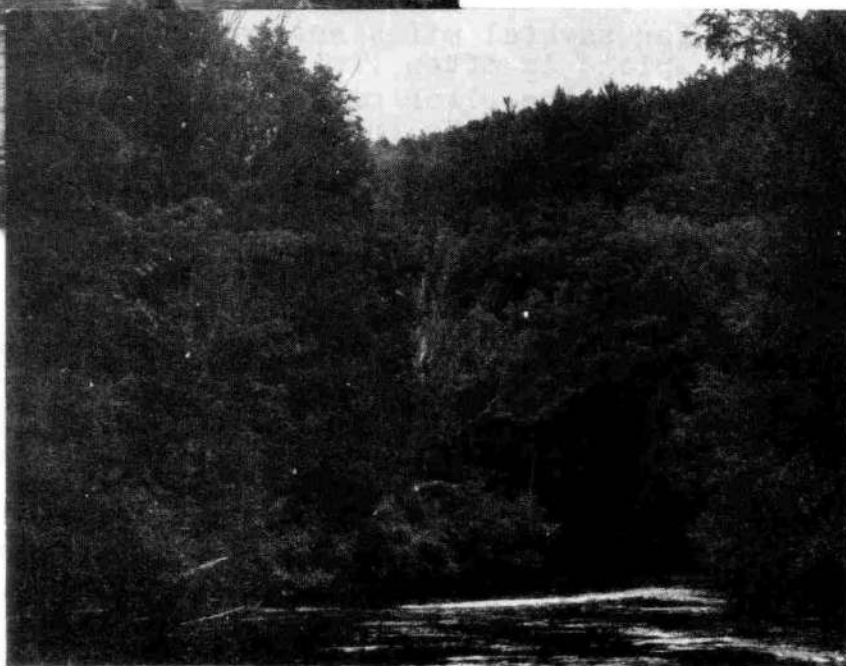
Typical physiographic and vegetative conditions along principal tributaries
of the Manistee River -

Bear Creek -
Segment VII...



Pine River -
Segment VIII...

Pine River -
Segment VIII.



dominates the river bottom until 2 miles below Sharon Bridge #2. Above Highway 72 Bridge, the sandy bottom is heavily laced with sunken logs and tree limbs.

Filer, Soper, Silver, Buttermilk, Morrissey, Cameron, Maple, and Black Creeks are significant cold water tributaries.

Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge)

From Sharon to Rainbow Jim Bridge, the river course straightens and bank elevations drop to an average height of 8 feet. The river width ranges from 125 to 300 feet with an average depth of 18 inches. This is a lowland area without significant land features visible from the river.

Below Rainbow Jim Bridge, high banks and a narrow, winding river course predominate to Sherman Bridge. Bank elevations range to 150 feet high and many are severely eroded by wind, water, human activity. The many sharp bends, quick flow, and high banks with varying degrees of vegetation make this an interesting and attractive stretch of river. Sandy bottoms dominate until Baxter Bridge after which sections of gravel and rubble become more common. Partly submerged logs, debris, and jams are also common.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC
Boundary

There is a major physiographic change from the river above Hodenpyl Dam. Here, the river winds between banks of up to 150 feet in height - all are severely eroded. Sharp curves are frequent and there are few straight stretches except immediately below Hodenpyl Dam. The insides of the river bends are often lowland ranging from 2 to 4 feet above water level. Low morainal hills prevail beyond the high river banks.

The water line, accentuated by the fluctuating water level from Hodenpyl Pond drawdown, is conspicuous for the entire length of this segment. The water line is made obvious by soil erosion and the soil film left on periodically submerged objects.

River width varies from 75 to 125 feet and river depth may average 24 inches. The bottom is composed largely of gravel-rubble and submerged logs - debris and jams are common. Slagle Creek is a significant cold water tributary.

Segment V - Tippy FERC Boundary to Manistee Lake

Below Tippy, the river channel becomes less confined by high banks. It spreads up to 200 feet wide and often forms extensive swamps and marshes. The morainal hills remain evident and regularly approach the waterline -intervening low areas are marsh, low swamp and open slough. The river is generally broad and relatively straight with occasional wide curves.

Water levels fluctuate periodically from Tippy Dam draw-down and deviate up to 4-1/2 feet twice daily for 10 miles down river.

The river bottom is sand-silt and submerged logs and debris are common although not obvious except during low water.

Segment VI - North Branch - Source to Mainstream

The North Branch begins at the confluence of small streams from Manistee and Pickerel Lakes. It flows through 3-4 miles of lowland conifer swamp before emerging into extensive tag alder lowlands. The adjacent land area is from 0-2 feet above water level and topographic features are not visible from the river until 2 miles above the mainstem. Stream width may average 15 feet and depth 18 inches. The stream wanders gently through the marshes - over a sandy bottom -occasionally occupying several channels.

Stream gradient increases during the last 2 miles and the stream channel is cut deeper. Banks rise up to 20 feet and the stream bottom is composed largely of gravel and rubble.

Segment VII - Bear Creek - Source to Mainstream

Bear Creek wanders through variable open land and swamp, cutting a relatively shallow channel until the lower 8 miles. Upstream bank elevation averages 8 feet and rises up to 40 feet as the channel becomes more deeply confined downstream.

The creek bottom is largely gravel-rubble and has many small debris jams, downed trees, and logs.

Segment VIII - Pine River - Source to Stronach Pond and Segment IX - Stronach Pond to Tippy FERC Boundary

From its source, the east-west branch intersection at Edgetts Bridge, the Pine flows first through 4 miles of agricultural land and then into forested areas. Bank elevations begin at 2-4 feet and range up to 15-20 feet near

Edgetts Bridge as the channel becomes more deeply cut. The river bottom is approximately 60 percent sand, 40 percent gravel-rubble, but changes to sand as the river passes through short stretches of tag alder swamp. The river course remains essentially straight with an occasional gradual bend.

Below Edgetts Bridge to Walker Bridge, the river channel develops many short, sharp bends with short stretches of riffle and occasional large rocks. This section is confined by steep, frequently-eroded river banks. The banks rise to 25 feet and are interspersed with occasional terraces and shallow gullies. The river bottom is composed of gravel-rubble with sand bars in slower water. There are also occasional large trees and log jams that partially block the channel but do not restrict waterflow.

From Walker Bridge to Dobson Bridge, river width varies from 40 to 50 feet. There are many sharp bends with straight stretches rarely exceeding 500 feet in length. Water surface is 75 percent choppy riffle-pool-riffle, while the bottom is 50 percent sand, 50 percent gravel-rubble. The confinement, by banks up to 30 feet high, continues with severe erosion occurring only in the lower 2 miles above Dobson Bridge.

Bank erosion is severe and extensive from Dobson Bridge to Stronach Pond. Banks vary from 4 feet to 150 feet, with 40 feet the average. Beyond the upper bank edge, the area retains the rolling, morainal hill topography characteristic of this area. River width ranges from 30 to 50 feet and depth varies from 2 to 8 feet. The bottom consists largely of gravel-rubble with large clay platelets and ledges predominant in the Peterson Bridge area. There are frequent fast, choppy riffles and many short bends, particularly above Peterson Bridge.

C. Vegetation

Vegetation is the primary contribution toward providing and protecting the Manistee River's outstanding values. The river's high scenic quality results from constantly changing vegetative types and conditions - all remain in a relatively natural condition and in apparent harmony with other natural elements. Vegetation shades the water thereby helping maintain low water temperatures. Vegetation softens incongruities and provides habitat and food for wildlife. Soils are stabilized and developed by vegetation. The great diversity of trees, shrubs, ferns, small flowering plants, lichens, mosses and mushrooms offer an interesting variety of form, color, and texture - often changing with each season.

Vegetation along the Manistee River is generally typical of west central Michigan. However, two features combine to produce distinctive local plant communities within the river zone. First, on the stream terraces, water from the river and local aquifers permits a greater variety of growth than that found in the surrounding sand plains and morainal hills. A preponderance of silty and organic soils is also found on the river terraces with their associated different vegetative types. Second, the river winds through a variety of land forms and soil types -each having its own distinct vegetative cover.

This vegetative description is not all encompassing but describes plants in either the superstory or substory for the various landforms.

Segment I - Mainstem - Source to County Road 612 Bridge

From Mancelona Bridge to Cameron Bridge, vegetation is predominantly low tag alder swamp types with sedge grass ground cover. There are several areas of white cedar, black spruce, and tamarack swamp.

Segment II - County Road 612 Bridge to County Road 608 Bridge

Extensive and scenic stretches of open sedge marsh dominate the Highway 72 to Cameron Bridge section. Aside from scattered tag alder clumps and several varieties of grasses, sedges occupy these sites exclusively. Stands of spruce, fir, tamarack, and occasionally white pine are often visible in the background. Lowland tamarack-spruce and white cedar-tag alder swamp occur more frequently in the lower half of this section.

Vegetation in the Highway 72 to CCC Bridge section is predominantly upland species - red and white pine with associated upland northern hardwoods. Many of the conifers are large trees. Infrequent lowlands are occupied by tag alder, white cedar, and lowland hardwoods.

From the CCC Bridge to Highway 66 there is a gradual vegetation change to lowland hardwoods. Lowland conifers and upland hardwoods occupy 50 percent of the sites respectively for 4 miles below CCC Bridge. Elm swamps become increasingly common downriver from that point.

Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge)

The area below Sharon consists entirely of lowland hardwoods with long stretches of dead American elm. Some white cedar occurs in this subsegment as a minor inclusion.

Hardwoods dominate all sites between Highway 66 and Highway 131. Below Smithville, there is considerable variability as the type changes from semi-open tag alder at Smithville to slopes and terraces of white birch, aspen, and red pine plantation. There are extensive areas of dead elm and many highly attractive clumps of large white and red pine. The white birch-aspen type is dominant above Missaukee. Below Missaukee, dead and dying elm become the dominant vegetative feature and are being gradually replaced by tag alder, nine bark, young elm, and black ash. White birch in pine and mixed stands are a significant type on upland sites. Red pine plantations are also quite prominent.

Hardwoods still dominate all sites between Highway 131 and Sharon, but conifers become more prevalent downriver from Harvey Bridge. Lowland hardwoods are dominant with some white cedar. Northern hardwoods occur on the slopes and terraces. Large stands of dead and dying elm prevail and are being replaced by sub climax species. Below Baxter Bridge young white pine become more common with an increase in red and jack pine below Harvey Bridge.

Segment IV - Hodenpyl FERC Boundary to the Tippy FERC
Boundary

Below Hodenpyl, northern hardwoods with scattered areas of red, white, and jack pine dominate well-drained sites. There is a narrow band of white cedar on most river terraces but these occur 2-4 feet above water level. The areas situated at water level, particularly those lying inside of riverbanks, are occupied by a large variety of lowland shrubs such as tag alder, willow, red-stemmed dogwood, nine bark, and wild raisin.

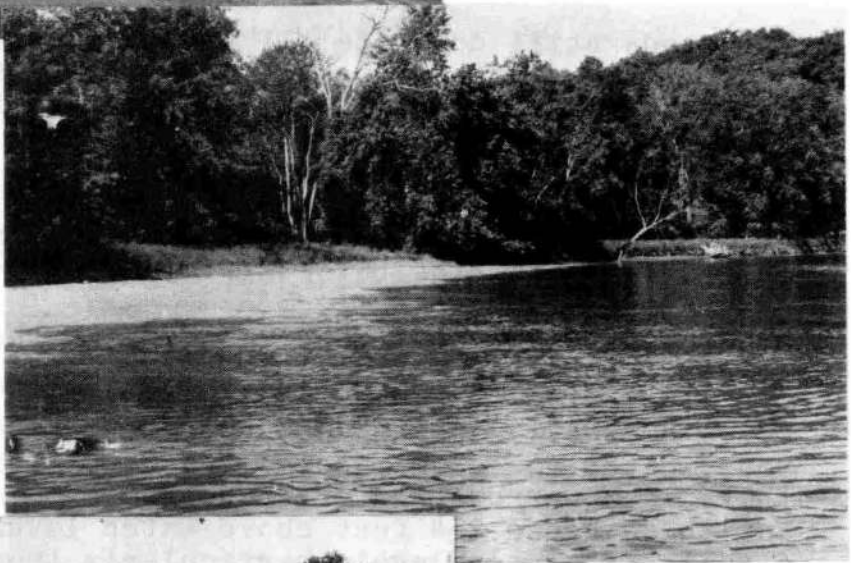
Segment V - Tippy FERC Boundary to M-55 Bridge

The area below Tippy Dam is occupied largely by lowland hardwoods and open sedge marsh. Upland areas with hardwood and conifer types infrequently approach the river. Silver maple, black ash, and American elm are dominant species with large, nearly pure stands of silver maple more common closer to Manistee Lake. The open sedge-grass marshes are extensive and become progressively more so closer to Manistee Lake.

Typical water and vegetative conditions on the Manistee River -



Upper Manistee River -
Segment I...



Lower Manistee River -
Segment V...



Lower Manistee River -
Segment V.

Segment VI - North Branch - Source to Mainstem

This segment is almost exclusively dense tag alder marsh with grass-sedge ground cover. Upland hardwoods and large attractive pure stands of black ash occur in the lower 2 miles.

Segment VII - Bear Creek - Source to Mainstem

Bear Creek flows through an agricultural area but the streambank remains fringed with tag alder and willow in the upper stretches and white pine, aspen, and sugar maple in the lower stretches. The lower 3 miles are largely upland and lowland hardwoods with silver maple dominating most lowland sites.

Segment VIII - Pine River - Source to Stronach Pond and Segment IX - Stronach Pond to Tippy FERC Boundary

The upper half of the section running from the east-west branch intersection to Edgetts is largely pastoral. This area has a tag alder, willow, and nine-bark fringe with some low grasses and forbs. The lower half is heavily forested with northern hardwoods and lowland conifers. Tag alder is a dominant species throughout this section.

From Edgetts to Walker Bridge, conifers are noticeably absent. Tag alder is the dominant species with many scattered, semi-open areas contained grasses and forbs. Aspen and northern hardwoods occur on the well-drained sites.

Below Walker, northern hardwoods mixed with aspen, white cedar, and hemlock extend to Dobson Bridge. There are many large red and white pine scattered throughout this section.

From Dobson to 2 miles above Peterson Bridge, the forest canopy remains tightly closed above the river with a great variety of upland and lowland hardwoods and conifers. There are also many large red and white pines in this section. Below Peterson, aspen and white birch occur on well-drained sites and in very open stands back away from the river. The immediate shoreline is fringed with tag alder and willow.

D. Fish and Wildlife

Fish and wildlife in the Manistee River corridor are generally abundant and varied. The high quality water and its stable flow sustain an excellent cold water fishery and aquatic biota. As noted in Chapter II, the entire Manistee River basin is an excellent wildlife area. The river

corridor reflects this often in an intensified way, since the streamflow tends to create a richer "ribbon of life" along the river terrace and also serves many species as a drinking source.

Historically, the Manistee was known for its outstanding steelhead trout and Michigan grayling fishery. Although its fishing fame does not match that of the neighboring Au Sable River, it has an outstanding fishery and less fishing pressure than the Au Sable River. Fishing has declined since 1900 due to fishing pressure and environmental degradation; however, high quality fishing still remains largely because of the efforts of the Michigan Department of Natural Resources and private groups and individuals. Steelhead are restricted to Bear Creek and the Manistee River below Tippy Dam. The Michigan grayling survived for several years longer in the Manistee River than in the Au Sable River before finally disappearing shortly after 1897. The grayling's demise was attributed to heavy fishing pressure, habitat destruction by logging, and the introduction of trout.

1. Fish

Segment I - Mainstem - Source to County Road 612 Bridge
Segment II - County Road 612 Bridge to County Road 608 Bridge
and Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge)

From its source to Highway 72, the Manistee River has high populations of brook trout. There is adequate cover, sand-gravel bottom conditions, and high quality water. Some of the earliest fish habitat improvement work initiated in the 1930's, is still evident.

The best trout fishing on the Manistee River lies between Sharon and Highway 72. This section has high trout populations that are largely underfished. Water temperature, along with bottom and cover conditions are excellent for all cool water biota. A 7.5 mile long State designated quality fishing area extends from Yellow Trees Landing (T26N, R5W, Section 21) down to CCC Bridge.

From Sharon to Rainbow Jim Bridge, trout populations decrease considerably, but low populations of large brown trout remain. Moderate populations rough fish, pike, and walleye are also present. This stretch of water has a sand-rubble bottom, adequate cover and good water temperature, but is deeper and presents more difficulties to the wading angler.

Trout populations are marginal to low from Rainbow Jim Bridge to Highway 131. Pike, bass, walleye, and rough fish populations are rated moderate. Although water temperatures are borderline for trout, this section has deep water, adequate cover, and a sand-rock-rubble bottom. It receives moderate to low fishing pressure.

From Highway 131 to Sherman, trout populations are low. This section has higher water temperatures which favor moderate populations of pike, bass, and rough fish. Deeper water, a sand-rock bottom, and a general lack of adequate cover characterize this stretch.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary

Marginal to low populations of brown trout and moderate populations of pike and rough fish are prevalent in this area. Although this section has a good gravel-rubble bottom and adequate cover, water from Hodenpyl Reservoir raises water temperatures above the tolerance level for a good trout fishery. This section receives low fishing pressure.

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee)

Steelhead and Pacific salmon populations are very high during the spring and fall runs. Pacific salmon were introduced into the lower Manistee River in 1966, and steelhead (anadromous rainbow trout) in the late 1800's. There are also moderate populations of brown trout, pike, bass, and rough fish. This is rated marginal trout water largely because of the warming affect of water from surrounding marsh and Tippy Reservoir. Sandy bottom conditions dominate the entire stretch.

Segment VI - North Branch - Source to Mainstem

The North Branch has good populations of brook trout and low fishing pressure. A sandy river bottom and low water temperatures enhance the cold water fishery in this section.

Segment VII - Bear Creek - Source to Mainstem

Bear Creek is noted for its very high Pacific salmon-steelhead populations and moderate trout populations. It receives very heavy fishing pressure during anadromous fish runs although fishing pressure is somewhat less than during the earlier salmon fishing years. The sand and rubble bottom and cover provide excellent conditions for fish spawning and aquatic biota.

Segment VIII - Pine River - Source to Stronach Pond
and

Segment IX - Stronach Pond to Tippy FERC Boundary

The Pine River is rated an excellent trout fishery, with very good trout populations. Water temperatures, cover and the sand-gravel-rubble bottom all contribute to an excellent cold-water fishery. Fishing use is affected considerably by the heavy recreational canoe use.

2. Wildlife

The river corridor attracts a wide variety of wildlife species either as permanent residents or visitors. Availability of water and diverse vegetation offer an abundant variety of food and cover and attract many species not found outside the corridor. The corridor is heavily used by large flocks of robins, cedar waxwings, vireos, warblers, woodcocks, ruffed grouse and many other small birds, particularly during dry seasons and when many plant species are bearing fruit. Appendix F provides a listing of wildlife species found in the watershed.

Although bald eagle nesting occurs largely in the lower Manistee River area, they do range over the entire river corridor. However, the only known mated pair use the Tippy Pond nesting area and have not successfully fledged young since 1964 (see Threatened and Endangered Species, page 19).

The ice-free area below the reservoirs provides wintering areas for many ducks, particularly goldeneye, bufflehead, American mergansers, and red-breasted mergansers. While the entire river receives moderate use as a breeding area for mallard, black and wood ducks, the lower river and particularly the marshes above Manistee are vital waterfowl habitat. The lower river marshes serve as waterfowl breeding habitat and staging and rest areas during migration.

For 7 miles above the City of Manistee, the river flows through a State of Michigan Waterfowl Management Area. The area is managed by the Department of Natural Resources to maintain and enhance waterfowl habitat. Long range plans that include a system of dikes whereby water levels in the marshes would be controlled could improve the productivity of these areas.

Winter deer range is a primary concern in the river corridor. Although the entire river fringe provides vital deer habitat, the areas between M-72 and Sharon, M-66 and M-131

and above County Road 612 Bridge are critical to wintering deer because they represent the only immediately available winter range.

The river mainstem serves as a population base for re-establishing beaver in ponds and tributaries after trapping seasons. Aside from an above average beaver population above Skookum on the Pine, a stable beaver population is distributed throughout the river system. Manistee River beaver are largely bank dwellers and significant dam building occurs only on the North Branch. Although otters are also found throughout the corridor, populations are somewhat higher above Rainbow Jim Bridge and Skookum. Fair populations of mink are generally well distributed throughout the river corridor.

The Pine River between Skookum and Stronach Dam has a good population of wild turkey. This area is also critical winter range for the birds. Although the tributaries offer the most important habitat to the turkey, the mainstem is used year round and particularly during winter.

Remnant populations of black bear occur in the North Branch - Watson swamp area, Sharon - Big Devil Swamp and in the Pine River area above Skookum. Bobcat are also known to inhabit the North Branch corridor as it passes through Watson Swamp.

Ruffed grouse and woodcock are common and popular forest inhabitants. They are found throughout the river corridor. The populations are associated with habitat conditions. Most tributary streams that have aspen stands on or near them have fair to good populations of ruffed grouse and woodcock.

E. Waterflow

Highly stable waterflows of very high quality water may be the single most significant trait of the Manistee River. The coarse, sand-gravel composition of the watershed allows rapid infiltration of water and tends to create a steady influx of groundwater into the streamflow. Seasonal waterflows fluctuate very little because most inflow is from groundwater sources. However, riverflow rates may respond to very rapid snow melts with some sections experiencing an increased water level and some turbidity. High or dangerous water conditions are rare, but would be most likely to occur on the Pine River and Bear Creek.

The highest rate of discharge normally occurs during the thaw - usually in April. Subsequently, discharge declines to yearly lows in late summer or early fall and then increases slightly as vegetation uses less water. Discharge remains relatively low during the late fall and winter months.

Segment I - Mainstem - Source to County Road 612 Bridge
and

Segment II - County Road 612 Bridge to County Road 608
Bridge

From its source to 3 miles above Cameron Bridge, the Manistee River follows a shallow winding debris-filled course. River discharge at Mancelona Bridge is 17.6 ft³/s and velocity varies from 1.46 to 0.19 ft/s. The river gradient is 5.9 feet per mile. Shallow water and a channel choked with vegetation and debris make this extremely arduous canoeing and difficult fishing.

From Cameron Bridge to M-72 Bridge, the flow and depth increases and the channel becomes relatively free of debris. River discharge at 612 Road becomes 116 ft³/s and velocity ranges from 1.82 to .16 ft/s. River gradient becomes 2.1 feet per mile. Although the river channel has many log and debris obstacles, they can be safely and easily negotiated by canoe. Flow, depth and alignment, and degree of difficulty also permit beginner-novice level canoeing.

Between M-72 Bridge and Sharon the channel widens and is practically free of all debris that could interrupt waterflow or river use. River discharge at CCC Bridge is 256 ft³/s and velocity ranges from 2.12 to .52 ft/s. This section has many short, fast riffles. While they are relatively shallow, they are free of large rocks making them easily and safely negotiated by beginner-novice canoeists.

Segment III - County Road 608 (Sharon) to Hodenpyle FERC
Boundary (Sherman Bridge)

This segment is relatively large and deep .It has many log jams, sharp bends, and short, deep riffles. River discharge at Sharon is 336 ft³/s and velocity ranges from 3.06 to .36 ft/s. Discharge at Sherman, based on a direct drainage area ratio is 838 ft³/s. Although easily and safely canoed by novice-beginner canoeists, several long, slow stretches in this section may prove tiring to many canoeists. This section is also easily navigated by powerboat. Occasional logs and debris are easily avoided by an alert boater, with water levels adequate for boating in all seasons.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary and

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee)

The river in these segments is wide and deep giving the impression of a fast, powerful river. This impression is particularly vivid during Hodenpyl Dam drawdown. The Hodenpyl hydro facility is operated twice daily, generally from 10 a.m. through 2 p.m. and from 7:30 p.m. to 8:30 p.m. Water levels downstream may rise up to 4.5 feet, depending on the number of generating units working and the rate of discharge.

Both the Tippy and Hodenpyl hydro facilities generally run at the same capacity although Tippy has three generating units and Hodenpyl only two. This allows the lower reservoir to fill and discharge at an even rate. Discharge rates are based on power demand in the service area, the number of units operating, and their speed. Normal discharge for Tippy Dam would be 1804 ft³/s or 67 percent capacity. One unit operating at Tippy Dam at 1/2 governor would keep the reservoir level constant and approximate the Pine and Manistee Rivers in flow.

Both segments are easily navigated by beginner canoeists during low water. However, during discharge periods, when water levels and velocities increase, a real hazard exists in that canoes may be swept into log jams and debris. The hazard becomes particularly acute when a canoe is upset and its occupants must battle the heavy current. Motorboats can navigate these segments with relative ease but the same hazards exist to a lesser degree. This condition does not exist in the lower half of Segment III. Although the river remains wide and deep the velocity decreases and there are few obstructions. To canoeists this lower river can be exceedingly tough and boring but is well suited to powerboats.

Segment VI - North Branch - Source to Mainstem

The North Branch follows a slow, winding course through open marsh lands. Beaver dams, dense vegetation, and partly submerged debris create very difficult canoeing conditions - particularly in the upper reaches. The North Branch has a discharge rate of 26.4 ft³/s with velocities from 1.53 to .27 ft/s.

Segment VII - Bear Creek - Source to Mainstem

Bear creek follows a narrow, winding course through agricultural and forested land. It has occasional short, fast

riffles, impassable log jams, and many tight areas barely passable by canoe because of logs and debris.

River discharge during spring melt increases to 1,239 ft³/s while the low mean daily discharge equals 80 ft³/s. The average discharge at Brethren is 140 ft³/s.

Bear Creek could challenge beginner and intermediate canoeists. The challenge is found in negotiating the many short, fast riffles and log and limb-filled channel -without getting wet.

Segment VII - Pine River - Source to Stronach Pond and
Segment IX - Stronach Pond to Tippy FERC Boundary

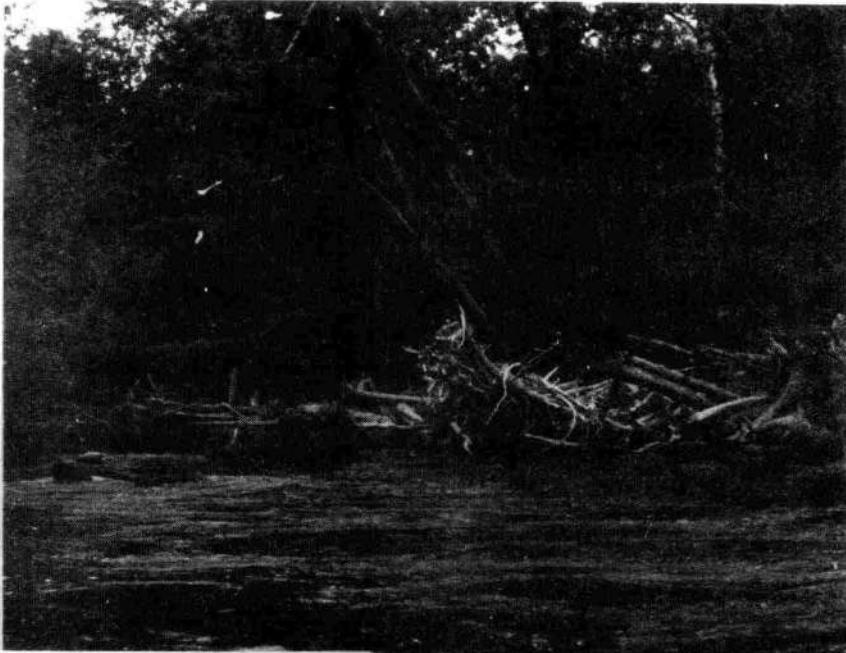
The 48-mile length of Pine River traverses a variety of water conditions. It has many sharp bends, short choppy riffles, and passable log and debris jams. From Walker to Peterson there are occasional large rocks and clay platelets in the faster water, but these can be easily and safely negotiated by beginning canoeists. The greatest challenge lies in passing through areas where the channel is constricted by logs and debris. These situations usually occur in moderately fast water and are relatively safe, but must be handled with caution to avoid spills.

The Pine River has a high mean daily flow of 1,830 ft³/s and a low of 175 ft³/s. The average is 250 ft³/s. Flood peak discharge equals 2,240 ft³/s. The Pine River is unusual among area rivers in that it may rise 1 to 4 feet above its average level during heavy rains or spring melt. The river gradient is approximately 15 feet per mile.

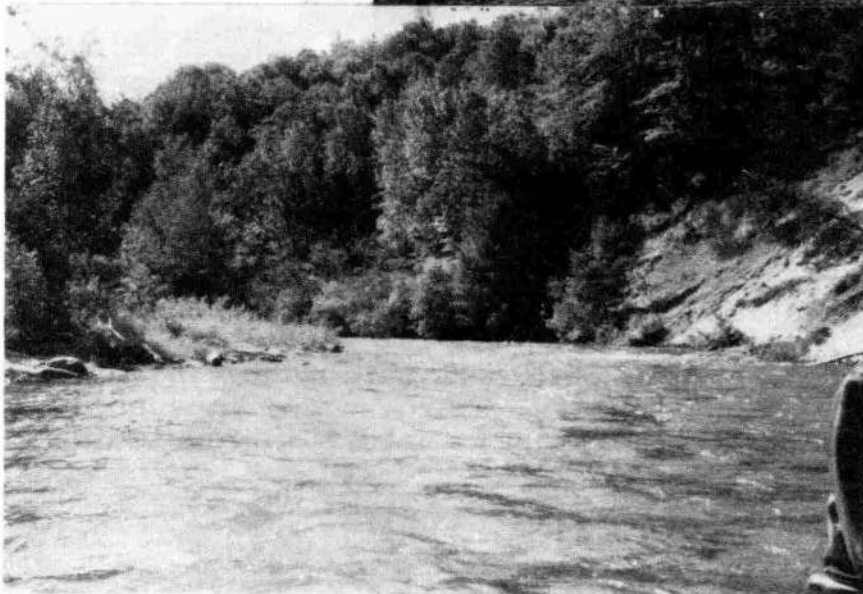
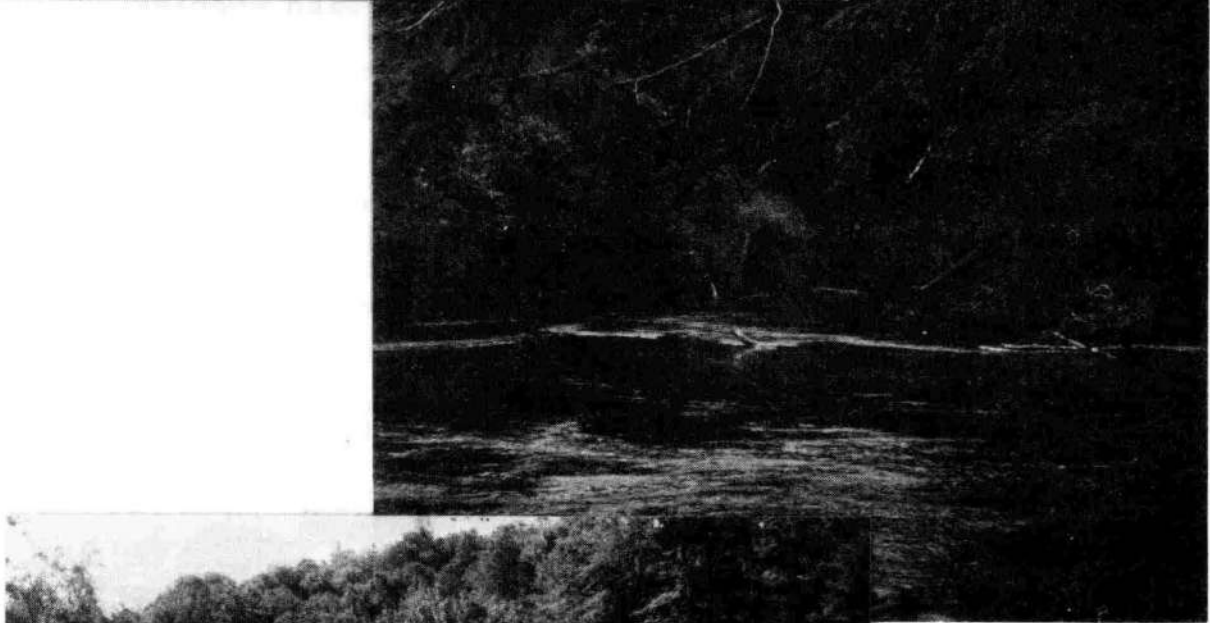
Stonach Dam on the lower Pine River was operated from approximately 1910 to 1953 to provide power for local use. It has silted in, leaving approximately 2 to 3 feet of water, and is useless for power generation. Inflow at this time equals outflow. It does effect flow on the lower river and natural silt movement may be affected by the dam for many miles upstream. However, for the purposes of this study, the impoundment's area of influence begins where the river's water velocity, bottom composition, width and shoreline vegetation begin to show effects fo the impoundment.

F. Water Quality

The Manistee River encompasses 2,018 square miles of watershed area in northwest Lower Michigan. The watershed varies greatly but is composed primarily of coarse sands.



Vegetation and water
conditions on the
Pine River -
Segment VIII.



High infiltration and percolation rates help modify precipitation extremes into a steady groundwater contribution to the stream. The Manistee River is known for its steady discharge rate and small amount of change in stage. The steady and low temperatures of groundwater systems also help lower stream temperature during the summer months.

Dissolved Oxygen (D.O.)

Dissolved oxygen is one of the most important indicators of water quality. It is basic to the existence of most beneficial forms of aquatic life. Lack of dissolved oxygen in water causes an imbalance in normal aquatic life systems and under extreme conditions leads to the production of obnoxious odors. Dissolved oxygen helps stabilize and decompose organic materials.

The water Resource Commission's (WRC) water quality standards call for D.O. levels for cold water fish species (trout, salmon) of not less than 6 mg/liter at any time for the average 7-day flow at a once in ten year recurrence level. At greater flows the D.O. should be in excess of this value.

The mean D.O. values for the four stations on the Pine River ranged between 10.2 and 10.4 mg/l. The five stations on the Manistee ranged from 8.9 to 9.6 mg/l. Only Walker Bridge fell below the 6.0/mg/l on one occasion (that reading was 5.2 mg/l).

All D.O. values, for the various segments, exceed minimum standards and most, in fact, are far in excess of this level.

Nutrients

Nitrogen and phosphorous concentrations appear to be critical factors in regulating the biological productivity of lakes and streams. High levels of nitrates can originate with groundwater drainage from organic soils, waste water, urban runoff, and septic tank drainage. Phosphates occur in surface or groundwaters as a result of leaching from minerals, in natural processes of degradation, from soaps, or as one of the stabilized products of decomposition of organic matter. Phosphates are essential to plant and animal growth, and like nitrogen, pass through cycles of decomposition and photosynthesis. Nitrogen and phosphorous concentrations appear to be critical factors in regulating the biological productivity of lakes and streams.

Water quality standards, as outlined in the Federal Water Pollution Control Act (FWPCS) of 1968, indicate that nuisance growths of aquatic vegetation are avoided if concentrations of total phosphorous do not exceed 100 ppb in flowing streams or 50 ppb where streams enter lakes or reservoirs. It has also been reported that nitrate nitrogen at 100 ppb can cause excessive algae growth in lakes, when essential concentrations of other nutrients are present. Flowing waters like the Manistee River can generally contain more nutrient elements without problems than can lakes.

Total phosphorous values on the Pine River vary from 0.043 mg/l at Walker Bridge and Dobson to 0.046 at Edgetts and Stronach. On the Manistee River, they range from 0.032 at High Bridge to 0.054 at M-55. Nitrite plus nitrate nitrogen values were 0.22±.03 mg/l as nitrogen at all stations. All readings are within, or near EPA guidelines for nuisance algae growth and this is supported by a lack of rooted or suspended aquatics in most of the river.

pH

The "pH" of water is a measure of the hydrogen ion concentration present. The practical pH scale extends from 0, very acidic, to 14, very alkaline, with the middle value (pH-7) corresponding to exact neutrality. Most natural waters are slightly alkaline due to the presence of carbonates and bicarbonates.

The WRC pH standards call for hydrogen ion concentrations between 6.5 and 8.8 with a maximum artificially induced variation of 1.0 unit within this range. The mean pH values in the study ranged from 7.9 to 8.1 for the 10 Manistee and Pine River stations. No values were found outside of the acceptable range.

Temperature

Temperature is important to aquatic productivity. Temperature changes may result from natural climatic conditions or man's manipulation of the river bank environment. Temperature is a function of latitude, season, time of day, duration of flow, water depth, and many other variables.

WRC standards for cold water fish species call for a range of from 32°F to a natural maximum limit. Peak temperatures should not exceed 70°F.

The only long term temperature station is in the headwaters of the Manistee River at Grayling. An inspection of data

for 1970 thru 1974 reveals few problems with high temperatures. The number of days each year when temperatures exceeded 70°F varied from zero to six with a yearly average of three days. The peak temperature was 75.2°F. The mainstem of the Manistee River categorized as a "top quality warm water stream" from Hodenpyl Dam through Tippy Dam, though some excellent trout waters do exist between the dams.

Sediment

Sediment is made up of solid particles, usually mineral soil, moved by a stream. Sediment plays an important role in the Pine and Manistee Rivers because of the large quantities that are moved thru the system. Some of the negative impacts of sediment include: increases flood flows, adds nutrients to the aquatic system, fills holes that provide fish cover, mechanically scrapes aquatic fauna from substrata, smothers spawning areas, and fills reservoirs.

An extensive study was made of the Pine River's sediment conditions from approximately 1966 to 1975. Some of the important discoveries were:

(1) Total sediment load increased five times along a 26 mile length of stream from Walker Bridge to Stronach Dam.

(2) The annual increases for a 4 year period (1967-1970) varied from 9,000 tons at Walker Bridge to 50,000 tons at Stronach Dam.

(3) Some 75 percent of the sediment load was sand.

(4) Complete streambank stabilization (of the 204 eroding banks) would reduce the sediment load by about half.

Sediment conditions are probably somewhat similar on the Manistee River, though perhaps smaller quantities are moved because of the sedimentation occurring in the Tippy and Hodenpyl Reservoirs and less of a bank erosion problem.

Fecal Coliform

The group of organisms includes all aerobic and facultative anaerobic, gram negative, nonspore-forming, rod shaped bacteria that ferment lactose with gas formation within 48 hours at 35°C. It includes Escherichia coli strains that are of fecal origin, intermediate and Enterobacter aerogenes strains that are usually of soil, vegetable, or other non-fecal origin.

Fecal coliforms are a specialized subgroup of the "total coliforms group". These organisms originate in the intestinal tract of man and other warmblooded animals. They are not well adapted to survival outside of the intestinal tract, hence, their presence in water indicates relatively recent fecal contamination.

Michigan State Water Resources Commission standards call for the fecal coliform geometric average for ten consecutive samples not to exceed 200 organisms/100 ml for total body contact recreation. Partial body contact allows the same average not to exceed 1,000. The FWPCA standards further indicate that not more than 10% of the total samples during any 30-day period should exceed 400.

The mean values for fecal coliform on the Manistee River range from 2 to 91 organisms per 100 ml at High Bridge and M-37 respectively. The Pine River values range from 22 at Stronach Dam to 166 at Edgetts Bridge. The summer values at Edgetts Bridge sometimes greatly exceed the State of Michigan limits. This can probably be attributed to adjacent farms and septic systems and the greater clay content of the soils in the area contributing to surface runoff.

Conductivity

Conductivity is a measure of a water's capacity to convey an electrical current. It is an indication of the total concentration of ionized substances. By observing conductivity, variations in dissolved solids concentration can be observed and often, the dissolved solids can be estimated by multiplying conductivity by an empirical factor.

The water quality studies on the Manistee and Pine Rivers have shown a close relationship between conductivity and measured dissolved solids. It was found that a factor of 0.55 times the conductivity values yielded an excellent estimate of dissolved solids. Measured conductivity means varied from 317 to 380 on the Pine and 294 to 328 micro omhes per centimeter. This gives dissolved solid readings ranging between 164 and 212. The new WRC State standards allow up to 500 ppm as a monthly average.

Segments I Through IX

A detailed water quality analysis of the Manistee River and tributaries is not available segment by segment. The water quality sampling program conducted by the Forest Service in 1975 was intended to determine and evaluate existing conditions against standards established by the Water Resources Council. Manistee River water quality meets those standards

and thereby qualifies the river for National Wild and Scenic Rivers System status. However, there may be existing or potential sources of pollutants not revealed through water sampling. The following is a summary of existing or potential sources of water quality deterioration that were not borne out by the water survey.

Water Temperatures

From its headwaters, tributaries, and three impoundments, the greatest threat to water quality is high water temperature. Removal of shoreline vegetation, particularly in residential and agricultural areas, increases water exposure to sunlight and increases water temperature. Tippy, Hodenpyl, and Stronach ponds expose approximately 3,605 acres of water to direct sunlight. Water used for power generation is drawn from the surface and therefore has a warming influence on cooler downstream waters. Since water temperature overall meets minimum standards, it is evident the system has been able to offset warming influences encountered up to now. However, future efforts should be directed toward reducing the occurrence of unnatural warming influences in the system.

Soil Erosion

River banks on the Pine River, lower Manistee River, and between Tippy and Hodenpyl Reservoirs are severely eroded. Although soil erosion on the Pine River may have been accelerated in certain areas by human use and removal of vegetation, it is largely a natural occurrence as the river cuts and stabilizes its course.

Erosion along the Manistee River may be equally severe - particularly between the reservoirs. The 4-foot rise and fall in water levels that occurs twice daily in these areas, while not the sole cause of erosion, can be considered a contributing factor. A major difference between the two situations is the thin silt-organic film deposited on the sand, gravel, and debris in the Manistee River. This does not occur on the Pine River.

Extensive agricultural areas on upper Bear Creek and Pine River also contribute to the silt load. This problem is restricted to shorelines without buffer strips between the river, fields, and pathways used by cattle to obtain water.

Nutrients and Fecal Coliform

Existing development on the Pine River, upper Manistee River, and Bear Creek and the eventual failure of private

septic systems also pose a threat to existing water quality. Housing units are increasing in the low lying area adjacent to the river as the better building sites are quickly developed. Therefore, they must be suspect in providing a seepage of nutrients and bacteria to the river.

Fecal coliform values above Edgetts Bridge on the Pine River far exceed State limits during the summer. This can be attributed to adjacent farms, septic systems, and soil-clay content. Although not verified by water quality analysis, a similar situation may be assumed to exist on Bear Creek because of nearly identical conditions.

Waterfowl refuges and management areas at Mesick and Manistee attract and hold large populations of waterfowl during spring, summer, and fall. These concentrations of waterfowl create a source of nutrient and bacteria that is of local significance. The Harrietta State Fish Hatchery uses water from Slagle Creek, a significant tributary to Segment II. Although the bacteria-nutrients passed into Slagle Creek are not presently a problem, the planned expansion of the hatchery will more than double its capacity and possibly threaten water quality.

Mesick is the only town of significant size situated adjacent to the river. It relies entirely on private septic systems for waste water treatment. Up until now there is no evidence of bacteria-nutrient leakage into either the river or ground water supplies. However, this situation could change quickly with additional residential-industrial growth.

G. Residential and Related Development

Development along the Manistee River consists of five different types:

1. Residential development is generally single family, modest to high value, and often receives only seasonal use. Approximately 700 structures associated with residential development are visible from the river.

2. Commercial development is composed of small motels and fishing resorts. Canoe liveries are common at bridge crossings. Approximately 16 small business developments are visible from the river.

3. Public campgrounds and fishing-canoeing access points and related facilities are available up and down the river.

4. Powerlines and pipeline facilities consist of 30 two-three strand distribution lines across the river; 5 major transmission lines that also intersect the river; and 5 oil and gas pipelines that cross the river corridor.

5. Bridges are all 2-lane concrete and/or steel spans. All are weathered and badly corroded in spots.

Green Belt ordinances offer a limited degree of protection from overdevelopment along lake and river shore-lines. One-half of the counties in the basin have incorporated some type of "green belt" ordinance into their county regulations. The resource protection offered in every case is less than adequate for protecting a national wild and scenic river. "Green belt" ordinances exist in all of Crawford and Kankaska Counties. Lake, Osceola, and Wexford Counties do not have a "green belt" ordinance affecting the river areas. Although Manistee County does not have county-wide zoning, individual townships, except for Marilla and Norman, do have zoning ordinances.

The ordinances place many restrictions on building set-back, vegetative strip widths, filling, lot use and size, and sanitary facilities. Development on land leased from Consumers Power Company remains a potential problem in townships without adequate zoning ordinances.

Segment I - Mainstem - Source to County Road 612 Bridge
and Segment II - County Road 612 Bridge to County Road 608 Bridge

Approximately 30 percent of the shoreline below the M-72 Bridge is owned by Consumers Power Company and leased for private residential development. The river shoreline between M-72 Bridge and 612 Bridges is in private ownership.

Residential development in this section is heavy but evenly dispersed except for dense development within 3 miles of Sharon and within 3 miles above and below M-72 Bridge. The 4-mile stretch below 612 Bridge remains largely undeveloped because of the high water table.

In this section, 389 residential structures are visible from the river. Most are well constructed and of modest value. Numerous docks, landings, walkways and various types of bank retaining walls are associated with the private development.

Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge)

Below Sharon, approximately 83 percent of the shoreline is owned by Consumers Power Company. Scattered parcels of

WILD and SCENIC RIVER STUDY
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AREAS OF MAJOR INFLUENCE

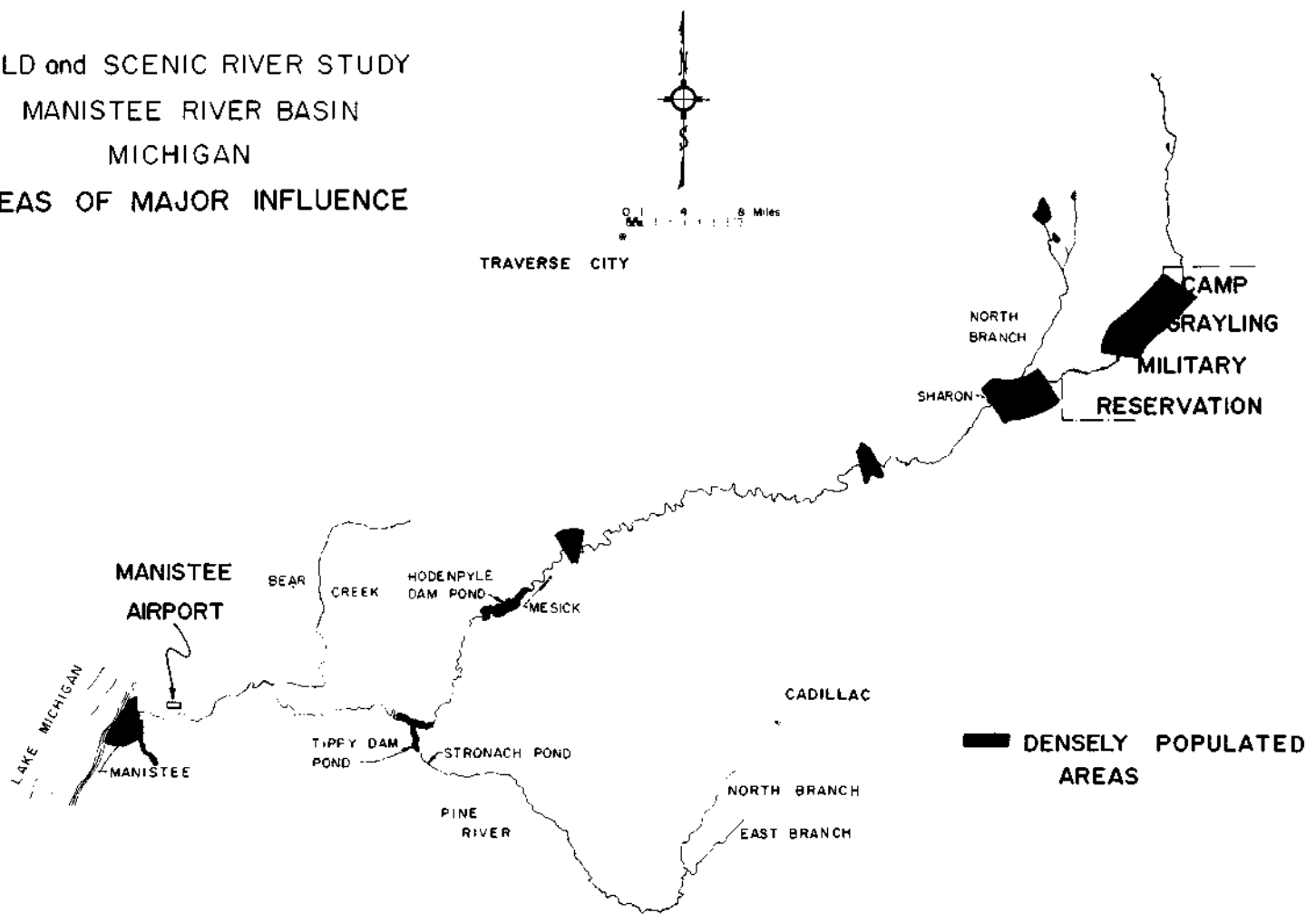


FIGURE 5

Consumers Power land have been leased for summer homes. Approximately 155 structures are visible from the river in this section. Small "community-like" subdivisions spanning relatively short distances along the river are visible at Sharon, Smithville, Rainbow Jims, 1 mile below Baxter, and at Sherman. The Rainbow Jim and Sherman subdivisions are the two least compatible developments.

The structures are modest to low value homes. Docks, landings, walkways, and various types of bank retaining walls are associated with many residential structures.

A river diversion below Sharon in Section 12, T25N, R5W, is only partially effective and poorly constructed of sheet metal and steel posts. Water diverted by this structure flows through an old river channel and does not inundate any part of the natural river bank.

Power lines cross the river at 15 different points. The lines require minimum right-of-way clearance and do not have a significant impact.

Two underground oil and gas pipelines cross the river in Section 1, T26N, R5W. Their 150- to 200-foot wide right-of-way has a significant impact on scenic values. Two other pipeline crossings are located immediately below Sharon and 2 miles above Baxter Bridge. High voltage lines requiring a 200-foot right-of-way cross 1 mile above Rainbow Jim Bridge and 3 miles above Baxter.

Commercial canoe liveries are located immediately adjacent to the river at Smithville, Highway 131 Bridge, M-72 Bridge, and 1 mile below the Manistee River Forest Campground in Segment I.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary

Segment IV has no development aside from two dilapidated cabins and High Bridge.

Segment V - Tippy FERC Boundary to Manistee Lake

This segment is almost devoid of any residential development. Some residential development occurs around the commercial landings but it is relatively insignificant except for Coho Bend and the commercial landing 1 mile below Rainblow Bend. These two areas have more than 20 mobile homes or frame structures but not all are visible from the river except at Coho Bend. There are 12 structures visible from the river throughout this section.

The river is crossed by high voltage transmission lines at three different points. The right-of-way for each line is approximately 330-feet wide with 150 feet cleared of all except herbaceous brush vegetation.

Segment VI - North Branch - Source to Mainstem

Only one cabin is visible in this section, and there are no subdivisions, commercial developments, or powerline crossings. One pipeline right-of-way crosses the river in this segment.

Segment VII - Bear Creek - Source to Mainstem

Bear Creek has small subdivisions located at each road crossing and scattered rural development between bridges. Most existing development has occurred during the past 15 years. There are frequent power line crossings and no known commercial developments.

Segment VIII - Pine River - Source to Stronach Pond
and Segment IX - Stronach Pond to Tippy FERC Boundary

Twenty-six miles of the 48 mile long Pine River are within the National Forest boundary. Approximately 90% of the shoreline land area within the National Forest boundary was formerly owned by Consumers Power Company. This land was sold by Consumers Power Company to the Forest Service in 1972. Excepted from the conveyance were 38 outlots owned by private parties. Additionally, the conveyance was subject to three long term lot leases to private parties. The outlots and leases are subject to restrictive covenants, the terms of which are now enforceable by the Forest Service. Land area outside the National Forest boundary is owned by the State and private individuals. There are several very large ownerships outside the National Forest boundary.

Bridges, user access, and campground facilities are the most significant and often obtrusive forms of development in this section. Facility locations, in relation to each other and the river, are frequently clustered so close as to disrupt the natural riverscape and encourage heavy irregular recreation use patterns in those vicinities. Bridges occur frequently, increasing accessibility and degrading an otherwise primitive undeveloped shoreline. Bridge crossings occur most frequently in the upper half of this section and are concentrated in certain areas.

Over one-hundred-twenty residential structures are visible from the river within this 48-mile long corridor. Many are well located and have little impact on river values.

Typical development on the Manistee River -



Upper Manistee River -
Segment I...

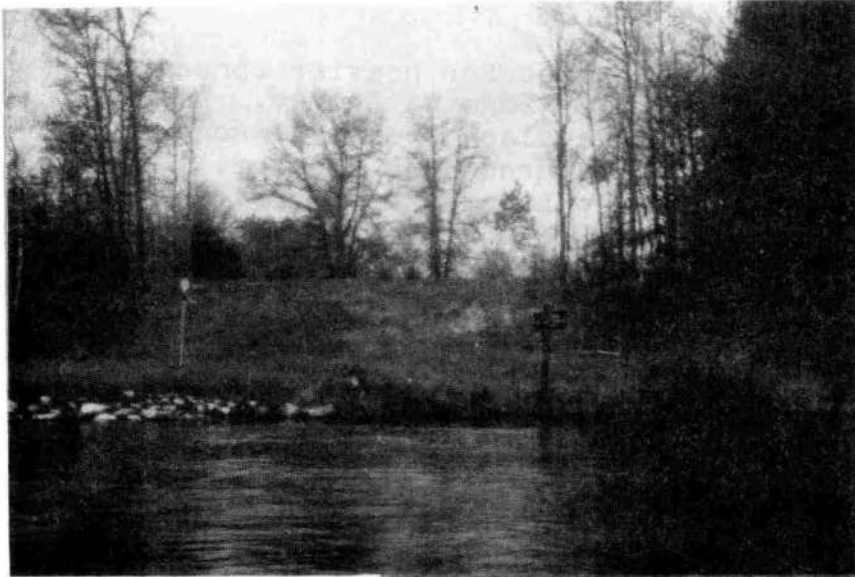


Middle Manistee River -
Segment III...



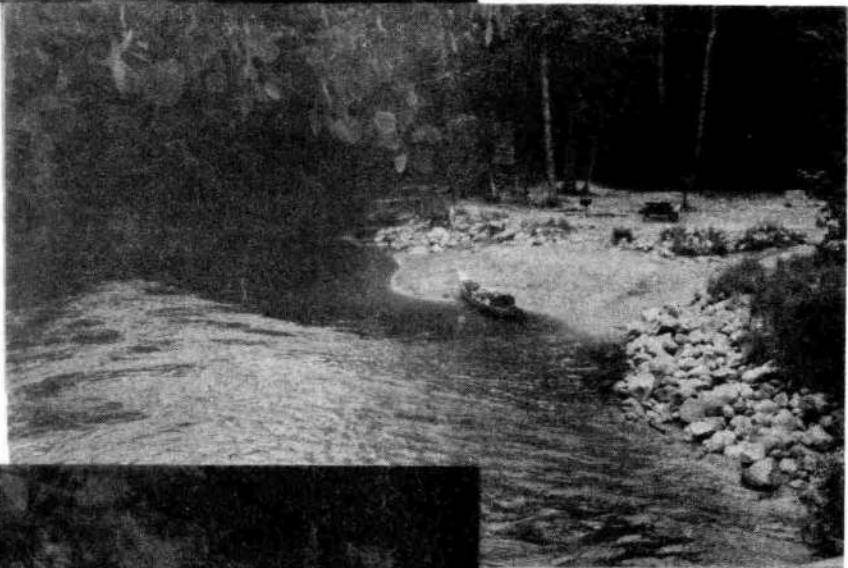
Man-made diversion-
Segment III.

Typical development on the Pine and Manistee Rivers -



Pipeline crossing on
the Manistee River -
Segment II...

Public access on
the Pine River -
Segment VIII...



Pine River -
Segment VIII.

Development is well dispersed except for heavier concentrations some 2 miles above and below Edgetts Bridge. Walker, Skookum, and Meadow Brook Bridges also have small concentrations of three to six structures in a cluster. Residential development is not considered a significant problem in the river corridor at this time.

Commercial businesses are located at Walker Bridge and Coolwater Campground. The canoe livery at Walker Bridge is located immediately adjacent to the river. It is tightly confined to one area and unobtrusive. Coolwater Campground is located within the river corridor but separated from the river by National Forest land. Coolwater maintains a landing in cooperation with the National Forest. The campground can handle up to 680 people at one time. The foot trail access from river to campground is traveled by river users.

H. Water Uses and Related Development

Water-based recreation and hydroelectric power production are by far the two leading uses of water in the Manistee River system. There is little or no irrigation of land within the river corridor.

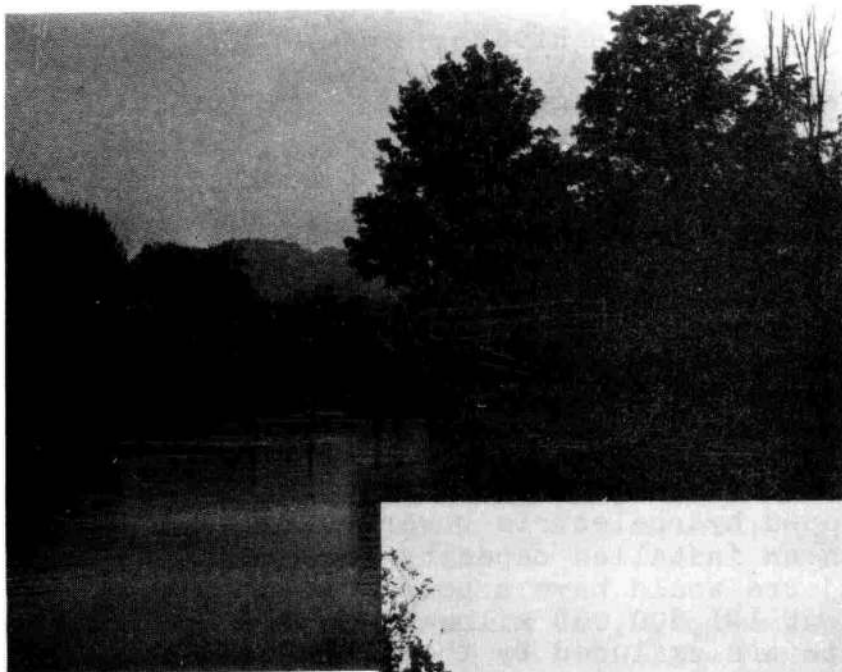
The City of Manton has a land disposal wastewater treatment system but problems have developed at the irrigation site. Soils in the area are unable to absorb the effluent and it is now flowing into Cedar Creek - a Manistee River tributary. The effluent receives secondary treatment before entering the creek and its influence is relatively undetectable when it reaches the Manistee River. A solution to the problem is forthcoming.

The State fish hatchery at Harrietta presently uses pumped ground water for trout rearing. The planned hatchery expansion will use up to 5.6 million gallons of ground water daily and will increase Slagle Creek flow significantly. The discharge water will be treated before being released into the creek.

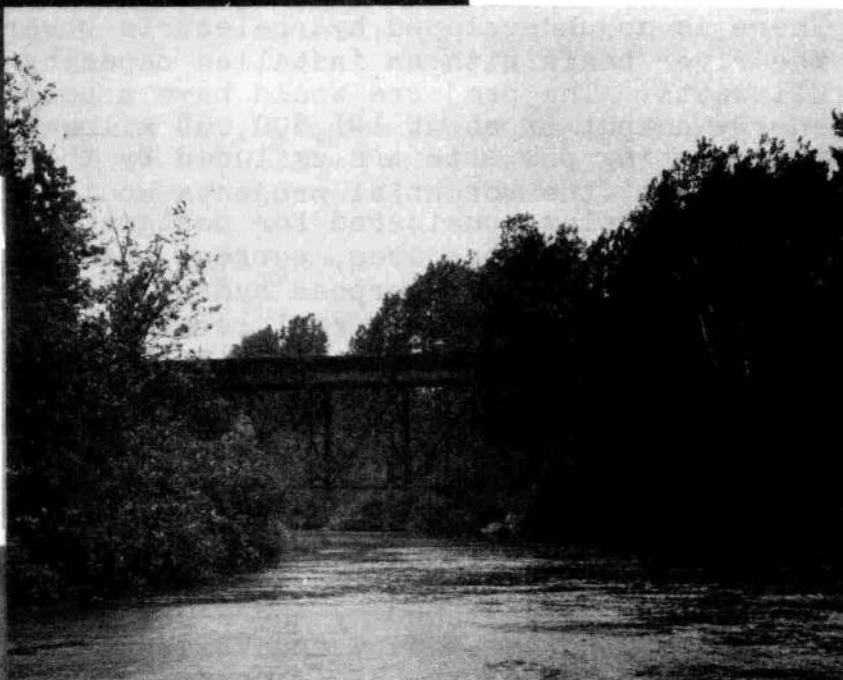
The City of Mesick's public water supply comes from two separate wells. There are no significant individual users within the supply area.

The two Consumers Power Company hydroelectric power plants represent a nonconsumptive instream use of water that remains available for other downstream purposes. They have a total installed capacity of 38,000 kilowatts.

Typical development on the Manistee River -



Public access -
Segment III...



Railroad trestle below
highway 131 -
Segment III...



Road bridge -
Segment III.

Table 3 --- Existing Hydroelectric Projects
Manistee River

<u>Project</u>	<u>Owner</u>	<u>Average Annual Energy (Mwh)</u>	<u>Initial Operation</u>
Tippy	Consumers	56,800	1918
Hodenpyl	Consumers	42,200	1925

Stronach Dam on the lower Pine River which began operation before 1918, was shut down in 1953. It was used to generate power for local use before and after Tippy Dam was constructed. The pond has silted in leaving 1 to 2 feet of water. It is useless for power generation.

There is an undeveloped hydroelectric power potential within the river basin with an installed capacity of 80,100 kilowatts. The projects would have a potential average energy output of about 191,800,000 kilowatt hours. Although the existing projects are excluded by the Wild and Scenic Rivers Act, the potential projects would be within segments presently being considered for designation. However, based on traditional procedures, current power values, and costs, the potential single purpose hydroelectric power projects do not appear economically feasible at this time. (Reference Manistee-Muskegon River Basin Planning Status Report, Federal Power Commission, 1964).

I. Access

Access to the nine river segments varies from nonexistent to frequent. The river flows near primitive areas, through towns, and along State highways. Standards for determining access were established by the study team and are included in Appendix H (See Maps V and VII).

Segment I - Mainstem - Source to County Road 612 Bridge,
Segment II - County Road 612 Bridge to County Road 608
Bridge, and Segment III - County Road 608 to Hodenpyl
FERC Boundary (Sherman Bridge)

Source to County Road 608 (Sharon): There are fourteen sites developed for access within segments:

1. Access exists at the Mancelona and Cameron Bridge crossings. These are undeveloped sites and only Cameron receives moderate to heavy use.

2. The access at 612 Road Bridge is undeveloped and exists only within the public road right-of-way.

3. Manistee River Forest Campgrounds #1 and #2 are large DNR developed campgrounds. The #1 campground has four constructed access ramps. The campground facilities are generally well designed and compatible with the river environment. It serves heavy canoe and drive-in camp use. The Cross-Michigan Horse and Foot Trail passes through these camps and Campground #2 is used largely by hikers and horseback riders. The river crossing receives heavy periodic use by horses at this point.

4. The Manistee River Forest Campground is a large DNR site developed for river or drive-in use. Although a well developed site, it is located on a terrace above the river and only the landing dock and staircase are visible from the water. A developed access is located adjacent to the Highway 72 Bridge immediately across from the camp area.

5. The two access points in Section 30 are undeveloped and receive casual angler-picnicker use. These two points exist largely because of the close proximity between river and public road.

6. Two of the three access points in the CCC Bridge area are associated with the CCC Bridge Forest Campground. The upstream site is undeveloped and receives casual use from anglers, campers, and picnickers. The two access points associated with the campground are located above and below the bridge and are poorly designed. The CCC Campground receives heavy use from canoeists, anglers and drive-in campers.

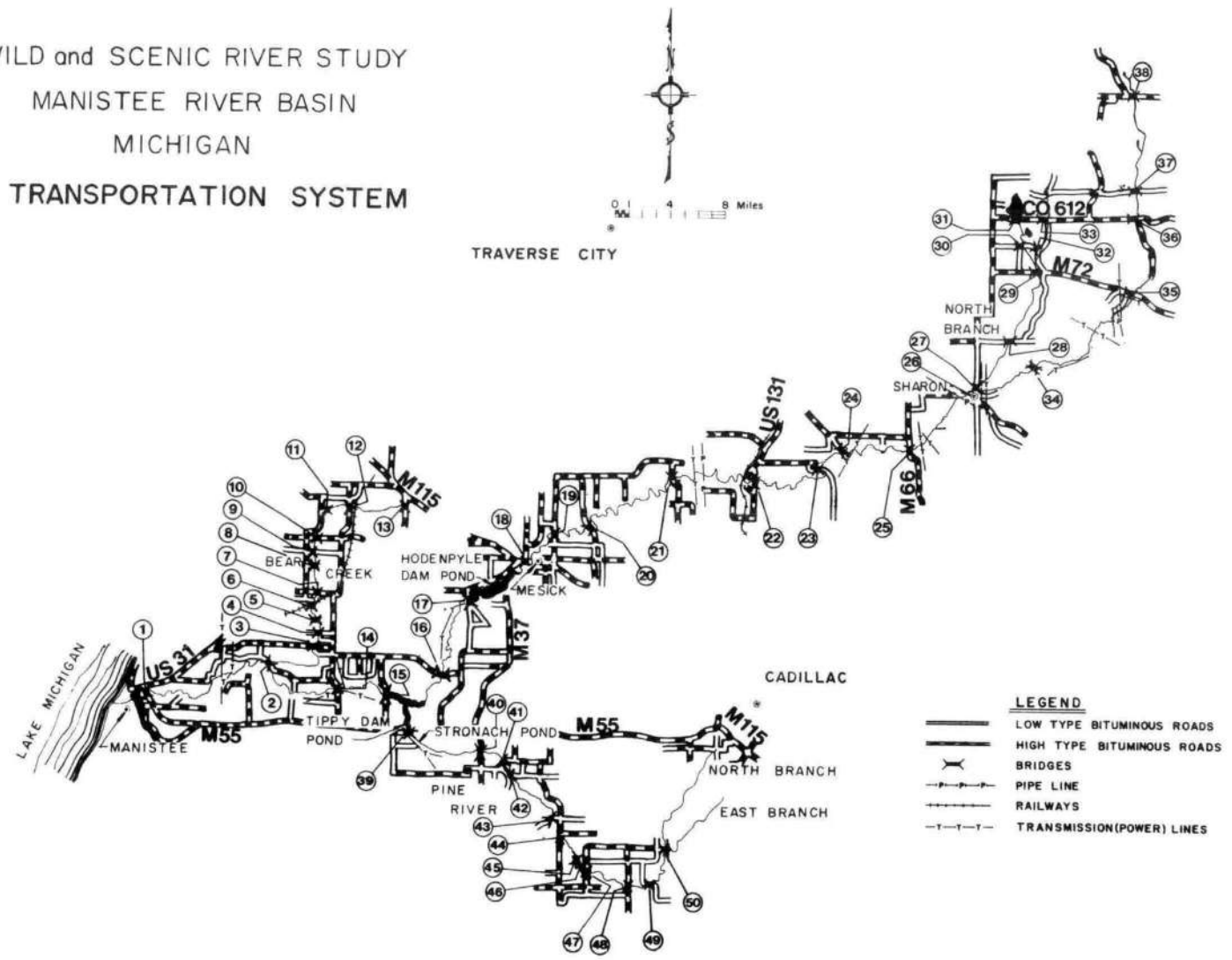
7. The Section 3 access is an undeveloped site used largely by anglers for canoe rest stops.

8. The North Sharon Road Bridge is an undeveloped access that exists largely because of its proximity to the public road. The very heavy use of the past is now being discouraged by an adjacent private landowner.

9. The developed access above West Sharon Road Bridge is used largely because of its proximity to the public road and the Consumers Power Company ownership. The site receives very heavy use as a canoe pull out-put in point.

There are 31 miles of public road within the river corridor boundary, 26 of which parallel the river course. The parallel roads are county owned, gravel surfaced, and

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 TRANSPORTATION SYSTEM



- LEGEND**
- LOW TYPE BITUMINOUS ROADS
 - - - - - HIGH TYPE BITUMINOUS ROADS
 - X— BRIDGES
 - |— PIPE LINE
 - +— RAILWAYS
 - T—T— TRANSMISSION (POWER) LINES

FIGURE 6

BRIDGES

1	M-55 Bridge	26	West Sharon Road Bridge (#2)
2	River Road Bridge	27	North Sharon Road Bridge (#4)
3	Potter Bridge	28	Mecum Bridge
4	Kerry Road Bridge	29	M-72 Bridge
5	Christy Bridge	30	Baker Road Bridge
6	Milks Road Bridge	31	County 612 West Bridge
7	Nine Mile Road Bridge	32	Sunset Trail Road Bridge
8	Jopp Bridge	33	County 612 East Bridge
9	Bonds Bridge	34	CCC Bridge
10	State Road Bridge	35	M-72 Bridge
11	T24N, R14W, Sec. 20 South Road Bridge	36	Red Bridge County 612
12	Lake Road Bridge	37	Cameron Bridge
13	County 597 Road Bridge	38	Mancelona Bridge
14	High Bridge	39	Low Bridge
15	Tippy Dam Bridge	40	Peterson Bridge
16	Red Bridge	41	High School Bridge
17	Hodenpyle Dam Bridge	42	Dobson Bridge
18	Mesick Bridge	43	Lincoln Bridge (bridge out)
19	Sherman Bridge	44	Walker Bridge
20	Harvey Bridge	45	Wheeler Road Bridge
21	Baxter Bridge	46	T20N, R11W, Sec. 30 Bridge
22	131 Bridge	47	Skookum Bridge
23	Missaukee Bridge	48	Edgetts Bridge
24	Rainbow Jims Bridge	49	T19N, R10W, Sec. 6 Bridge
25	M-66 Bridge (Smithville)	50	County Road 584 Bridge

largely serve local residents and recreationists. Although all the roads are within 1/4 mile and most within 500 feet of the river, they are well-screened or at a higher elevation and, therefore, not visible from the river. Traffic noise and passing vehicles are frequently noticeable from the water.

Bridges span this section at County Road 612, Highway M-72, CCC Bridge, and Sharon #1 and #2. Aside from the state highway bridge at M-72, all the bridges are maintained by the county. There are also three privately owned foot-bridges located within 5 miles down-stream from M-72.

Sharon Bridge #1 to Sherman Bridge: There are 14 access points within this 82 mile-long section:

1. The Section 22 site is an access site developed by the DNR and used largely by anglers, campers, and picnickers.

2. Three access points are located in the M-66 Bridge area.

The uppermost site is a commercial campground developed by the Smithville Canoe Livery on land leased from Consumers Power Company. This site has water, tables, and toilet facilities.

The M-66 Bridge site exists only because of the proximity between river and road right-of-way. However, the Smithville Canoe Livery is also located immediately adjacent to the bridge and offers access to the public as well as customers.

The lower site of Smithville Camp is a large, fully developed campground-access maintained by the DNR. It is well designed and located to reduce impacts on river values.

3. The Rainbow Jim Bridge access is a developed site maintained by the DNR. It is not well developed or maintained and serves anglers and canoeists.

4. The access at Missaukee Bridge is a roadside park owned and maintained by Missaukee County. It is poorly developed and partly eroded.

5. Chase Creek Campground is a new facility developed by the DNR. It is well designed and located to reduce impacts on river values.

6. A State highway roadside park is located at the Highway 131 Bridge. Although the park is well developed and not visible from the river, the access is undeveloped and located at a road ending near the bridge.

7. Old 131 Campground is a fully developed facility located below Highway 131 Bridge in Section 8. It is maintained by the DNR.

8. Two separate access points are located at Baxter Bridge. The site 1/4 mile upstream from the bridge was developed in 1976 by the DNR and is associated with a campground located out of sight of the river. The access located at Baxter Bridge was developed and is maintained by the DNR.

9. The Indian Trail Campground access was developed in 1976 by the DNR and is used almost exclusively as a camp stopover by canoeists. The site is exceptionally well designed and constructed to protect river values.

10. The Harvey Bridge access is a developed site maintained by the DNR.

11. The Sherman Bridge access exists only by the close proximity of the river and public road right-of-way.

Within these segments there are 21 miles of public road, 4.5 miles of which run parallel to the river course. The parallel road is located at the extreme upper end of this section and varies from 300 feet to 1/4 mile distance from the river. The road is well-screened or at a higher level than the river surface so as not to be visible at any point from the river. The remaining public roads either cross at the forementioned bridges or dead end near the river.

Bridges span this section at Sharon, Smithville, Rainbow Jims, County 597, Highway 131, Baxter, Harvey, and Sherman. The Penn Central Railroad Bridge crosses below Highway 131.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary

This segment has one developed public access site at Red Bridge. Forest Service Road #5228 parallels the segment for its entire length but is not visible at any point. It is well-screened by vegetation and the high banks deep channel hide the road from view. The road provides access for light to moderate use by anglers. There are several two-track trails used by the public across National Forest land.

<u>Campgrounds</u> <u>With Access Points</u>		<u>Access Points</u>	
1	Manistee River Forest Camp #1	1	W. Sharon Road
2	Manistee River Forest	2	Rainbow Jim
3	Manistee River Camp - 72	3	Missaukee Bridge
4	CCC Camp	4	Highway 131 Bridge Roadside Park
5	M-66 Campground	5	Baxter Bridge
6	Smithville Camp	6	Harvey Bridge
7	Chase Creek	7	Access 67-1
8	Chippewa Landing	8	Access 67-5
9	Old 131 Camp	9	Edgetts
10	Baxter Camp	10	Elm Flats
11	Indian Trail Camp	11	Dobson Bridge
12	Skookum (2)	12	Peterson Bridge
13	Silver Creek Camp	13	Bear Creek
14	Lincoln Bridge Camp	14	Tippy Dam
15	Peterson Access		
16	High Bridge		
17	Blacksmith Bayou		
18	Udell Rollway <u>1/</u>		
19	Rainbow Bend		
20	Coho Bend		

1/ Does not have access.

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 MANISTEE RIVER BASIN
 MICHIGAN
 ACCESS AND RECREATION FACILITIES

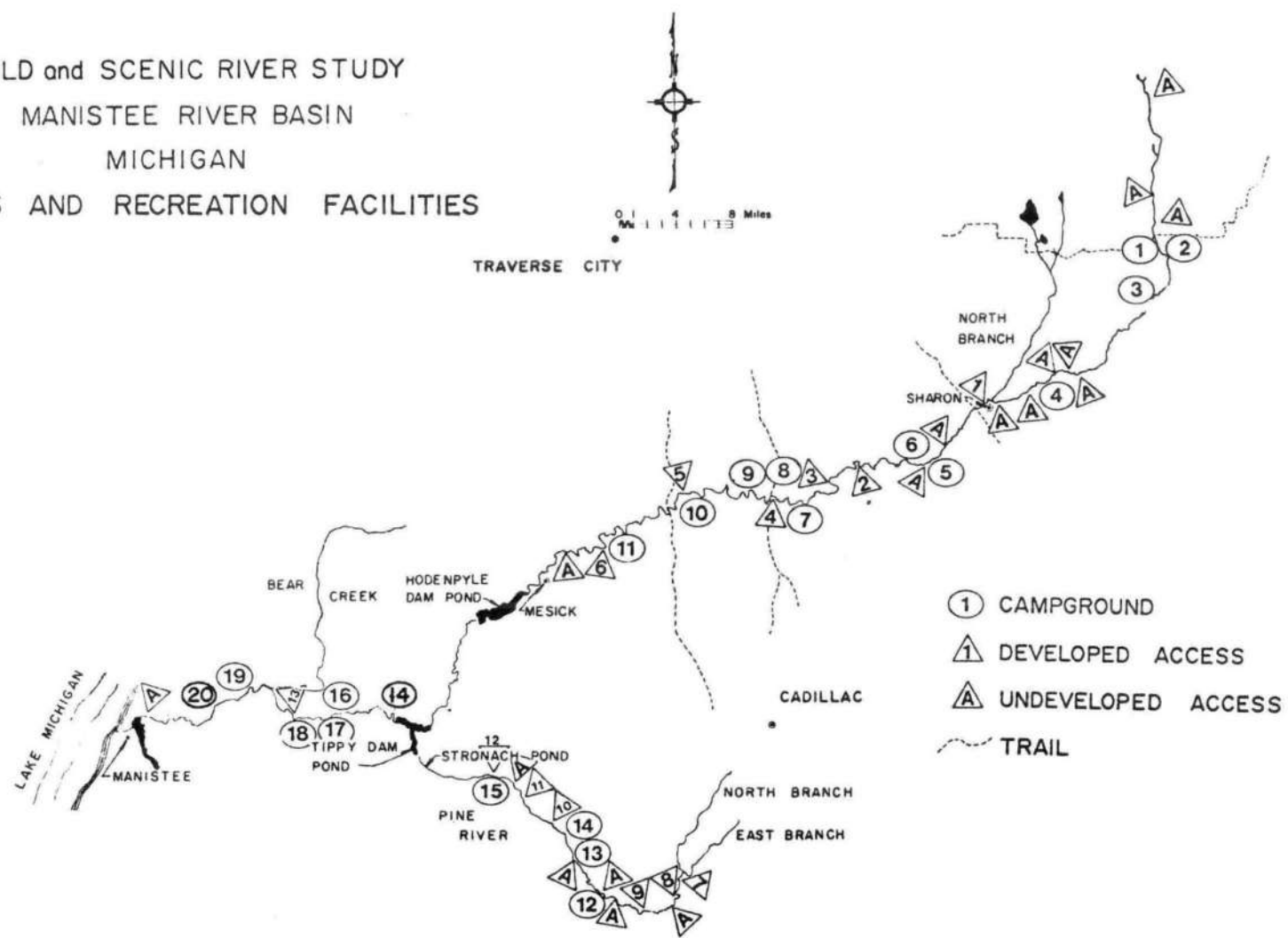


FIGURE 7

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee)

Five public access points are found within this 26 mile segment. Four of these sites, High Bridge, Blacksmith, Bear Creek, and Rainbow Bend, were constructed by the DNR waterways commission on land leased from Consumers Power Company. The purchase of this land by the Forest Service put these areas under the management of the Forest Service.

1. The High Bridge access is an access site designed primarily for camping and fishing boat access. It has facilities for parking and boat launching. It is currently being redesigned and rehabilitated by the Forest Service.

2. Blacksmith Bayou access site is two miles downstream from High Bridge. It is located in Section 31 on the south side of the river. It receives light to moderate fisherman use and is relatively undeveloped.

3. The Bear Creek access is located at the mouth of Bear Creek. It receives intensive seasonal use. Severe bank erosion is occurring on this site. New toilets are being installed at this site this year (1982).

4. The Rainbow Bend access is three miles downstream from Bear Creek. In its current condition, this exposed site detracts from the aesthetic values of the river. Rehabilitation and reconstruction has begun at this site.

5. The M-55 Bridge access exists only within the highway right-of-way.

Udell Rollway Campground is maintained by the Forest Service and is generally inaccessible from the river.

There are 4 commercial landings in this river section. The landings operate primarily to serve anglers and are used heavily during the salmon-steelhead fishing season. Each landing has a boat ramp and 5 to 10 cabins and trailers. These commercial establishments occupy very small areas, are not overly obtrusive, and "time" has made them an acceptable feature of the river-scape. These commercial landings may be a form of public access.

High Bridge on High Bridge Road is the only bridge spanning this river section.

Segment VI - North Branch - Source to Mainstem and
Section VII - Bear Creek - Source to Mainstem

The North Branch has virtually no access except for bridges at M-72, Angling Siding Road, and Mecum Road. The sites are undeveloped and receive insignificant use.

Bear Creek has eight bridges crossing at 13-Mile Road, Potter Road, 11-Mile Road, 9-Mile Road, Milks Road, Johnson Road, Kerry Road, and Coates Road. Public access sites are developed at 13-Mile Road and 9-Mile Road. This segment has numerous public-private roads within the river corridor that serve private homes and public use. All roads are well screened from the Creek, except near each bridge crossing.

Segment VIII - Pine River Source to Stronach Pond and
Segment IX - Stronach Pond to Tippy FERC Boundary

This 46-mile section of river has 16 individual access points. Several access points are grouped together while others receive almost no use.

1. Access #67-1 is a low standard walk-in access maintained by the DNR. It receives very light use from anglers and has no facilities.

2. Access #67-5 is a drive-in access provided and maintained by the DNR and lightly used by anglers. A parking area and litter barrel are provided for users.

3. Public road bridges located at Lakola Road, Edgetts, Meadowbrook, Skookum, Walker, Hi School, and Peterson provide public access only by proximity of the road right-of-way and the river. All these bridge crossings receive light use largely by anglers.

4. The Edgett access was developed and is maintained by the DNR. It has canoe stacking and toilet facilities but the launching area is difficult to reach and severely eroded. This access receives moderate to heavy canoe use.

5. Two DNR developed access points are located immediately below Skookum Bridge - north and south. They receive drive-in camping, fishing, and canoeing use.

6. The Silver Creek Campground was developed and is maintained by the DNR. It is heavily used by drive-in campers, canoeists, and anglers. This site is fully developed but is close to the riverbank and is quickly deteriorating from heavy use.

7. The Lincoln Bridge access and campground is a developed DNR site used largely by canoeists and anglers.

8. The Elm Flats access is a fully developed access point administered by the Forest Service. This site receives extremely heavy use from canoeists, and was redesigned in 1976 to protect the site and facilitate use.

9. Dobson Bridge access is a fully developed site administered by the Forest Service. This site receives heavy use from the canoe users on the river. The site was redesigned and rehabilitated in 1980 to facilitate this use while providing for site and resource protection.

10. The Peterson Bridge access-campground facilities are administered by the Forest Service. The access on the north side is heavily used almost exclusively by canoeists. The south side campground is used by drive-in campers. The Peterson Bridge canoe access was redesigned and constructed in 1976 to better withstand the heavy use. The river is accessible from Peterson Bridge through a State roadside park and trail.

There are 15 miles of public road within the river corridor - 6 miles of which parallels the river course. Public roads are well-screened and road noise is adequately muffled by vegetation along the entire river. However, short stretches of road are occasionally visible at bridge crossings and road noise is noticeable in these areas but only for a very short span of time.

The public roads receive heavy use during the summer and fall seasons. This use is largely recreation-visitor traffic and it becomes particularly heavy at the major access points - Walker, Dobson, and Peterson Bridges. Roads at these points are well-screened and relatively unobtrusive. The added congestion and noise from visitor traffic may have an impact on river users as they approach these areas.

Public road bridges span this section at Lakola Road, Edgett, Meadowbrook, Skookum, Walker, Dobson, Hi School, and Peterson. Private bridges cross 1 mile above Lakola Road, and 1.5 miles below Edgetts, and No Be Shone Bridges #1 and #2. Two bridges exist side by side at Walker - the second bridge is the old county road bridge maintained for private use. Hi School Bridge was completed in 1976. While 1 mile up river, Dobson Bridge is poorly located and badly in need of repair. Meadow Brook and Lakola Road Bridges are older and less well-maintained bridges but receive moderate use. The remaining public road bridges get moderate to heavy use.

Table 4. --- Manistee River - existing campground and access facilities

<u>Location Sites</u>	<u>Access</u>		<u>County</u>	<u>Ownership</u>			<u>No. of Camp-Sites</u>
	<u>R-O-W</u>	<u>Developed Site</u>		<u>Private</u>	<u>State</u>	<u>FS</u>	
<u>Mainstem</u> Mancelona Br.	X				X		
Cameron Bridge	X				X		
612 Bridge	X				X		
Manistee River Forest Camp 1&2		X			X		26
Manistee River Camp - 72		X			X		24
T26N,R5W,Sec.30 CCC Camp	X	X			X		25
T25N,R6W,Sec.3 N.Sharon Rd.	X				X		
W.Sharon Rd.		X			X		
T25N,R7W,Sec.22 M-66 Campground	X			X	X		15
Smithville Camp		X			X		19
M-66 Bridge	X				X		
Rainbow Jim		X			X		
Missaukee Br.		X	X				
Chase Creek		X			X		9
Highway 131 Br. Roadside Park		X			X		
Old 131 Camp		X			X		23
Baxter Camp		X			X		18
Baxter Bridge		X			X		
Indian Trail Camp		X			X		12
Harvey Bridge		X			X		
Sherman Bridge	X				X		
High Bridge		X				X	15
Blacksmith Bayou		X				X	12
Bear Creek		X				X	
Rainbow Bend		X				X	20
Coho Bend				X			30
Udell Rollway						X	23
M-55 Bridge	X				X		

Table 5. --- Pine River - existing campground and access facilities

<u>Location</u>	<u>Access</u>		<u>County</u>	<u>Ownership</u>			<u>No. of Camp-Sites</u>
	<u>R-O-W</u>	<u>Developed Site</u>		<u>Private</u>	<u>State</u>	<u>FS</u>	
Access 67-1		X			X		
Access 67-5		X			X		
Lakola Road	X		X				
Edgetts		X			X		
Meadow Brook		X			X		
Skookum (2)		X			X		
Walker Bridge	X				X		
Hi School	X		X				
Silver Creek Cp.		X			X		
Lincoln Br. Cp.		X			X		
Elm Flats		X				X	
Dobson Bridge		X				X	
Peterson Access		X				X	
Peterson Bridge		X			X		
Skookum Bridge	X				X		

J. Land Ownership and Uses

Approximately 58 percent of the river corridor land area is in private ownership. Twenty-five percent of the land area is owned by Consumers Power Company. An additional 19 percent is in State ownership and 23 percent in Federal ownership. This does not include land within the Federal Power Commission's licensed areas surrounding reservoirs.

Table 6 reflects ownership status after acquisition of Consumers Power Company land offered to state and federal government and private leaseholders. Private land ownership is further stratified by counties and numbers of private owners in Appendix A and G.

Table 6. -- Landownership within the Manistee River corridor by study segments

<u>River Segments</u>	<u>OWNERSHIP</u>				<u>Total</u>
	<u>Private</u>	<u>State</u>	<u>Federal</u>	<u>Consumers Power</u>	
I	840	1680	--	--	2520
II	4770	2420	--	310	7500
III	3120	60	--	12520	15700
IV	--	--	1720	--	1720
V	1220	2330	5370	--	8920
VI	800	1920	--	240	2960
VII	2540	20	1080	--	3640
VIII	3154	1400	--	--	4554
VIIIa	446*	--	4040	--	4486
IX	--	--	180	200	380
Total	16890	9830	12390	13270	52380

Within the study river segments, approximately 21,360 acres of Consumers Power Company land were offered for sale. The State of Michigan and Forest Service were given the initial opportunity to purchase this land. Negotiations for the acquisition were initiated in February 1976 by the Nature Conservancy in behalf of the Forest Service. Approximately 7090 acres were optioned by the U.S. Forest Service in March 1980, and 1240 acres by the State of Michigan. Acquisition of the optioned land was completed on December 30, 1980.

*66 acres of this are small cottage tracts on the Pine River. They all have "conservation convennants" (the equivalent of scenic easements) in their deeds, which are administered by the U.S. Forest Service.

Included within the 21,360 acres offered for sale are 192 lots that were leased to private individuals for residential development. The lots were offered for sale to each leaseholder in April 1978.

Subsurface rights are either owned by the surface owner or reserved by some other outstanding interest. Consumers Power Company has acquired subsurface rights on all or most of its ownership within the river corridor. The State of Michigan and Federal Government have acquired subsurface rights when available during land acquisition. Applications for mineral exploration and extraction are filed with the Michigan Department of Natural Resources for approval.

Segment I - Mainstem - Source to County Road 612 Bridge,
Segment II - County Road 612 to County Road 608 and
Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge)

The 127-mile long river corridor varies from 1/4 to 1 mile wide and includes 25,720 acres - 16 percent of which is State owned and 84 percent privately owned (50 percent of this acreage is owned by Consumers Power Company).

Principal land uses are recreation, wildlife, residential development, and timber production. Land for 18 developed access sites and/or campgrounds is being managed by the State of Michigan. The segments are heavily used by canoeists and anglers - particularly above Sharon. Heavy residential use occurs between Cameron Bridge and Sharon. Except for several small subdivisions below Sharon, residential use is well dispersed to nonexistent. Most river homes were developed for warm weather use. Timber harvest by the State and Consumers Power Company is largely restricted to the outer edges of the river corridor. Lack of commercial timber types, terrain, watershed considerations, and aesthetics limit harvest within the boundary.

Mineral development activity is prevalent in the area above Sharon and is discussed under the minerals section in this chapter.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary

The 7-mile long segment between reservoirs has a corridor varying from 1/2 to 1 mile wide. The corridor encompasses 1,720 acres, all of which is National Forest. The principal uses are timber production and recreation, although neither one is pursued to a high degree. Large red pine plantations are located immediately outside or barely within the edge of the river corridor. Other timber types within the corridor are either noncommercial or management is restricted by soil

limitations. There is neither residential nor canoe use and fishing is light.

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee Lake)

The 26-mile long corridor encompasses 8,920 acres and has a corridor from 1/2 to 1 mile wide. 62 percent of the total land area is National Forest with 26 percent owned by the State, and 12 percent in small private ownerships.

Principal land uses are wildlife and recreation. The marshes and backwaters of this segment provide excellent waterfowl habitat - particularly in the State Waterfowl Management Area on the lower river. The river area also provides excellent habitat for anadromous fish, which in turn provide quality recreation opportunities. Fishing use is extremely heavy during the periodic fish runs.

Segment VI - North Branch - Source to Mainstem

The 8-mile long channel varies from 1/4 to 3/4 mile wide and encompasses 2,960 acres. Sixty-five percent of the area is owned by the State, with the remaining 35 percent private ownership (Consumers Power Company owns eight percent of these lands).

Principal land uses are wildlife and mineral production -neither one of which is of great significance within the river corridor. The area is largely low marshland and other uses are curtailed by a high water table.

Segment VII - Bear Creek - Source to Mainstem

Bear Creek has a 16-mile long corridor and encompasses approximately 3,640 acres. The creek corridor ranges from 1/4 to 3/4 miles wide. Landownership is 70 percent private and 30 percent is National Forests.

Principal land uses are residential, recreation, and agriculture. Residential use is heavy throughout the corridor, particularly near road crossings. Most homes provide year 'round residence. Agriculture in the forms of dairy and beef farms and some truck farming is a significant use within the corridor. Recreation use is generally restricted to trout fishing and salmon-steelhead fishing and attracts heavy use.

Segment VIII - Pine River - Source to Stronach Pond and
Segment IX - Stronach Pond to Tippy FERC Boundary

In these segments, the Federal Government manages 45 percent of the land through the Forest Service, 40 percent is in private ownerships, and 15 percent is managed by the State.

Principal uses are recreation, residential, and timber production. The corridor is heavily used by anglers, campers, hikers, and especially canoeists.

Residential use is well dispersed but significant and generally restricted to summer home structures. Timber production is a primary use outside the corridor and extends up to and often within the corridor boundary. Agriculture is a minor use within the corridor above Edgetts.

K. Minerals

The recent development of gas and oil in Michigan's northern Lower Peninsula will have a definite effect on different parts of the river corridor. Although precise locations of future drilling activity are unknown, drilling trends indicate a high probability that hydrocarbon reserves lie under portions of several river segments. At present, an extremely vigorous exploration, drilling, and hydrocarbon production industry is present in Manistee, Wexford, Kalkaska, and Crawford Counties. Appendix P shows the location of Michigan oil and gas fields affecting the river area. There were 4 existing wells within 1 mile of the river corridor in 1976.

Oil-gas bearing Antrim shales are found in the Niagaran reef which runs approximately parallel to the Manistee River corridor. Antrim shale depths vary with location but range from 1100 feet in Manistee County to 1700 feet in Kalkaska County. The reef approaches the river zone in Manistee and Kalkaska Counties and there the probability of deposits occurring is the greatest.

Also occurring in the study area are a few scattered natural gas wells developed in the Late Devonian Age Antrim Shale. At present, these deposits are not economically important. Hydrocarbons are also present in some Mississippian Age formations which lie stratigraphically above the Salina-Niagara strata. These occurrences are presently unimportant, but could have future economic potential.

A separate study to determine economic impacts of wild and scenic river designation on hydrocarbon production was contracted by the U.S. Forest Service. The study titled Economic Impact of Designation of the Manistee and AuSable Rivers Under the Wild and Scenic Rivers Act, was completed by Commonwealth Association, Jackson, Michigan in 1976. The study projects numbers of wells that could occur within the river corridor potential production, provides value estimates and determines the cost to meet wild and scenic river standards.

Segment I - Mainstem - Source to County Road 612 Bridge,
Segment II - County Road 612 Bridge to County 608 Bridge,
Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge), Segment IV - Hodenpyl FERC Boundary to
Tippy FERC Boundary, and Segment V - Tippy FERC Boundary
to M-55 Bridge (Manistee)

Geological conditions and production data were studied throughout the Niagaran complex. Estimates of untapped potential reserves were charted according to these averages. This data, when correlated with well occurrence under similar conditions, indicates a projected 25 wells and 11 wells might occur within 1 mile of Segments I and III, respectively. Their locations are unknown.

Oil pumping facilities are located within sight distance of the river above Cameron Bridge. The noise and a pipeline from this facility are evident at this point.

Gravel beds located along the river have commercial value but have not been exploited. Environmental controls on gravel mining from live streambeds make this an unfeasible operation.

L. Recreation

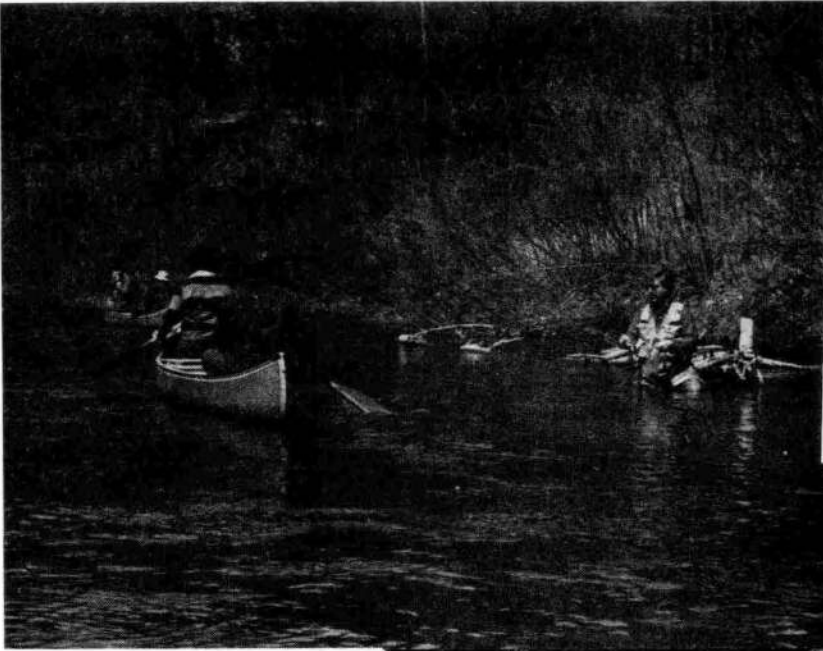
The Manistee River is accessible to several major population centers. Its location contributes to the amount of recreation use it receives. The Manistee River is fished heavily in the spring and fall below Tippy for the anadromous run of steelhead and coho and chinook salmon. The entire stream is an important trout fishery.

Canoeing, on portions of the Manistee and its tributary the Pine, is popular during the summer months. The entire river basin is heavily used for many types of dispersed recreation during the entire year.

Although recreation use varies and may become very heavy on peak weekends, overall use remains considerably less than that on the Au Sable River. The Manistee River was first recognized for its outstanding fishery. Although the Michigan grayling has disappeared and steelhead are no longer able to pass through the power dams, this River still offers outstanding opportunities for approximately 164,000 fishing enthusiasts.

Canoeing is very popular between Cameron and Sharon and on the Pine River. Total canoe use was estimated at 201,000 activity days in 1976. Camping is very popular in the river

Conflicts often develop between various river users as they compete for space and opportunity -



Canoeist vs. fishermen
as shown on the Pere
Marquette but also
typical of the Mani-
stee River...
Courtesy - R. McNeill,
FSC.

Canoeist seeking soli-
tude vs. social
experiences -
Segment VIII...



Canoeist vs. riparian
owners - Segment II.

corridor and attracts approximately 199,000 visitors annually. Picnicking, although very popular, is usually enjoyed as part of other recreational activities. Swimming and rubber tube floating are popular activities but are often discouraged by the Manistee River's cold water. Cross-country skiing and hiking are rapidly increasing with trail development and national popularity. Photography, bird watching, and driving and walking for pleasure are casual pursuits of many river visitors. A rich variety of wildlife attracts hunters, trappers, and many people who simply wish to observe native fauna in a natural environment.

Segment I - Mainstem - Source to County Road 612 Bridge,
Segment II - County Road 612 Bridge to County Road 608
Bridge and Segment III - County Road 608 to Hodenpyl
FERC Boundary (Sherman Bridge)

From the source to Cameron Bridge, recreation use is restricted almost entirely to fishing. Fishing is difficult due to brush and debris and canoeing is extremely arduous.

The Cameron to Sharon section receives the heaviest trout fishing use on the river. This section includes a quality fishing area. Trout fishing is particularly heavy from May through June and tapers off rapidly during the summer. Peak periods of use are from 7 a.m. to 10 a.m. and 6 p.m. to 9 p.m. Use periods are partly affected by canoe use as anglers prefer to fish when canoes are off the water. Fishing in this section accounted for 95,370 activity days in 1975.

Below Sharon, fishing use decreases and is accomplished largely from the riverbank and boats. This type of fishing use in deeper water is less affected by canoeists.

Canoeing remains the largest single recreation use in this section. The heaviest concentrations of use occur from Highway 72 to Highway 131. But this use is generally well distributed. (Table 6) This use pattern is highly desirable and may be affected by the location of canoe liveries and their adherence to use of local river sections. Canoe liveries are located at Cameron, Highway 72, M-66 Bridge, Highway 131 Bridge, and Sherman. Heavier concentrations of use in the upper reaches may result from private canoes and Grayling liveries putting in canoes at the closest point on the Manistee River. Canoe use in this section was estimated at 23,327 trips in 1976.

Table 7. -- Manistee River canoe use on a typical weekend and holiday (1977*)

	Weekend 11:30 a.m. to <u>12:15 p.m.</u>	Holiday 12:30 p.m. to <u>1:50 p.m.</u>
M-55 to Tippy Dam	5	40(34 boats)
Red Bridge to Hodenpyl Dam	1	25 boats
Sherman to Baxter Bridge	6	40
Baxter Bridge to U.S. 131	23	27
U.S. 131 to Missaukee Bridge	6	44
Missaukee Bridge to M-66 Bridge	35	57
M-66 to Sharon	2	26
Sharon Bridge to CCC Bridge	6	30
CCC Bridge to M-72 Bridge	4	65
M-72 Bridge to Cameron Bridge	2	76
Cameron Bridge to Mancelona Rd.	4	--

Camping is a heavy use activity in this section and occurs largely in State forest campgrounds. Although Consumers Power Company land in the lower two-thirds of this section is considered open for public use, camping is not permitted in areas adjacent to the river. Camping areas are provided at Manistee River Campgrounds 1 and 2; Manistee River Forest Campground (at highway 72); CCC Bridge Campground; a commercial campground at M-66 Bridge; Smithville DNR Campground; Baxter Bridge Campground; Indian Trail Campground; and the Chippewa Canoe Livery Campground located at Highway 131 Bridge (Table 4). Approximately 22,875 camping activity days were spent in this segment during 1975. The campgrounds are used largely by anglers and canoeists who leave their gear at camp and canoe and fish during single day trips.

Snowmobiling, hunting, photography, picnicking, and scenery and nature appreciation are also highly popular recreational pursuits. Swimming and tubing, although popular, are somewhat limited by low water temperatures. Motorcycling is also popular within the river zone but restricted to specified roads and trails by State ORV regulations.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary

Lack of access and discovery has kept recreation use in this segment at a very low level. Canoe use is infrequent because of no put-in point upstream from Red Bridge. The segment is

*Aerial Survey data by R. McNeill - Ferris State College

frequently used by motorboats which come up from Red Bridge. Fluctuating water levels from Hodenpyl drawdown and many snags and debris also make this a hazardous area to boat and canoe.

The same conditions affect fishing use. Although many two-track trails traverse Consumers Power land, they are known mostly by local people who fish the river for walleye, suckers, and occasional brown trout. Fishing use is light to moderate.

The area is frequently used by deer hunters in the fall and some camping may occur at undeveloped sites.

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee)

This river segment is used largely for fishing, particularly for salmon and steelhead in the fall and spring. The fall salmon run attracts heavy crowds which often creates poor publicity for salmon fishing. Litter, poor sportsmanship, and river bank damage are given as reasons for reducing or eliminating salmon fishing in some areas. The area immediately below Tippy Dam and the FERC Area boundary, Bear Creek entry point, and the access sites receive the heaviest use. The anadromous fishery has increased fishing use and popularity on this segment tremendously during the past 6 years. Fishing activity days were estimated to be 30,631 on this river segment in 1975.

There are no developed public campgrounds in this segment, although public access sites provide room for campers at High Bridge, Bear Creek, and Rainbow Bend. The four commercial landings offer limited camping facilities to the public.

The lower 10 miles of the segment provide a vital staging and rest area for migrating waterfowl and offer excellent shooting.

Watercraft use is used primarily by motorboats. The river's width, depth, slow movement, and lack of variety make this segment unpopular with canoeists.

Segment VI - North Branch - Source to Mainstem

The North Branch receives very light recreational use. It is relatively inaccessible, difficult to canoe, and has low fish populations. The marshy areas and lowland swamps may provide waterfowl and deer habitat but hunting pressure is light to moderate. There are no developed recreation facilities within the corridor.

Segment VII - Bear Creek - Source to Mainstem

The anadromous fishery has attracted heavy fishing use of Bear Creek during the past 10 years. Although anadromous fish populations have decreased in numbers in recent years, the creek still has an excellent fishery. Some of the poor publicity that accomplished the heavy salmon fishing on this small stream has also subsided as fishing use has decreased.

Bear Creek remains relatively unknown to canoeists, possibly because of its small size and the close proximity of more popular canoe rivers.

Bear Creek also receives very light camping use largely because it lacks public facilities.

Segment VIII - Pine River - Source to Stronach Pond and Segment IX - Stronach Pond to Tippy FERC Boundary

The Pine River receives the heaviest recreation use of any segment in the Manistee River system, particularly canoeing. In fact, it may be one of the most intensely canoed rivers in Michigan. Table 7 shows canoe use and distribution on a typical summer weekend. Holidays may receive similar or less use as people have learned to visit the River on non-holiday weekends to avoid crowds. Weekday counts are considerably less. Average weekend use past Peterson Bridge is 1,145 people per day, while weekday use averages 140 people. This heavy canoe use has caused considerable conflict between anglers, canoeists, and riverside landowners and placed substantial burdens on the resources and land managers. The total number of canoe trips during 1976 numbered 38,278 - canoeing activity days were 114,834.

The Pine River offers excellent trout fishing and receives moderate use but is strongly influenced by canoeists. Fishing use occurs generally from 6 a.m. to 10 a.m. and 7 p.m. to 12 midnight. Fishing hours may vary outside the popular canoe stretches and use may also be greater on those same sections. Fishing activity days on the Pine River are estimated at 38,223.

A canoe use reservation system was implemented on the Pine River in 1978 to reduce canoe use to a level that allows for maximum canoeing experience and enjoyment while protecting the natural resources and rights of other users. The goal of the system is to reduce canoe use by 10 percent of the 1977 level annually through 1980. It is now maintained at the 1980 level.

Table 8. -- Pine River canoe use on a non-holiday weekend

	<u>Elm Flats</u>		<u>A C C E S S</u> <u>Dobson</u>		<u>P O I N T S</u> <u>Peterson</u>		<u>Low Bridge</u>	
	<u>Sat.</u>	<u>Sun.</u>	<u>Sat.</u>	<u>Sun.</u>	<u>Sat.</u>	<u>Sun.</u>	<u>Sat.</u>	<u>Sun.</u>
Pass	375	45	322	97	172	227	-	-
Stopover	63	10	180	49	127	112	-	-
Launch	87	96	242	201	51	245	-	-
Pullout	0	0	23	4	257	196	350	584
Use Between Access Points	-	-	525	151	744	347	350	584

Camping is a popular activity on the Pine River accounting for 10,099 activity days in 1976. Public campgrounds consist of those at Skookum Bridge's north and south accesses, Lincoln Bridge, Silver Creek Campground, and Peterson Bridge Campground. Coolwater is a commercial campground located within the river corridor and heavily used by canoeists. All campgrounds receive very heavy use. Camping at undeveloped national forest sites within the Pine River corridor is prohibited.

Snowmobiling, hunting, kayaking, viewing scenery, hiking, and swimming are also popular activities within this segment.

River Use Conflicts and Problems 3/

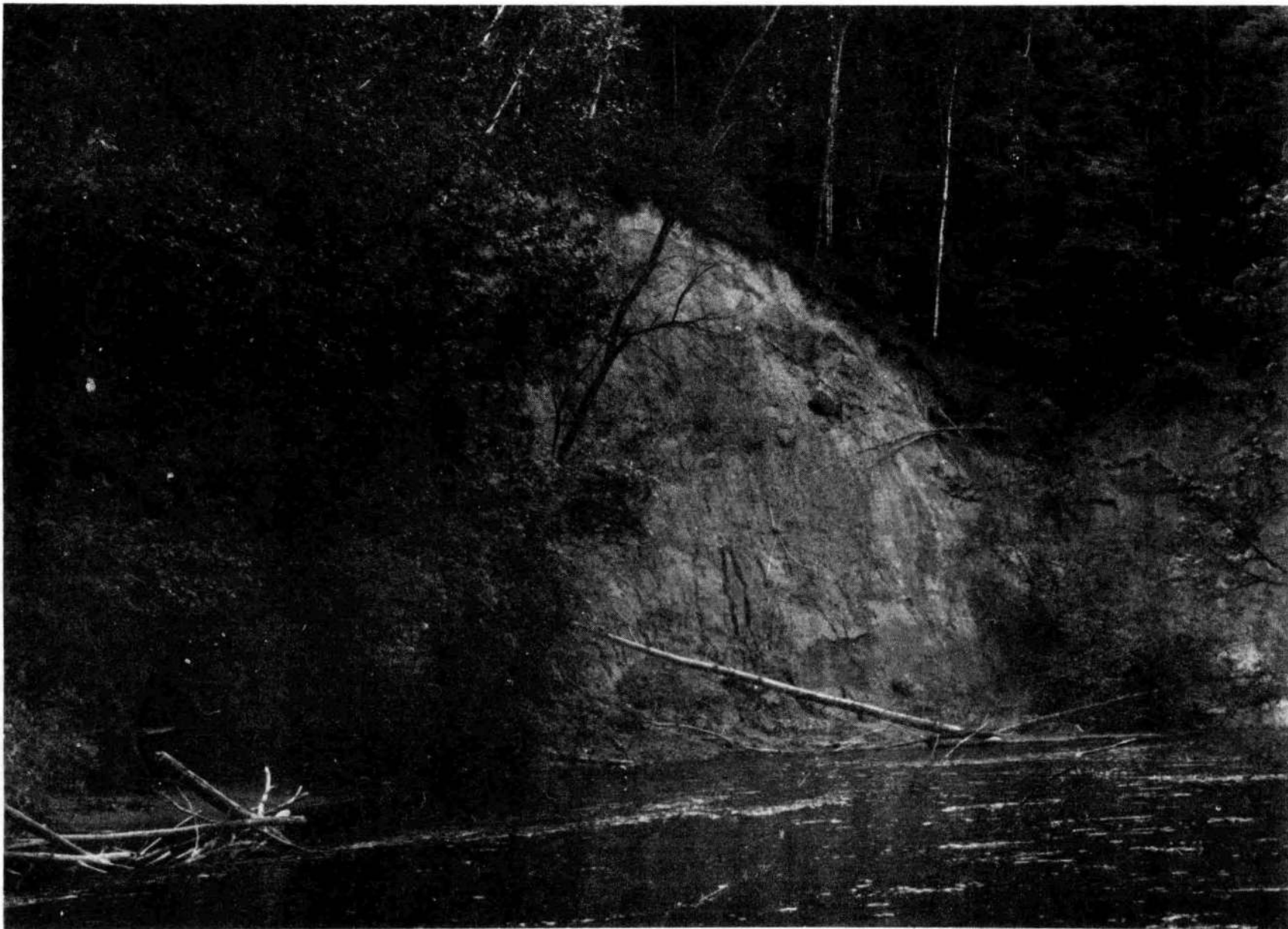
Past experiences have shown conflict exists between canoeists, anglers, and other river users. The fundamental components of these problems are the excessive number and/or distribution of users, conflicting user objectives, and behavior of users.

Influential community members, residents, and livery owners agree that recreational use of the river has increased moderately to greatly since 1966, yet only 36 percent of them feel there are now too many people using the river.

However, from 31 to 61 percent feel certain sections of the river are overcrowded. Approximately one-third of the mainstem anglers feel that users are too numerous. In

3/ This section refers to all Manistee river segments, based on the source:

Characteristics and Attitudes--Michigan's Au Sable River, 1972, Bassett, Driver & Shreyer.



Natural erosion similar to this on the Pine River is often accelerated by heavy use.

contrast, only 22 percent of the livery owners and 16 percent of all canoeists think there are too many people using the river.

It is interesting to note that one-third of all canoeists are undecided as to whether users are too numerous. Since 41 percent of all canoeists are firsttime users of the Manistee River area, there is a strong possibility that many of those who are undecided are unaware of, rather than indifferent to, the controversy over the river's carrying capacity, particularly in the most heavily used sections. It seems reasonable to conclude that the conflict concerning users numbers will intensify as long as livery owners and canoeists feel there is room for more canoes.

The conflict associated with the number of canoeists is compounded by the concentration of users in time and space. Daily weekend canoe traffic along the two most heavily used areas averages three to four times that which occurs on weekdays. Most canoes float through these stretches between 10 a.m. and 5 p.m. Wading anglers also seem to concentrate along these stretches because of the great number of public access points.

Daytime wading anglers are more numerous in May and June than later in the season because the heavy hatches of large aquatic insects are over by the end of June. Hence, canoes pose a greater interference with daytime fly fishing during the first half of the summer. As the summer progresses, canoeing interferes less with daytime fly fishing activities but interferes more with the summer cabins occupants who increase in number between midsummer and Labor Day.

M. Cultural History

The Manistee River corridor includes a variety of known historic resources from two distinct periods: (a) Indian occupation from 10,000 B.C. and (b) white settlement that began shortly after 1849 with the commencement of logging operations.

A systematic archeologic survey of the area from Sharon to Sherman was completed in 1966 and reported in the Michigan Archeologist by Fel V. Burnett. The survey plotted 17 site locations and determined that aboriginal settlement spanned the major periods of occupation from the Paleo-Indian (circa 12000 B.C.- 8000 B.C.) through the Archaic (8000 B.C.- 1500 B.C.) and Woodland (1500 B.C. -1650 A.D.) periods and into the Historic era. Most settlements were oriented more toward hunting than agriculture. There has been little study of the



A log slide as it appeared during the early logging era - Segment V.



A view of the Pine River during the 1930's - Michigan History Divison.

lower Manistee River basin, but small scale surveys and accidental discoveries of sites indicate its potential significance.

Historic interest along the Manistee River is primarily of local significance and focuses almost exclusively on the boom days of 1849 to 1898, when the white pine attracted many hopeful loggers. Very few relics remain from the logging era. Rollways were used to stock logs along the river bank and later during the spring thaw, roll them into the water for floating to the mills. The scarred and eroded banks remain as stark evidence of this practice and are particularly obvious at Udell Rollway in Segment v and in Segment III.

Logs from early logging days remain stranded along river banks and partly submerged in sand and water. Small piles of old logs protrude from the riverbank after being jammed into the soil by water action and large log jams.

Old logs are particularly evident below Tippy Dam, with original brands still evident on many old logs in Segment III. The wooden piles from the old logging railroad bridges and later road bridges are also evident near High Bridge on the lower Manistee River and Silver Creek on the Pine River. Other bridge remains are less evident along other segments.

The "ghost town" of Deward has all but disappeared from the headwaters area of the Manistee River. It was once a bustling sawmill town of 800 inhabitants cutting 50 million feet of timber per season. The timber was depleted on March 16, 1912, and the town was immediately abandoned. "Stump fields" of the original pine stands were left unharvested by the State of Michigan to commemorate the vast stands of white pine which once fed the mills of Deward.

The Manistee River was well known for its trout fishery although less known than its close neighbor, the Au Sable River. The Michigan grayling also inhabited the Manistee River and attracted anglers from great distances. The annual steelhead (rainbow trout) runs from Lake Michigan were responsible for much of this early fishing fame until the route was blocked by Tippy Dam in 1918.

There are no sites within the study area currently listed or determined eligible for the National Register of Historic Places.

N. Visual Resource

The Manistee River watershed falls within the central lowland province. The general landscape character is often monotonous

and there is a noticeable lack of major distinctions. The Great Lakes section is characterized by an abundance of lakes, unequally distributed, ranging from less than 10 acres to 200 acres.

Large and small swamps represent intermediate stages between lakes and dry land. Flat plains are typical, but the glaciation pattern is evident by large areas of rolling ground moraines. Elevations range from about 580 feet above sea level at the Great Lakes shores to 1,706 feet at Briar Hill in the northeast corner of the Manistee National Forest.

Recent Michigan history has created much of the landscape character of the watershed. The towering white pine forests were logged off in Michigan between 1870 and 1890. By 1892, most merchantable timber was gone in Lower Michigan and wild fires swept through the slash and debris left by the lumber companies. Michigan became known as the "barrens" because of its denuded plains and the constant winds that created sand blowouts. It wasn't until the late 1920's that the forest area began to be restored through hand and machine plantings. Jack pine was the major species planted because it grew fast and held the loose sand in place.

Once the area was somewhat stabilized, natural regeneration of hardwoods and native white pine began to occur. Therefore, the vast majority of landscape in the watershed reflects people's impacts. This influence is generally accepted as natural occurrence by the public.

VISUAL RESOURCE

CHARACTERISTIC LANDSCAPE OF THE MANISTEE RIVER

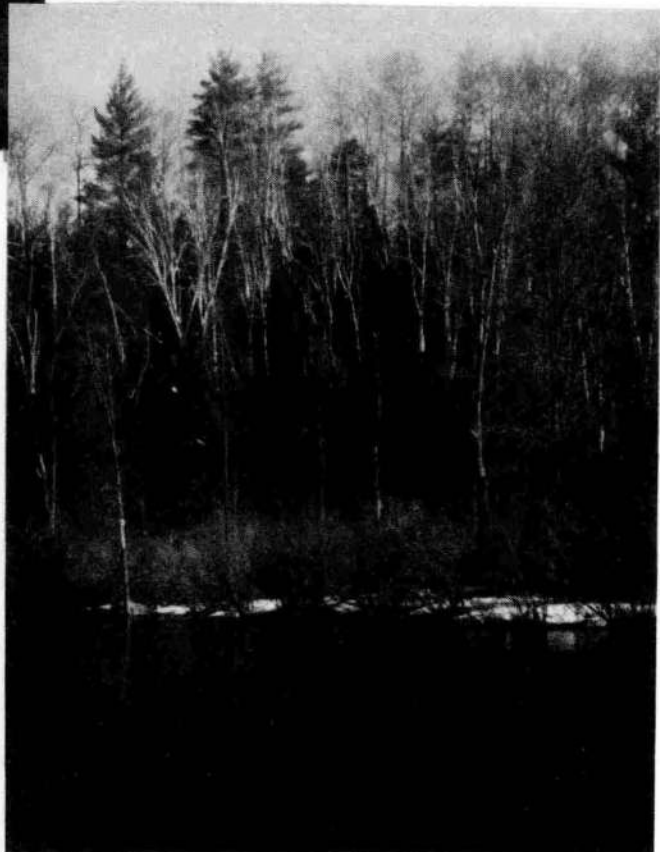


Moving through the river corridor, you can sense an apparent harmony among all natural elements- ground forms, water characteristics, vegetation, and animal life.



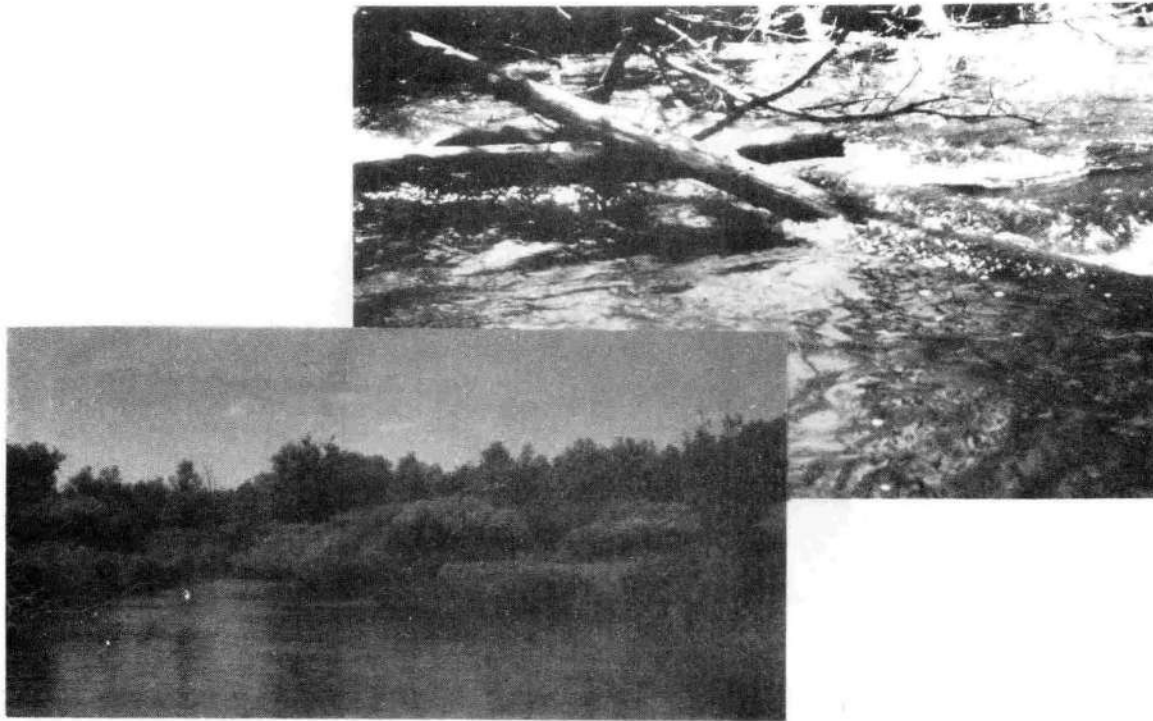


Heavy annual snows and rain replenish the Manistee. The water moves in trickles and creeks from deep swamps and marshes down through splendid forests of white cedar, aspen, white birch, pines and dense shrub and an occasional open sedge marsh. The majority of the area is devoid of evidence indicating severe modifications.

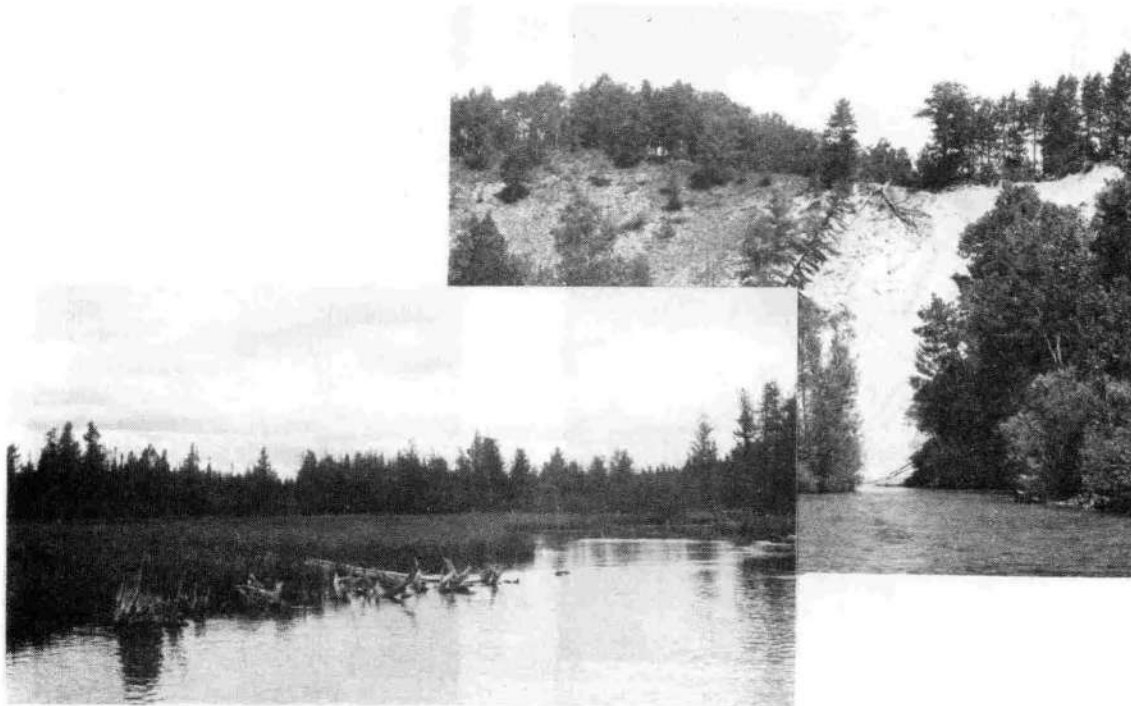


Trout, deer, beaver, woodchuck, eagle, turkey, songbird, grouse, mallard, and heron are part of the scene. People also live here, often appearing on the verge of threatening the intricacies of this complex and natural scene. Still, there is a feeling of peace, quiet, and continuing completeness. This is its landscape character.





The river channels are a distinctive landscape type. Their features are carved and shaped by river flow - glacial terraces, braided meanders, broad valleys of swamp and open marsh, high steep banks forming V-shaped channels, and a sinuous undulating river channel, often twisting and doubling back on itself.





The channels offer variety - wide quiet flow through the flood plain; shallow fast riffles over gravel bottoms; strong, deeper flow over river rubble; and fast choppy flow around constant sharp river bends and over "sweepers" and debris.





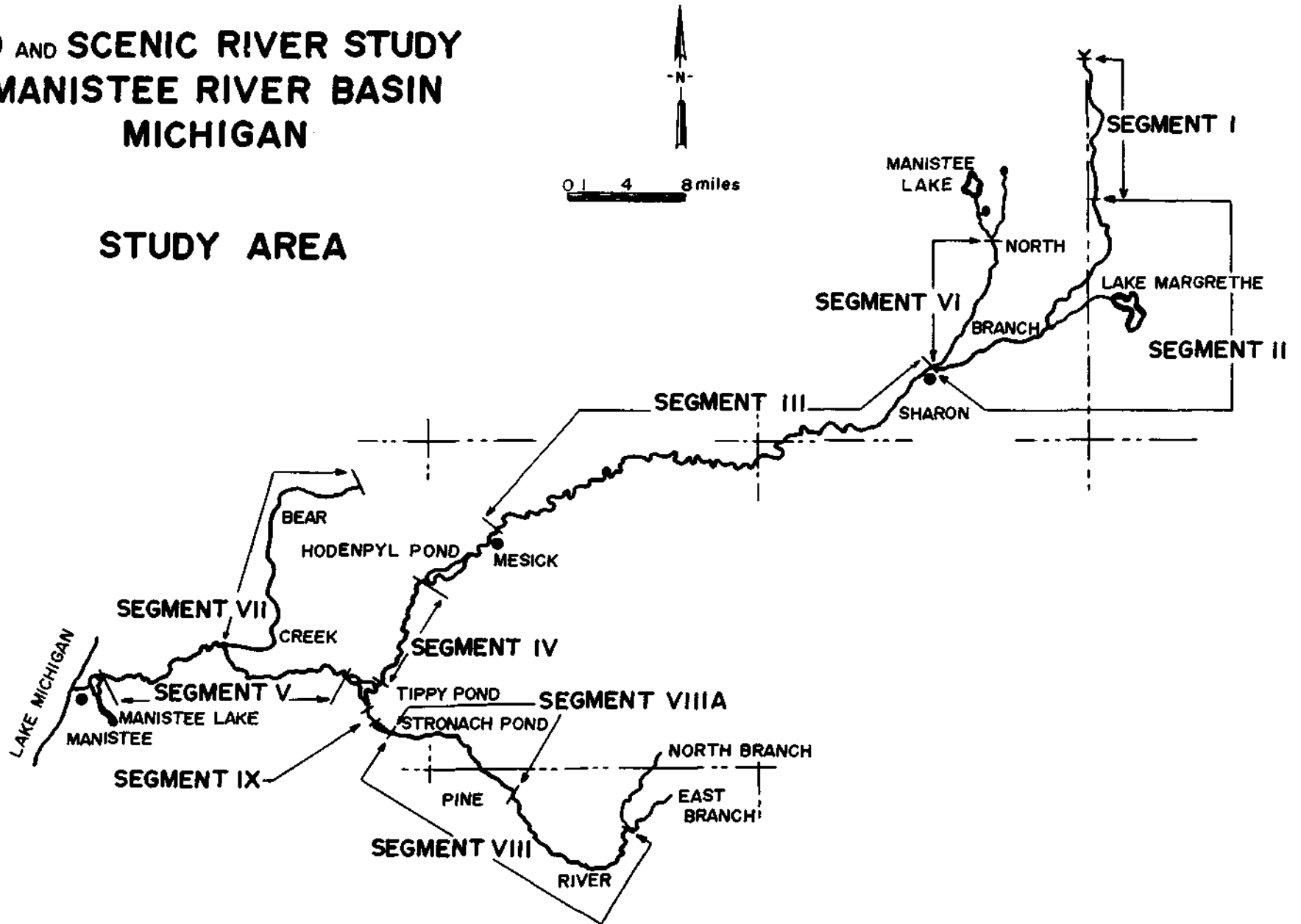
The landscape gets its character from the dark swamps with century old cedar, cold clear water gushing over logs, rock, sand and debris, high ridges heavily forested with aspen, birch and pine, an occasional sand bank sculptured by wind and rain, open sedge marshes, and frequent summer homes and lodges. Its diversity is in subtle changes of soil, slope, and vegetative species.



**CHAPTER IV - WILD AND SCENIC RIVER ELIGIBILITY AND
CLASSIFICATION**

WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

FIGURE 1



M-5

CHAPTER IV

Wild and Scenic River Eligibility and Classification

After gathering relevant data on the nine study segments of the Manistee River, the study team judged eligibility in the following way:

- first, the nine segments were evaluated in terms of the eligibility requirements established by Congress for the National Wild and Scenic Rivers System;
- second, segments judged eligible were broken into classifiable units according to similarity of character;
- third, the classification (wild, scenic, or recreational) which best described existing conditions of each unit was determined; and
- fourth, all public comment to date was evaluated.

Basic criteria in the Wild and Scenic River's Act are supplemented by the "Guidelines for Evaluating Wild, Scenic, and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System Under Section 2, Public Law 90-542" (Appendix B). Pages 2-5 of that paper spell out the general characteristics of rivers to be included in the system and outline the approach to be taken in evaluating them.

Table 9 shows how these guidelines were used to measure the eligibility of the nine segments of the Manistee River.

Components of the National Wild and Scenic Rivers System must be classified, designated, and administered as one of the following:

Wild river areas - Those rivers or river sections that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and unpolluted water. These represent vestiges of primitive America.

Scenic river areas - Those rivers or river sections that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas - Those rivers or river sections that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

An intrinsic part of the study effort is to involve the public. In pursuit of this goal, the public was invited to comment on two specific occasions.

The first invitation to the public was issued in January 1976. Individuals and groups throughout the State and Midwest were contacted via 600 individual mailings and the news media. They were asked to comment on what they considered to be existing controversial issues involving the Manistee River. They were also asked to indicate if they wished to be involved throughout the study process. This public involvement effort helped identify issues to be analysed in a draft environmental impact statement and formulate objectives for alternative river management plans. It also introduced the public to the study process.

The second formal invitation for public comment was issued in January 1977, to approximately 500 individuals, organizations, and news media. The public was asked to evaluate river sections familiar to them and determine if they felt the sections met the eligibility criteria. This response was used by the team to help recognize outstanding values and obtain an indication of the public's view of the various river segments.

In addition to these two formal invitations, a continuing effort is being made to obtain the public's written and oral comments through attendance at meetings of such groups as planning commissions, land-owner associations, service clubs, county commissions, and conservation organizations. This public contact enabled the study team to inform the public and obtain public viewpoints vital to formulating alternatives and a preliminary recommendation. The effort to obtain public input will continue throughout the study process. Additional contacts have been and are being made with the news media.

Two contrasting positions, based on divergent philosophies, evolved from evaluation of early public response. The "No Action" position was generally formulated from issues expressed by residents living in the study area and particularly river landowners. The "No Action" supported by this group recommends continuing and possibly strengthening local zoning to protect river values. This group opposes additional State-Federal intervention, heavier river use, and acquisition of private land or interests for public use.

The "River Designation" position generally represents issues offered by conservationists, recreationists, and local government units. This position represents the most protective approach to resource management and was later developed into three similar river designation alternatives. This group generally favors protection of natural river values and opposes added development and increased river use.

The attitudes expressed at the public meetings and in communications received from individuals throughout the study have been largely divided between these two positions. However, existing heavy river use and its effect on river values is well recognized by all.

Following review of the public comments and the study data, six alternatives were selected as having those qualities best representing the various viewpoints and resource needs.

Table 9. -- Summary of classification for study river segments.

<u>Segment</u>	<u>Miles</u>	<u>River Classification</u>
Mainstem		
I. Source to County Rd. 612	11	NC
II. County Rd. 612 to County Rd. 608 (Sharon)	33	Recreational
III. County Rd. 608 to Hodenpyl FERC Boundary (Sherman Bridge)	83	Scenic
IV. Hodenpyl FERC Boundary to Tippy FERC Boundary	7	NC
V. Tippy FERC Boundary to M-55 Bridge	26	Recreational
VI. North Branch - Source to Mainstem	8	NC
VII. Bear Creek - Source to Mainstem	16	NC
Pine River		
VIII. East and North Branch Intersection to Stronach Pond	46	Scenic
IX. Stronach Pond to Tippy FERC Boundary	<u>2</u>	NC
	232	

Determination of Classification Levels

The following criteria are summarized from the "Guidelines for Evaluating Wild, Scenic, and Recreation River Areas proposed...under Section 2, Public Law 90-452." They will be used to determine the classification eligibility of the various segments after a decision has been made on which segments are eligible for inclusion in the National Wild and Scenic River System.

WILD

1. Flow - Free flowing. However, low dams, diversion works, or other minor structures that which do not inundate the natural riverbank may not bar the segment from consideration as wild. Future construction is restricted.

2. Accessibility - Generally inaccessible by road. No roads in narrow, incised valley. If broad valley, no road within 1/4 mile of riverbank. One or two inconspicuous roads to the area may be permissible.

3. Shorelines - Shorelines essentially primitive. One or two inconspicuous dwellings, limited amount of domestic livestock, and land devoted to production of hay may be permitted. Watershed natural-like in appearance.

4. Water Quality - Water quality meets minimum criteria for primary contact recreation except where such criteria could be exceeded by natural background conditions and esthetics. The water is capable of supporting propagation of aquatic life normally adapted to habitat of the stream.

SCENIC

1. Flow - Free flowing. However, low dams, diversion works or other minor structures that do not inundate the natural riverbank may not bar the segment from consideration. Future construction is restricted.

2. Accessibility - Accessible by roads that may occasionally bridge the river area. Short stretches of conspicuous and well-screened roads or railroads paralleling river area may be permitted, but type of road use is a deciding factor.

3. Shoreline - Shoreline and immediate river environs still have overall natural character. Small communities are limited to short reaches of total area. Agricultural practices that do not adversely affect river area may be permitted. This could include unobtrusive row crops and timber harvesting.

4. Water Quality - Water quality should meet minimum criteria for desired types of recreation except where such criteria would be exceeded by natural background conditions and esthetics. The water is capable of supporting propagation of aquatic life normally adapted to habitat of the stream, or it will be capable once restoration of the quality is complete.

RECREATIONAL

1. Flow - May have undergone some impoundment or diversion in the past. Water should not have characteristics of an impoundment for any significant distance. Future construction restricted.

2. Accessibility - Readily accessible, with paralleling roads or railroads along riverbanks a possibility. Bridge crossings may be present.

3. Shoreline - Some shoreline development. May include all agricultural uses, small communities, or dispersed or clustered residential.

4. Water Quality - Should meet minimum criteria for desired types of recreation except where such criteria would be exceeded by natural background conditions and esthetics. The water is capable of supporting propagation of aquatic life normally adapted to habitat of the stream, or will be capable once restoration of the quality is complete.

NO CLASSIFICATION

Segment does not meet minimum general characteristics nor one or more of the specific criteria described in the evaluation guidelines.

Summary of Attributes and Classification Eligibility for River Segments

Segment I - Mainstem - Source to County Road 612 Bridge - 11 Miles

1. Major Attributes

Flow - Small stream. Low flow rate and debris-filled channel make canoeing very difficult.

Accessibility - Undeveloped access at Cameron and Mancelona Bridges.

Shoreline - Narrow winding stream course through swamp and open marsh. Very low banks. Scenic, but typical marsh-swamp landscape. Heavy development between Cameron and 612 Bridges.

Water Quality - Generally very clear, high quality with sandy bottom. Very high quality water supports excellent trout fishery.

2. Classification for which segment is eligible based on existing conditions:

No classification. Ineligible for inclusion in system; lacks outstandingly remarkable values and uniqueness among regional rivers and streams.

3. Other classifications considered by team:

None, because of ineligibility.

Segment II - County Road 612 Bridge to County Road 608 Bridge - 33 Miles

1. Major Attributes

Flow - Small river. Sufficient flow for canoeing and most river related recreational activities. Many gradual bends and few riffles. Moderate flow rate permits appreciation of outstanding scenery.

Accessibility - Parallels gravel road. Numerous private and 12 public access points. Three public campgrounds.

Shoreline - Although heavily developed with 357 structures, shoreline retains a basic natural appearance. River bank heights and vegetation vary in an interesting and attractive manner. Occasional large open marshland.

Water Quality - High water quality supports excellent cold water fishery. Clear water with sandy bottom. No known pollution sources but development may affect quality of short stretches.

2. Classification for which segment is eligible based on existing conditions:

Recreational.

3. Other classifications considered by team:

No Classification.

Segment III - County Road 608 to Hodenpyl FERC Boundary
(Sherman Bridge) - 83 Miles

1. Major Attributes

Flow - Free flowing with one insignificant diversion. Several riffles. Wide, deep channel with many large, sweeping river bends. Flow permits appreciation of outstanding scenery. Occasional log and debris jams add interest and are easily negotiated by watercraft.

Accessibility - Easy public access from 14 different points. Paralleling roads follow the river for 4.5 miles below Sharon. Nine bridges span the segment. Occasional river access from private homes and 2-track dirt trails.

Shoreline - Heavily forested with attractive stands of aspen birch, tag alder, maple, pine, cedar, and spruce. Bank elevation varies but this segment has many high eroded but very attractive banks. Shoreline is undeveloped with small subdivisions occurring at Sharon, Smithville, Rainbow Jims, Highway 131, and Sherman.

Water Quality - High quality water with no known pollution sources. Cloudy water of natural origin.

2. Classification for which segment is eligible based on existing conditions:

Scenic.

3. Other classifications considered by team:

Recreational and No Classification.

Segment IV - Hodenpyl FERC Boundary to Tippy FERC Boundary -
7 Miles

1. Major Attributes

Flow - Large river with moderately fast to rapid flow during hydroelectric generation. Water level rises 3 to 4 feet. Many fast, choppy riffles. Frequent log and debris jams make canoeing interesting and probably hazardous during high water.

Accessibility - No public access within river corridor. Frequent 2-track dirt road access to river. No bridges or parallel roads.

Shoreline - Heavily forested with many high, severely eroded banks. Creates an atmosphere of solitude and wildness with high scenic value. No manmade intrusions.

Water Quality - No pollution sources. High quality water but has very high silt content during drawdown. Warmer water from Hodenpyl Reservoir and fluctuating water level affects aquatic biota and bank erosion.

2. Classification for which segment is eligible based on existing conditions:

No Classification. Ineligible for inclusion due to short length, isolation from other river segments by Tippy and Hodenpyl Reservoirs and twice daily water level fluctuation.

3. Other classifications considered by study team:

None, because of ineligibility.

Segment V - Tippy FERC Boundary to M-55 Bridge (Manistee) -
26 Miles

1. Major Attributes

Flow - Large river with moderately fast, strong flow. Water levels rise 3 to 4 feet during power generation at Tippy Dam. Wide, gentle river bends with many long, straight stretches. Channel free of obstructions.

Accessibility - Five public access sites and four commercial landings. One bridge.

Shoreline - Undeveloped except for cluster of buildings at commercial landings, and four large heavily-used fishing access/camp sites. Wide river plain with extensive river marsh and lowland hardwood swamp. Many marshy areas and old river channels.

Water Quality - No pollution sources. High quality water, but has high silt content, particularly during Tippy Pond drawdown. Warmer water from Tippy Reservoir and fluctuating water levels affect aquatic biota.

2. Classification for which segment is eligible based on existing conditions:

Recreational.

3. Other classifications considered by study team:

No Classification.

Segment VI - North Branch - Source to Mainstem - 8 Miles

1. Major Attributes

Flow - Slow winding course through open marshlands and dense tag alder swamp. Very difficult canoeing.

Accessibility - No access except for Bridges M-72, Angling Siding, and Mecum Road.

Shoreline - Largely tag alder swamp with occasional open marsh and no conspicuous bank line. Lower 2 miles have lowland hardwood tree cover and higher banks. No development.

Water Quality - High quality water supports good cold water fishery.

2. Classification for which segment is eligible, based on existing conditions:

No Classification due to lack of outstandingly remarkable values - common small stream condition for Michigan.

3. Other classifications considered by study team:

None, because of ineligibility.

Segment VII - Bear Creek - Source to Mainstem - 16 Miles

1. Major Attributes

Flow - Small stream. Moderate flow rate over narrow, winding course. Occasional short riffles and impassable log jams.

Accessibility. Eight bridges and two public access sites. Many roads and trails serving private homes.

Shoreline - Steep, prominent river banks. Largely pastoral area. Lower stream heavily forested. Heavily developed at bridge crossings.

Water Quality - No pollution sources. Flow increases and silt load increases following heavy rain. Good cold water fishery.

2. Classification for which segment is eligible, based on existing conditions:

No Classification due to lack of outstandingly remarkable values - common small stream condition for Michigan.

3. Other classifications considered by study team:

None, because of ineligibility.

Segment VIII - Pine River - East-North Branch Intersection
to Stronach Pond-46 Miles

1. Major Attributes

Flow - Small river. Many fast riffles, sharp bends and challenging log and debris jams. Strong, deep flow allows appreciation of outstanding scenery.

Accessibility - Public and private bridges span the segment at 13 different locations. The 16 access points include bridges and contribute to extremely heavy river use by canoeists. Dobson and Peterson Bridges are primary launch and recovery sites.

Shoreline - Heavily forested with lowland conifer - hardwood, tag alder and white and red pine. Some steep, severely eroded banks contribute to scenic value of segment. Development consists of 123 homes that are well dispersed except for slightly heavier concentrations at bridge crossings. Winding river course, topography, and vegetation contribute to an outstanding riverscape.

Water Quality - High quality water with no pollution sources. Littering, cloudy water, and river bank damage are results of heavy recreation use and affect water quality. Excellent cold water fishery.

2. Classification for which river is eligible, based on existing conditions:

Scenic.

3. Other classifications considered by study team:

Recreational.

Segment IX - Pine River - Stronach Pond to Tippy FERC
Boundary - 2 Miles

1. Major Attributes

Flow - Stronach Dam is not in use and does not affect flow rates.

Accessibility - One access. Gravel road parallels segment and is well screened from river users' view.

Shoreline - Heavily forested with many high, eroded banks. No manmade intrusions. Segment has long open vistas and high banks.

Water Quality - No pollution sources. High quality water but has high silt content. Temperature increased by Stronach Dam.

2. Classification for which segment is eligible based on existing conditions:

Not eligible due to short length and isolation caused by Stronach and Tippy Ponds.

3. Other classifications considered by team:

None, because of ineligibility.

Table 10.--- Capsule summary of river segments

Segments	I	II	III	IV	V	VI	VII	VIII	IX
	612 Road to Source	612 Road to Sharon	Sharon to Sherman	Tippy Pond to Hodenpyl Dam	M-55 to Tippy Dam	North Branch	Bear Creek	Pine River Source to Stronach Pond	Stronach Dam to Tippy Pond
<u>Characteristics</u>									
Free Flowing nature									
Affected by:*									
Impoundments	No	No	No	Yes	Yes	No	No	No	No
Diversions	No	No	Yes	No	No	No	No	No	No
Road Pills	No	No	No	No	No	No	No	No	No
Length*	No	Yes	Yes	No	Yes	No	Yes	Yes	No
Water Quality*									
Meets criteria for:									
Primary contact									
Recreation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Secondary contact									
Recreation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water esthetics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fish aquatic life propagation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Outstandingly Remarkable**									
Scenic values	No	Yes	Yes	No	No	No	No	Yes	No
Recreation values	No	No	No	No	Yes	No	No	Yes	No
Geologic values	No	No	No	No	No	No	No	No	No
Fish & Wildlife values	No	No	No	No	Yes	No	No	No	No
Historical values	No	No	No	No	No	No	No	No	No
Cultural values	No	No	No	No	No	No	No	No	No
Eligibility for National Wild and Scenic Rivers System	Not Eligible	Eligible	Eligible	Not Eligible	Eligible	Not Eligible	Not Eligible	Eligible	Not Eligible

* Must meet all the criteria to be eligible.

** Must meet one or more of the criteria to be eligible.

CHAPTER V - ANALYSIS OF ALTERNATIVES



WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

STUDY AREA

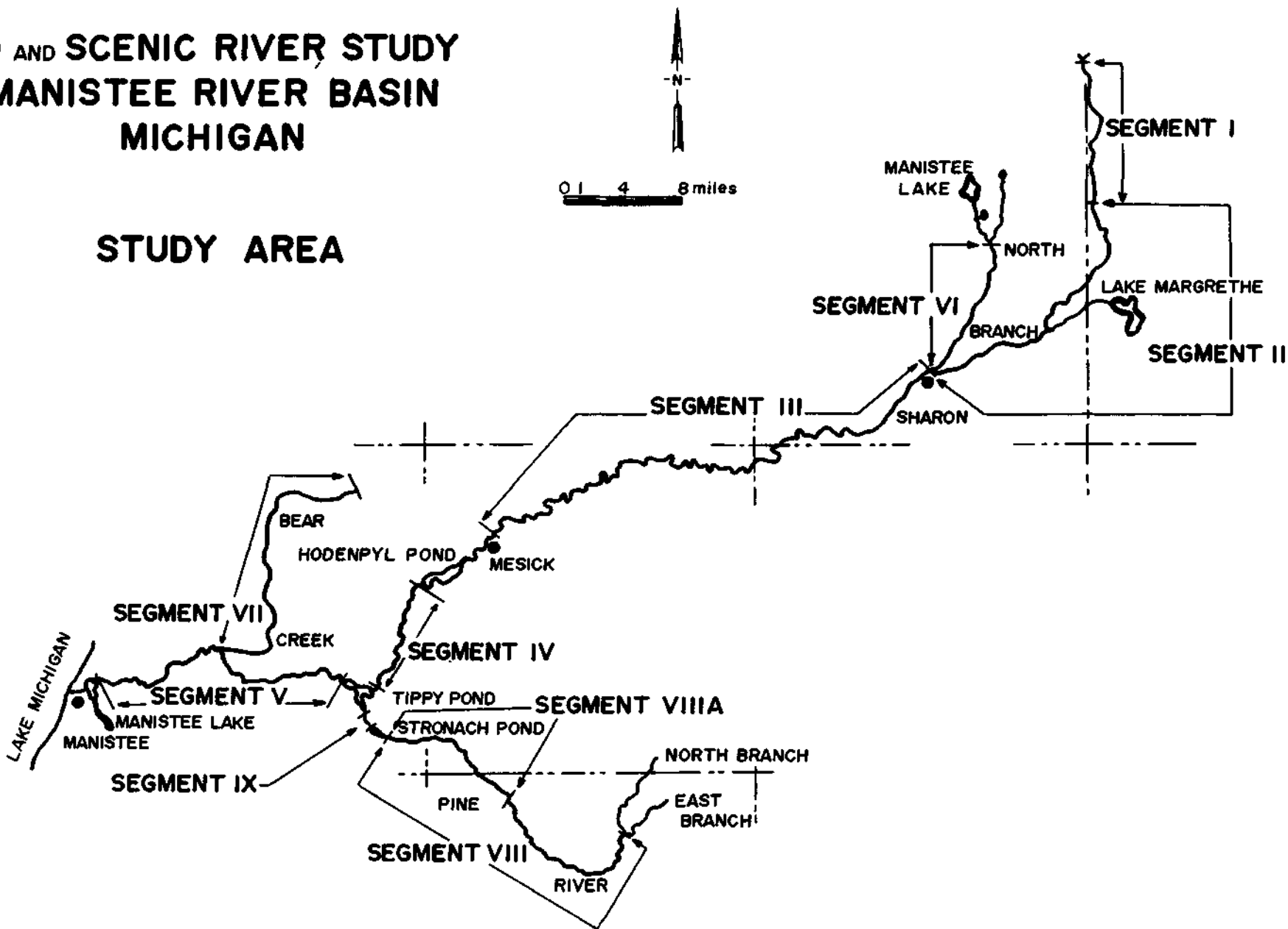


FIGURE 1

CHAPTER V

Analysis of Alternatives

Preface

The Water Resources Council developed and tested an analytical procedure for weighing costs and benefits of alternative water and land resource development plans in 1971. The process was modified and adopted by Executive Order as the "Principles and Standards for Planning Water and Related Land Resources" (Federal Register Volume 38, No. 174, September 10, 1973), Appendix C. The procedure involves analysis, and is mandatory for wild and scenic river studies. This section describes the results of the analysis of the six alternative plans for the Manistee River segments considered eligible for inclusion in the National Wild and Scenic Rivers System. A complete step-by-step description of the principles and standard analysis is included in Appendix C.

Purpose

This analysis provides a basis for recommending the inclusion or exclusion of eligible Manistee River segments into the National Wild and Scenic Rivers System. This section describes and quantifies, to the extent possible, the costs and benefits of each alternative plan. Six alternative plans are analyzed. Alternatives 4, 5, and 6 describe various environmentally oriented wild and scenic river options. Two plans, alternatives 2 and 3, are concerned with economic development and alternative 1, "No Action", reflects a continuation of current land and water use and management. Each plan is compared to the No Action Plan and the additional impacts, as well as the total effects, are given for these alternatives. It is important to note that the economic plans have some positive environmental effects just as the environmental quality plans have some positive economic effects. None are completely one-sided.

The principles and standards procedure specifies that each alternative be evaluated within the framework of a four-account system including: national economic development, environmental quality, regional development, and social well-being. Each plan is discussed within this framework.

Alternative Plans

NO ACTION PLAN - Continue Current Management (No Designation)

ALTERNATIVE 1

This plan involves Federal, State, and local agencies. It is based on continued application of current management authorities to protect scenic, recreation, geologic, fish and wildlife, archaeologic, and other values. It also assumes that current trends in the use and development of resources will continue and that no new restrictive action will be taken as a result of this study.

The four eligible segments within this river corridor contain 41160 acres. (See Chapter III K. Landownership and Uses and Appendix G.)

Environmental and Land Use Impacts

Recreation, residential, and commercial development and timber production would continue to be the predominant uses along the Manistee River and its tributaries. The intensity of some uses, especially recreation and residential subdivisions, would probably increase substantially.

Local governments would continue to maintain some control on private land development through zoning. State and Federal control and administration of these uses would continue on public land within the corridor. The Forest Service and the State of Michigan would utilize the full range of their management authorities on public land to protect and preserve scenic, recreation, fish, wildlife, and other river values.

State and Federal agencies are currently improving river water quality by assisting local communities with development of centralized wastewater treatment facilities. Local regulations would provide limited protection from residential sources of water pollution.

State regulations would provide a means to locate and eliminate point sources of water pollution. Both State and Federal safeguards would concentrate on preventing erosion and other adverse effects of timber management and petroleum exploration and development.

Acquisition by the State and Federal Governments would continue within State and Federal forest boundaries. Major portions of the river segments would eventually be in public ownership. There would be no significant threat to the natural values of those public lands.

Most existing residential development occurs on the mainstem between Sharon and County Road 612, and on the Pine River between Dobson Bridge and the river's source. Additional development would likely reduce the natural values of the river corridor within these reaches.

Heavy daily use occurs on the Upper Manistee above Sharon and the Pine. Controls of numbers have been exercised on the Pine by the USDA Forest Service. Increased use on the Upper Manistee could result in user conflicts and would have the potential for environmental damage. The Upper Manistee would have to look to local zoning, potential state water use rules, and the State Natural Rivers Act for additional controls.

Economic and Regional Development Impacts

Present yields from agricultural and timber lands would be maintained. Agricultural production remains an insignificant use in the river corridor. Corridor land would continue to produce forest products. Sustained yield 5/ from corridor timber land is capable of producing thousand board feet annually, with an approximate value of Petroleum production within the present corridor would continue to be an important part of the local economy. The 36 oil/gas wells could produce an average of 152 barrels per day. This figure is based on other development in the area. The average lifespan of a well within the corridor would be nine years.6/ 7/ Minerals on public lands within the corridor would be available.

The overall recreation use of the river is expected to increase. Most of the increased use would occur on Segment V or the river and in the developed public facilities. See Appendix G of this study for more detailed information on use and cost benefit projections.

5/ Glossary - Appendix I.

6/ Economic Impact of Designation of the Manistee and Au Sable Rivers Under the National Wild and Scenic Rivers Act, Commonwealth Associates Inc., Jackson, Michigan, 1976.

7/ Mineral Resource Valuation for Public Policy - Bureau of Mines, circular 8422, 1976 dollars.

Social Impact

The No Action Plan could have considerable impact on the portion of Segment VIII outside of the boundary of National Forest land. Current canoe use regulations and the controls exerted by the Pine River Permit System would maintain some quality within the National Forest boundary. National Forest ownership is good enough to limit some of the most undesirable problems associated with over use and crowding. Without overall control, however, user conflicts would increase and some degradation of the environment could be expected. As the number of persons using Segment V increased, we would see a corresponding reduction in the satisfaction experienced by the individual user.

Historic and archaeological sites on private land would not receive additional state and federal protection. Rare and endangered species could be adversely affected.

NATIONAL ECONOMIC DEVELOPMENT PLANS

The basis of a national economic development (NED) plan is the increased output of goods and services or the increased efficiency in the output of goods and services.

There is little that State and Federal governments can do to promote rapid or maximum development within the study area. The local economy is based on light manufacturing, recreation, and forest products and would probably remain so, even under stimulated conditions. Thus, the distinction between an NED plan and the No Action Plan is one of degree of action rather than kind of action.

Alternative plans must consider component needs that are complementary. The satisfaction of one component need does not preclude the satisfaction of or add to the cost of other needs. NED plan A is essentially a plan that generates maximum recreational benefits. NED plan B is a plan that maximizes timber and mineral development and output. The study team assumed that the satisfaction of timber-mineral needs limited, but did not preclude the enjoyment of dispersed recreation.

NED plans A and B limit the satisfaction of environmental quality objectives.

NATIONAL ECONOMIC DEVELOPMENT PLAN A (No Designation)

ALTERNATIVE 2

Increased Recreation Development

There is a national need for dispersed and developed recreation. Outputs needed to satisfy the participation in recreation pursuits are outlined in the Michigan State Recreation Plan - 1970 8/.

The Goal of this NED is to maximize the output. This would be done on the study river.

Environmental and Land Use Impacts

If selected, this alternative would develop recreation on public and private lands to a level above that considered consistent with maintaining a high quality environment. Development of facilities and structures for recreation under this plan would be physically possible and economically beneficial. There would be a general reduction of those qualities that make the Manistee River a valuable addition to the National Wild and Scenic Rivers System.

Conservation/Recreation Costs and Trends

If selected, this plan would result in reconstruction of 6 camping areas and 18 access sites and construction of 49 miles of trail and 165 picnic units. Recreation development would cost approximately \$704,260. Operation, maintenance and administrative costs for these developments would require about \$266,900 annually.1/

Under existing circumstances and development, an estimated 991,680 recreation activity days would occur annually on public recreation facilities within the area by 1990. However, experience quality would not improve and resource protection could not be assured. The increased use would consist primarily of increases in hiking and greater capacities at camp areas.

Energy Impacts

Hydroelectric sites on the Manistee River are either presently being utilized or were deemed unfeasible for development by Consumers Power Company. Most of the wells would

1/ 1980 dollars

8/Michigan State Recreation Plan - 1970

be along the Manistee River mainstem. Category recreational or unclassified. Therefore, directional drilling not needed. Most of the oil and gas wells would be drilled along the Manistee River mainstem. This is either classed as recreational or is unclassified. Directional drilling would seldom be necessary.

Economic and Regional Development Impacts

There are no adverse economic effects other than those discussed under "Conservation/Recreation Costs and Trends" and "Energy Impacts." There would be no foreseeable effect on the tax base.

Social Impacts

Recreation use would increase under this plan. Crowded conditions would cause a degradation in the quality of experience for some users. User conflicts would be significant. Primary conflicts between types of uses (landowners, anglers, and canoeists) would increase. Conflicts within the canoe users could also be expected. Some environmental degradation could be expected under this plan.

NATIONAL ECONOMIC DEVELOPMENT PLAN B (No Designation)

ALTERNATIVE 3

Increased Timber and Mineral Development

Selection of this plan would increase production of timber and minerals. Access roads and minimum environmental controls could be implemented in the area by State and Federal governments. However, timber and mineral production increases could not have adverse effects on other types of production to fall within the criteria for a NED plan.

The eligible portions of the Manistee River corridor contain approximately 0.002 percent of Michigan's commercial forest land. Under this plan it has a potential annual yield of 4.1 million board feet valued at \$211,151 per year.

Petroleum production may be possible from a potential 36 wells within the river corridor. Each well would be valued at approximately \$6.5 million and produce 152 barrels of oil and gas daily. An average well under similar conditions could cost approximately \$600,000 to drill and complete (1980 dollars). The increased scarcity and value of oil and gas would make exploration and extraction economically feasible under this plan.

Environmental and Land Use Impacts

Under this plan, adverse environmental impacts would increase significantly. Much of the scenic, recreation, and wildlife qualities that make the affected areas valuable for inclusion in the National Wild and Scenic Rivers System would be lost.

There would be no major changes in present land uses. However, forest land would be subjected to more intensive timber and minerals management to increase productivity.

Conservation/Recreation Costs and Trends

This plan would adversely affect recreation use by decreasing the quality and value of a recreation activity day and leveling-off or decreasing recreation use.

Energy Impacts

This plan would reduce the cost of oil and gas extraction, if development became feasible, and make oil and gas more readily available to the Nation.

Economic and Regional Development Impacts

This plan would improve the area's economy by providing jobs, more stable employment, and increased income to residents. The local tax base would be unaffected but land values and returns to the counties would increase.

Social Impacts

If selected, this plan would have adverse social impacts. These would include the loss of recreational opportunities and conflicts between private home owners, recreationists, timber companies, and government agencies.

Positive social impacts of this plan would include improved living standards for local residents employed in timber and mineral based industries. Approximately \$13.3 million in the form of spendable business and personal income and employment would be added to the regional economy annually.

Archaeologic and historic values would receive less protection.

ENVIRONMENTAL QUALITY RIVER PLANS

Protection of the Manistee River systems values may be accomplished either through federal or state river designation of scenic and recreation river segments. Both State and Federal designation of the river can produce similar results.

There are many options for river management and protection. These vary with the degree of accommodation given to conflicting uses, and the extent of environmental protection. Although formulated to satisfy the environmental quality objective, each plan has economic benefits. Three feasible alternatives with various classification options are evaluated and discussed.

STATE NATURAL RIVER PLAN (State Designation)

ALTERNATIVE 4

Michigan State Act 231, 1970 9/, authorizes the State to establish a system of wild, scenic and recreational rivers. This plan would be based on designation of the Manistee River as part of the State system.

Adoption of this plan depends on local public support and initiative. The plan would involve Federal, State, and local agencies, with administrative responsibilities held by State and local governments. Local zoning ordinances and State of Michigan regulations would provide for protection of the river and its related resources.

Ordinances or rules effective under this plan would limit or prohibit placement of structures or designate their location in relation to the water's edge. They could limit the subdivision of land. Location and design of highways, roads, and utility lines could be controlled and a limit set on the cutting of vegetation within 100 feet of the river. The State would not have authority to manage lands beyond 400 feet of the river.

Land ownership patterns would remain largely unchanged as Federal, State, and private land exchanges proceeded under existing policies.

9/ Appendix B-28.

Environmental and Land Use Impacts

This plan offers less statutory protection of the Manistee and Pine Rivers than either Wild and Scenic River Plans A or B. However, adoption of this plan would extend a lower level of protection to tributaries and river segments not normally protected under Federal designation thus extending protection over a greater river length.

This plan and enforcement of existing State and local regulations would assure water quality protection comparable to other plans. Scenic qualities would be protected and maintained.

Adoption of this plan would not avoid conflicts between recreation interests, river users and the owners of many private holdings scattered along the river.

Conservation/Recreation Costs and Trends

This plan would require no transactions of land from private to public or acquisition of rights. Development of additional facilities would occur as needed under a management plan developed for this alternative. Recreation use would remain unaffected by this plan and be comparable to use in the No Action Plan.

Social Impacts

Pending the establishment of use rules, user conflicts might increase under the State Natural Rivers Plan. The State Natural rivers plan refers to local zoning and ordinances for control initially. Both of these elements could lead to short term problems. However, the State plan covers the entire river and is not limited to designated segments. If the State has the ability to establish use rules, conflicts between users should be reduced. Both the State and Federal Plans have the potential for maintaining the quality experience on designated segments of the river.

WILD AND SCENIC RIVER PLAN A (Federal Designation)

ALTERNATIVE 5 (preferred alternative)

Plan Summary Table

<u>Eligible Segments</u>	<u>Proposed for Federal Designation</u>	<u>Proposed Classification</u>
V. Tippy FERC (Project) Boundary to M-55 Bridge (Manistee)	Yes	Recreational
VIIIa. Pine River - Lincoln Bridge to Stronach Pond	Yes	Scenic

This alternative is a modified version of Alternative 5 as presented in the draft proposal. The major differences between this proposal and the draft is the change of classification of Segment V from "scenic" to "recreational;" and the elimination of Segments II, III, and upper portion of Segment VIII from classification.

New development and changes in the amount and type of recreation use have rendered Segment V ineligible for a "scenic" classification. There has been an increase in power boating on this segment and camp/launch facilities have been developed to accommodate this use. Segments II, III, and the upper 21 miles of Segment VIII still meet the technical criteria for inclusion in the Wild and Scenic River System. Public statements received at hearings and in writing show vigorous opposition to this action. These segments fall within the influence sphere of the State of Michigan. This makes this portion of the river a better candidate for control under the State Natural Rivers Act. It is our information that the State considers this river "high priority" for inclusion in the State Natural Rivers System. It appears that the publics would best be served if the state managed the portions of the river outside of the National Forest boundary.

This wild and scenic river plan would protect 51 miles of the river under the Federal Wild and Scenic Rivers Act. Included are 26 miles of the mainstem and 25 miles of the Pine River.

Most of the land within the two corridors (Segments V and VIII) is currently in public ownership. Wild and Scenic River Designation will add to the level of protection that can be given through the purchase of partial interests and the implementation of use rules.

Within these segments, there is enough public land so that fee title acquisition through condemnation would not be accomplished. There is also enough land so that this type of purchase is not necessary. Controls exerted through partial interests and use rules should provide adequate protection.

Environmental and Land Use Impacts

This alternative protects those segments of the river which qualify for inclusion and are within National Forest boundaries. The remainder of the river is recommended for inclusion under the State Natural Rivers Act. The portion of the river above Hodenpyhigh quality fishery. There will be a period of time that this river remains without controls exerted by either state or federal legislation.

Management would allow tree removal and vegetative manipulation to meet visual quality objectives. It would allow for commercial timber operations and for wildlife objectives. Activities would be modified to insure protection of the wild and scenic river values. Land uses and developments would be modified or eliminated within bald eagle nesting territories.

Oil and gas recovery operations would be modified to protect the wild and scenic values. Impacts for potential, incompatible development would be minimized by zoning or partial interest controls. Amount and distribution of recreation use would be controlled where necessary to protect wild and scenic river values.

Conservation/Recreation Costs and Trends

Development of public recreational facilities would provide a "semi-primitive motorized" opportunity 11/ on "scenic" designated segments and a "roaded natural" opportunity 12/ on the "recreational" designated segment. Development and reconstruction would include the reconstruction of access sites, and the construction of fisherman trails and picnic sites for rest stops on the Pine. Costs for this work are detailed on pages 164-166 of this study report.

11 & 12/ See Appendix, page H-4

Total canoe use on the river system would remain unchanged by this alternative. It is now estimated annually at 183,408 activity days. There is a potential for increasing this use on Segments II and III before river use rules are enacted by the Michigan DNR. In the short run there is no adverse effects which will have long lasting significance.

Recreation Activity days on the river corridor will increase on Segment V, II and III. Existing controls on the Pine will limit the use to current levels.

Designation will bring more interest in the river. With this interest, there will surely be an increase in use, and user conflicts. User conflicts tend to degrade the experience sought by the user, but are not necessarily environmentally degrading. The River Use rules which are sought by the Michigan DNR will control the number of craft on the river at any given time, and thus reduce the conflicts with fishermen.

Energy Impacts

There are no identified hydroelectric sites with economic potential on the river segments considered, so this plan would have no impact on that energy source (Reference page 73). It is also expected to have no significant impact on fossil fuel energy sources.

Economic and Regional Development Impacts

Adoption of this plan would result in a slight increase in regional tourism. The primary economic benefit would result from maintaining a high quality river resource that would continue indefinitely to attract tourist interests and dollars to the region.

Social Impacts

The quality and variety of outdoor recreation opportunities available within the plan's boundaries would be protected and enhanced. The cultural and historical resources of the area would be surveyed, protected, and possibly receive some visitor interpretation for public benefit.

WILD AND SCENIC RIVER PLAN B (Federal Designation)

ALTERNATIVE 6

Plan Summary Table

<u>Eligible Segments</u>	<u>Proposed for Federal Designation</u>	<u>Proposed Classification</u>
II. County Road 612 Bridge to County Road 608 (Sharon Bridge)	Yes	Recreational
III. County Road 608 to Hodenpyl FERC Project Boundary (Sherman Bridge)	Yes	Recreational
V. Tippy FERC Project Boundary to M-55 Bridge (Manistee)	Yes	Recreational
VIII. Pine River ~ East-North Branch Intersection to Stronach Pond	Yes	Recreational

This alternative classes the entire eligible length of the river in the least restrictive class, while allowing for some controls on these segments. It includes 188 miles of the Manistee and Pine Rivers, but the Scenic segments would be reclassified as Recreational.

Environmental and Land Use Impacts

Resource protection from mineral extraction and timber production would be the same as that offered under Wild and Scenic River Plan A. This plan allows for new and more intensive private, public, and commercial developments. It would permit heavier recreation use on Segments III and VIII with less emphasis on a quality experience and use distribution. Protection of river values at a lower standard would remain high priority and costs would apply as in Wild and Scenic River Plan A.

Classification of the entire river as "Recreational" would allow more intensive activity than under Wild and Scenic River Plan A with some environmental degradation probable.

Construction/Recreation Costs and Trends

Recreation use and development would increase slightly in Segments III and VIII. By 1990, there would be about 940,000 recreation use days annually, 5,250 less than what would occur without designation. The lower use level would result largely from reducing canoe use on the Pine River as indicated in Wild and Scenic River Plan A. This plan would require 49 more miles of trail and 160 more picnic units than would exist with the "NO Action" plan.

Initial costs associated with this development would be about \$693,900. Annual operation and maintenance costs would be about \$343,200.^{1/} As with Wild and Scenic River Plan A, there would be no relocation costs and no displacement of current owners.

Energy Impacts

As under Wild and Scenic River Plan A, there are no expected energy impacts.

Economic and Regional Development Impacts

More favorable economic impacts could result from a "Recreational" classification for all four segments. These increases would result largely from an increase in recreational use. An additional \$2 million above the figure quoted under Wild and Scenic River Plan A could enter the local economy each year.

Social Impacts

Social impacts under this plan would be similar to those under Wild and Scenic River Plan A. However, allowing more recreation use on the segments previously classed as "Scenic," would be done at the expense of lowering the quality of the experience. User conflicts between landowners, canoeists, and anglers will be greater than under Alternative V.

^{1/} 1980 dollars

Table 11 — Summary and Comparison of Effects of Alternative Plans - 1990

Alternative Plans		1	2	3	4	5	6
<u>Measurement of Effect</u>	<u>Unit</u>	<u>No Action</u>	<u>NED A</u>	<u>NED B</u>	<u>State Natural River</u>	<u>EQ A</u>	<u>EQ B</u>
Preservation of Threatened or Endangered Species	Wildlife Vegetation	None on private land.	None on private land, some disturbance on public land.	None on private land, some disturbance on public land.	None on private land.	Habitat protected.	Habitat protected some disturbance may occur.
Freedom of Choice	Qualitative	Many options reserved.	Options on developed sites are lost.	Options on timber harvest areas are lost.	Many options reserved.	Options for river values preserved, development choices are lost.	Same as EQ A.
Regional Income Generated	\$1,000 (1976 Dollars)	\$13,536	\$16,845	\$13,602	\$13,533	\$13,939	\$14,365
Property Tax Loss to Counties by Public Acquisition	Dollars	None	None	None	None	None expected.	None expected.
Educational, Cultural and Recreational Opportunities	Qualitative	Diversity of recreation is enhanced.	Educational and cultural opportunities may be reduced.	Opportunities lost.	Diversity of recreation is enhanced.	Diversity of recreation opportunities may be lost.	Diversity of recreation opportunities may be lost.
Employment Generated by Activities in the Corridor	Man years.	1,060.2	1,319.8	1,072.1	1,059.8	1,062.3	1,091.2
Free Flowing River Preserved	Miles	None	None	None	None	51	72

Table 11 -- Summary and Comparison of Effects of Alternative Plans - 1990

Alternative Plans		1	2	3	4	5	6
<u>Measurement of Effect</u>	<u>Unit</u>	<u>No Action</u>	<u>NED A</u>	<u>NED B</u>	<u>State Natural River</u>	<u>EQ A</u>	<u>EQ B</u>
Canoeing	AD	262,124	262,124	262,124	262,124	183,408	227,737
Fishing	AD	216,227	216,227	216,227	216,227	216,227	226,217
Hiking	AD	-	17,454	-	-	-	17,454
Camping	AD	262,124	291,001	262,124	262,124	266,505	290,860
Picnicking	AD	186,391	186,391	186,391	186,391	147,033	169,197
Hunting	AD	18,433	18,433	18,433	18,433	18,433	18,433
Camp Units	Number	279	279	279	279	279	279
Picnic Units	Number	20	185	20	20	35	146
Hiking-Walking Trail	Miles	-	49	-	-	--	49
Access Sites (Developed)	Number	33	33	33	33	33	33
Recreation Development Costs	\$1,000	None	542	None	None	157	534
Mineral Production							
Oil-Total Estimated	Barrels	18,000,000	18,000,000	18,000,000	18,000,000	18,000,000	18,000,000
Annual Timber Production	MBF	1,563	412	4,108	1,468	1,062	412
Scenic River Area	Miles	0	0	0	155	25	0
Recreation River Area	Miles	0	0	0	33	26	72
Archaeologic and Historic Values	Sites	None on private land, some degradation may occur on public land.	None on private land, some degradation may occur on public land.	None on private land, degradation may occur on public land.	None on private land, sites protected on public land.	All sites protected.	All sites protected but some degradation may occur.

CHAPTER VI - FINDINGS and RECOMMENDATIONS

WILD AND SCENIC RIVER STUDY MANISTEE RIVER BASIN MICHIGAN

STUDY AREA

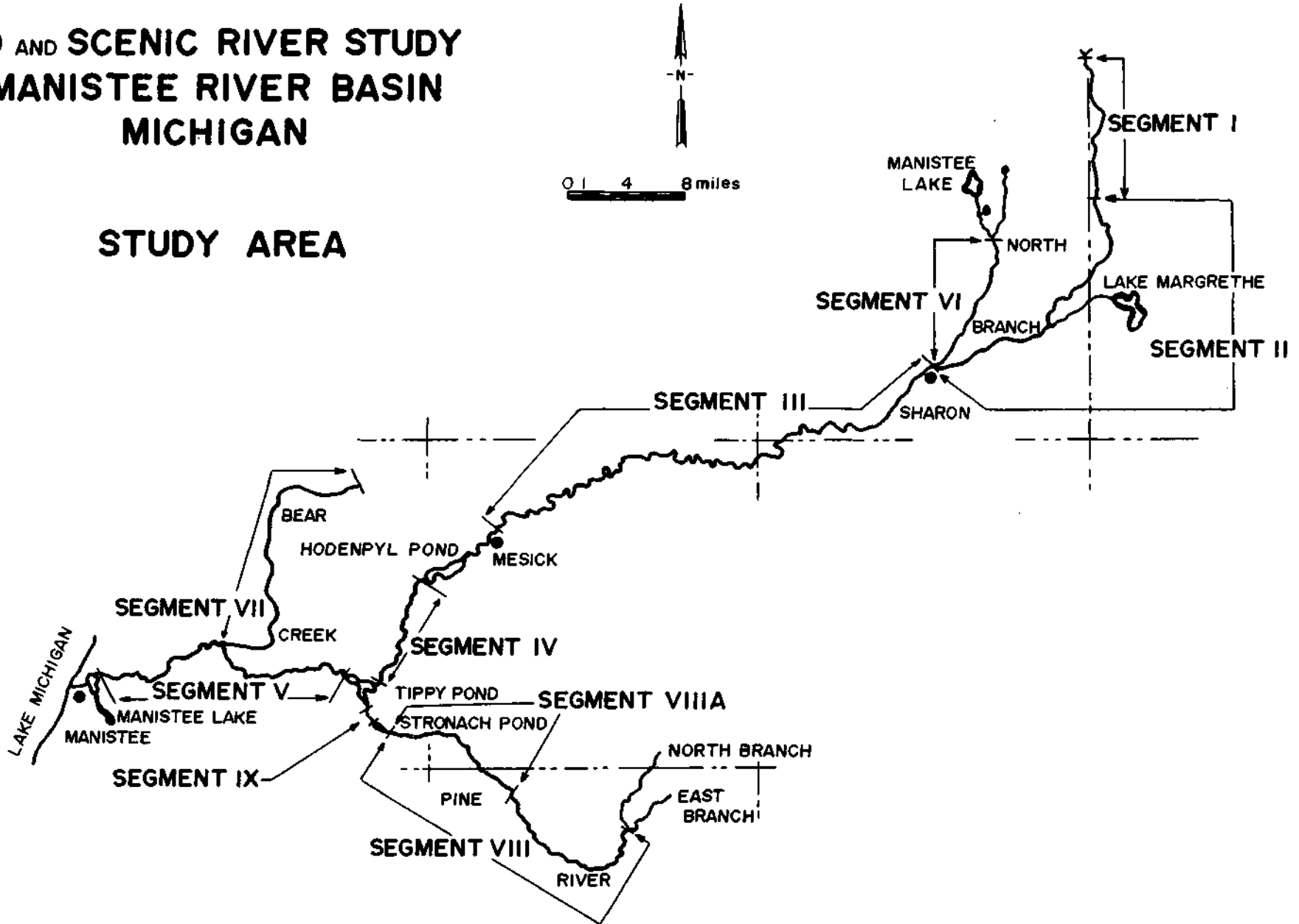


FIGURE 1

M-7

CHAPTER VI

Findings and Recommendations

Findings

The study finds that 51 miles of the Manistee river and its tributary, the Pine river, should be included in the National Wild and Scenic Rivers System. The portions of the river listed as Segments II, III, and the upper 21 miles of Segment VIII, fall outside the National Forest boundary and recommended for inclusion in the State Natural Rivers System. The portion which is being considered for inclusion in the state system is 137 miles in length.

The findings recommend the segments and classifications listed in Alternative 5 (Wild and Scenic River Plan A)

Recommendations

It is recommended that the management of the wild and scenic river be under the U. S. Department of Agriculture - Forest Service in close cooperation with the State of Michigan and local governments.

Management guidelines are a result of the interpretation of the direction given by congress in the Wild and Scenic Rivers Act, plus specific guidelines that were prepared by the Secretaries of Agriculture and Interior (Appendix B). These guides will be used to better identify impacts that would occur if the river were designated; and as guidance for future planning efforts. Should the river be designated, the Forest Service would continue to refine these guidelines and prepare a detailed management plan in cooperation with State and local governments and with public input.

Section 10(a) of the Wild and Scenic Rivers Act provides the direction under which this guide was developed.

The conceptual plan gives separate management direction for recreational and scenic classified river segments. Segments classified recreational tend to allow more development than the more restrictive scenic classification. Therefore, all management direction given for recreational segments also applies to the scenic segments along with the additional guides listed in this section.

The following guides have been developed on the basis of the Recreational and Scenic designated river segments.

"RECREATION RIVER SEGMENT"

1. Recreation

a. Watercraft

Controls on watercraft use would be to reduce user conflict, provide a satisfying recreation experience, and to protect the river values.

Rest areas would be provided at existing access areas and at other appropriate points along major canoe routes when necessary to reduce user conflicts and protect river values.

Existing boat access sites would be maintained and/or improved to accommodate levels of use consistent with the protection of river resources and a high quality recreation experience.

Boating facilities would be redesigned and located where they are not visually evident from the river (See "Retention", Appendix E).

b. Camping

The number of camping facilities will be directly related to the carrying capacity of the river corridor.

Camping would be permitted only at designated camping areas.

Camping areas would be maintained and/or improved so not to be too conspicuous from the river (see "Retention", Appendix E.)

c. Fish and Wildlife

Emphasis would be given to management that protects existing fish and wildlife values. Habitat enhancement measures would be encouraged when necessary for maintenance of existing species.

Fishing, trapping and hunting would continue under existing State laws.

Rare or endangered species would be protected according to approved management plans. Special programs would be instituted as necessary.

d. Picnicking

Picnic facilities could be provided at access points and rest areas.

e. Hiking

Foot trails for anglers and hikers would be provided where needed and would be consistent with fisheries management, streambank protection, and other programs. Access across private land would be avoided where possible.

2. Public Access

Selected vehicle access sites could be improved or relocated. New sites would seldom be constructed, although it is not prohibited to handle apparent problems.

Additional commercial access sites would seldom be permitted.

3. Motor Vehicles and Horses

Motor vehicles and horses would be prohibited inside the river corridor except:

- a. On developed public roads, horse trails, and roads associated with developed facilities;
- b. Where necessary for owner access to private land;
- c. Where facilities of the Shore-to-Shore Foot and Horse Trail are designed specifically for horse use;
- d. In conjunction with resource management and protection activities, and agricultural and emergency use.

4. Vegetation and Timber

Commercial timber harvest will be modified within the river corridor, but will be allowed. Commercial operations will be managed so as to meet wildlife, visual quality, and watershed protection objectives. Emphasis will be given to the protection of aesthetic, scenic, historic archaeological, and scientific features. Commercial timber harvest will often be the method of achieving wildlife habitat goals.

A screen of native vegetation would be maintained between structures and the riverbank wherever possible. Residents would be encouraged to screen existing structures.

Use of pesticides and hazardous chemicals would be prohibited within the river zone except when authorized by the administering agency.

Trees could be removed for safety purposes in developed areas. Trees and vegetative debris on the shoreline and in the water would not be removed without approval of the administering agency.

5. Improvements

New structures would be required to meet the visual quality standard established in the visual management system (see Appendix E).

Private landowners would be encouraged to screen existing structures with natural vegetation and harmonious colors. Natural materials would also be used where possible in construction of recreation facilities, streambank stabilization and other structures.

Erosion control could be accomplished where necessary to correct man-caused or natural erosion.

Owners wishing to have advertising signs, or other structures which are incompatible with the river corridor, would be encouraged to locate them outside of the seen area. Local zoning would be encouraged to handle this possible problem. Scenic easement might become necessary, but should be the last resort.

6. Minerals

Mineral exploration and recovery will be permitted with modifications to maintain the integrity of the river.

7. Utilities

New utility lines would be permitted provided existing routes were utilized or new routes met the visual quality standard and Forest Service standards for underground lines on National Forest lands.

8. Fire

Fire suppression methods including the use of fire could be modified as necessary to minimize ground disturbance and protect river values. Damaged areas would be restored to minimize erosion and visible scars.

9. Water

Water quality monitoring would be continued in cooperation with the State of Michigan.

State of Michigan standards for Total Body Contact Recreation and Cold Water Fisheries will be maintained.

The State of Michigan will continue to enforce regulations on water quality standards, water use, and submerged lands .

Proposals for water and related land use and development projects that would have adverse effects on the river's unique qualities will not be permitted.

10. Visitor Information and Interpretative Programs

Special emphasis would be given to scientific study and interpretation of geological, archaeological, historical, and ecological areas of special significance.

Special emphasis would be given to developing a "river use ethic" among river users to increase their concern for river values, riparian land owners, and other users.

Interpretative programs could be instituted for areas of special significance.

11. Zoning by Local Governments

Almost complete control of the river corridor is held by the National Forest. There is 88% ownership within the proposed section. Local zoning would be encouraged as a supplement to this control.

12. Law Enforcement

Federal Regulations would be enforced on National Forest land within the corridor. This would be done by National Forest personnel. State and local law enforcement or the enforcement in cases of major crimes would be within local jurisdiction. There is a potential of using Sisk Johnson cooperative funding to help the financial burden of the local police departments.

13. User Limitations

Controls on numbers of users may be necessary. These controls could be effected through state water use rules, or through land use rules. The types of controls will be established according to existing conditions to reduce user conflicts and protect the river values.

"SCENIC RIVER SEGMENTS"

The "Recreation River Segment" guides also apply to the "Scenic River Segments" with the following additional guides:

1. Recreation

a. Watercraft

Watercraft use will be limited to a level consistent with the intent of the Wild and Scenic Rivers Act. No absolute numbers, or even ranges of numbers are established, for this number varies with the character of the stream and the type of watercraft use.

Use of motorized craft would be prohibited on the Pine River.

Existing boat access sites would be evaluated to determine future needs and either maintained, improved, removed, or relocated. No new vehicular access sites are anticipated.

b. Camping

Camping use on the Pine River would be maintained at a level commensurate with river corridor capacity. Vehicle access camping areas should be effectively screened from the river.

2. Improvements

New structures would be discouraged within the seen area of the river other than those associated with existing structures and those necessary for public safety and resource protection. Permitted additions would have to meet the visual quality objective for that area.

Construction of new residences and other buildings outside the seen area but within the river corridor would have to meet the visual quality objective for that area.

Underground installation would be required of new oil and gas lines, and powerlines of less than 35KV on National Forest land. It would be recommended on lands of other owners.

Only those signs necessary for (1) direction, (2) visitor interpretation of special interest areas, (3) safety, and (4) regulation of use would be permitted.

Repair, maintenance, and replacement of existing bridges would be permitted where river values are not significantly affected. Consideration of public safety will be paramount.

Boundary

The river corridor boundary for the proposed Manistee Wild and Scenic River is delineated on the maps in Appendix D. The acreage included in the boundary averages approximately 263 acres per river mile. The boundary was drawn to include but not be limited to the "seen area" from the river when there are no leaves on the trees. In formulating a boundary, attention was given to protecting the natural qualities of the river area. In most cases the topographic break or ridge line is the seen area boundary. In areas where private land was involved the boundary was adjusted to follow property lines or legal descriptions. Final boundaries would be established during development of a coordinated management plan.

Land Use Control and Protection

Inclusion of the Manistee River in the National Wild and Scenic River System would require that steps be taken to insure protection of the river and its unique resources.

There are three methods of providing land use control on the river.

1. Local zoning ordinances designed to meet the objectives of this proposal would be desirable. These ordinances in concert with existing county, State, and Federal regulations could meet the need.
2. Where local ordinances do not meet the need, partial interests could be considered. Because of the amount of ownership on the recommended segments, this land would be on a willing seller/willing buyer bases.

3. Fee Title acquisition could be used by the adjacent public landowner. Because of the amount of public land on the recommended segments, this would be on a willing seller/willing buyer basis. Federal fee title acquisition by condemnation is prohibited if 50 percent or more of the entire acreage within a federally administered wild and scenic river area is publicly owned. In the proposed action, 88% of the corridor is in public ownership.

Land acquisition within the river zone could involve some acreage within the 100 year flood plain.

Protection of scenic river values would be accomplished primarily through local zoning. Willing seller/willing buyer acquisition of full or partial interests would be considered only after local efforts had proven ineffective.

Local zoning is not the panacea to solve the management problems of the river. The river management plan which will be developed by the Forest Service will control the use on 88% of the land. This will be supplemented by State Water Use Rules which will be enforced by the DNR. Local zoning will be encouraged where possible for the control of private land. This amounts to only 12% of the land within the corridor and it is not critical to the success of the plan.

In the absence of local zoning and in the case of a very incompatible use, a partial interest can be considered. The need for this type of purchase is considered improbable.

Partial interests would not:

1. Give the public the right to enter private property for any reason.
2. Deny the right of the landowner to use the area for general crop production, livestock farming, gardening, or timber management.
3. Affect any regular use exercised prior to the acquisition of the easement without the owner's consent.
4. Affect the right of landowners to sell their land or the right of their heirs to inherit the land.
5. Affect the rights of the landowners to maintain all existing roads, structures, and buildings, or to replace or rebuild any existing roads, structures, or buildings with similar construction in substantially the same locations.

RECREATION FACILITIES PLAN

This conceptual recreation facility plan is directed at protecting the Manistee River while providing suitable recreational facilities for appropriate use. Facilities will be built only at a level consistent with protection and enhancement of river values. Developments are identified to provide a basis for estimating the cost of development and maintenance should the Manistee River be included in the National Wild and Scenic River System. This plan presents the Forest Service's best judgment as to current recreational development needs; however, it is only a guide for the managing agency. More detailed planning is needed before actual development could take place.

Adequate recreational facilities are currently available in the river corridor for all existing uses except picnicking. Some facilities are over used and require redesigning and new construction to withstand the use and to protect the river values. Most recreation development will be upgrading and replacement of existing facilities.

Recreation facilities in the "Scenic" river corridor would be rustic, and provide mostly for resource protection with some modification of the natural environment. In the "Recreation" corridor, facilities would require some modification of the natural environment and provide about equally for resource protection and user comfort/safety.

Recreation planning will seek to provide maximum privacy for present property owners. Particular attention will be given when planning fisherman access trails and rest areas to avoid nearby private land.

Access

All 51 miles of the Manistee River proposed for designation are accessible by road and foot trail. No expansion of this road system would be planned.

Redesigning and reconstruction of existing access sites would probably be necessary to reduce their impact on river aesthetics, avoid site degradation, and provide for user control. The sites would be designed to withstand acceptable levels of visitor use and provide toilet, parking, and picnic facilities not visible from the river. Site capacity would be based on the level of use planned for the river segment served by each facility.

The development of 12 miles of fishing access-hiking trail at existing access sites (approximately 3 miles per access) would be intended primarily for anglers. The trails would provide for existing unaccountable hiking use and reduce trespass on private land. Their location would be determined by fishing pressure, access need, and ownership. The trails would parallel the shoreline and avoid private land. Easements would be necessary across private land.

Camp Areas

Camping use should be kept at a level consistent with the designation of the river segment. Redesign and reconstruction of some existing sites is necessary to protect the river aesthetics and to reduce the degradation of the site. Sites will be screened from the river as much as possible. Site capacity will be consistent with the classification of the river segment.

Picnic Areas

Developed picnic area management would seek to reduce trespass and indiscriminate use of private land and protect undeveloped areas throughout the river corridor. The feasibility of developing the picnic facilities only at access and camp areas should be considered. There may be a need for rest stops (tables, toilets, and trash cans) at midpoint of some of the heavily used canoe routes.

Five Year Estimated Program Costs 14/

First Year

Development Costs

Recreation Management Planning	20,000
Rehabilitation & Screening of Access Sites (Pine River)	15,000
Construct three Picnic Sites (Pine River)	48,000
Develop Information & Education Plan	5,000
Archeological Survey	3,000

Total Development Costs 91,000

Administration and Maintenance 110,000

First Year Total 201,000

Second Year

Development Costs

Rehabilitation & Screening of Access & Camp Sites (Manistee River)	25,000
Implement Information & Education Plan	5,000

Total Development Costs 30,000

Administration & Maintenance Costs 110,000

Second Year Total 140,000

14/ Development, administration and maintenance cost estimates are based on 1980 dollar values.

Third Year

Development Costs	
Revise and Update Plans	\$ 12,000
Total Development Costs	12,000
Administration & Maintenance Costs	110,000
Third Year Total	132,000

Fourth Year

Development Costs	
Develop 21 Miles of Trails (Fishing Access Trails)	29,000
Total Development Costs	29,000
Administration and Maintenance Costs	110,000
Fourth Year Total	139,000

Fifth Year

Development Costs	
Recreation Management Planning	\$ 10,000
Administration and Maintenance Costs	110,000
Fifth Year Total	\$120,000

APPENDIX A - ENVIRONMENTAL IMPACT STATEMENT

FINAL ENVIRONMENTAL IMPACT STATEMENT

MANISTEE WILD AND SCENIC RIVER PROPOSAL
Crawford, Kalkaska, Missaukee, Wexford, Manistee,
Lake, and Osceola Counties, Michigan

Lead Agency: USDA, Forest Service
421 South Mitchell Street
Cadillac, Michigan 49601

Cooperating Agencies:

Michigan Department of Natural Resources
Mason Building
Lansing, Michigan 48926

USDA, Soil Conservation Service
1405 South Harrison Road
East Lansing, Michigan 48823

USDI, Fish and Wildlife Service
1405 South Harrison Road
East Lansing, Michigan 48823

USDI, Heritage, Conservation and Recreation Service*
Ann Arbor Federal Building
Ann Arbor, Michigan 48104

Great Lakes Basin Commissions
3475 Plymouth Road, P.O. Box 999
Ann Arbor, Michigan 48106

Northwest Michigan Regional Planning Commission
2334 Aero Park Court
Traverse City, Michigan 49684

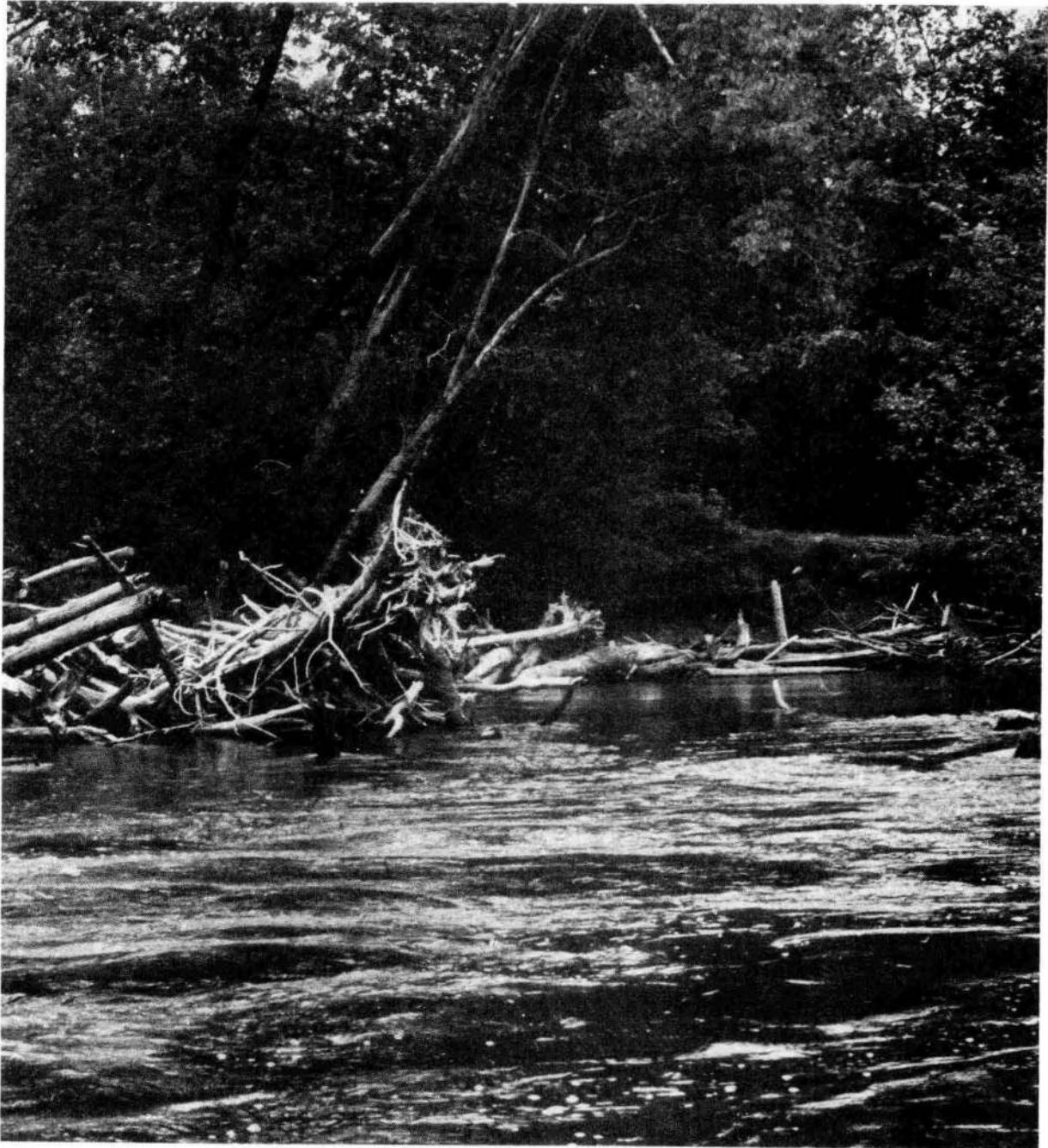
Responsible Official: Max Peterson, Chief
USDA Forest Service

For further information contact: Ronald E. Scott
Planning Staff Officer
Huron-Manistee National
Forest
421 S. Mitchell Street
Cadillac, Michigan 49601
616-775-2421

*This agency cooperated in the preparation of this study report. The agency is no longer in existence.

Abstract:

This final environmental impact statement describes six alternatives regarding management of four Manistee River segments that qualify for inclusion in the National Wild and Scenic Rivers System. The statement discusses the estimated effects of implementing each alternative. A modification of Alternative 5, Wild and Scenic River Plan A, has been identified as the preferred alternative. This alternative will be referred to, for the purpose of this report, as "Modified 5a". The rationale for this identification is shown in the final environmental impact statement.



SUMMARY

Final Environmental Impact Statement

Administrative () Legislative (X)

Responsible Federal Agency: USDA, Forest Service

Responsible Official: Max Peterson, Chief
 USDA, Forest Service
 12th and Independence Avenue
 Washington, D. C. 20013

For information contact: Ronald Scott, Planning Staff Officer
 Huron-Manistee National Forest
 421 South Mitchell Street
 Cadillac, Michigan 49601

Date of Transmission to EPA and the public:

Draft (October 26, 1979)
Final ()

Summary

I. Brief description of action: It is proposed that 51 miles of the Manistee River be considered for addition to the National Wild and Scenic Rivers System. The proposal is to designate the river in the following manner:

<u>Segments of the Manistee River</u>	<u>Classification</u>	<u>Miles</u>
V. Tippy FERC Boundary to M-55 Bridge (Manistee)	Recreational	26
VIII. Pine River - Lincoln Bridge to Stronach Pond	Scenic	25

The recommended river segments are located in Manistee, Lake, and Wexford Counties. Both segments lie predominantly within the Manistee National Forest. Approximately 137 miles of qualified river segments lie outside of the National Forest boundary. These segments are left for inclusion in the State Natural Rivers Act.

II. The following alternatives were considered:

- A. Designate none of the river (No Classification-alternative 1).
- B. Designate none of the river and maximize recreational benefits (NED A-alternative 2).
- C. Designate none of the river and maximize timber and mineral benefits (NED B-alternative 3).
- D. Designate the river as a State Natural River (SNR-alternative 4).
- E. Designate eligible segments as a National Wild and Scenic River and classify as scenic and recreation (Wild and Scenic River A-alternative 5).
- F. Designate all eligible segments as a National Wild and Scenic River and classify as recreation (Wild and Scenic River B-alternative 6).
- G. Preferred Alternative - Modify Alternative 5 Plan A, to include only those segments which fall predominantly within National Forest boundaries.

III. Summary of environmental impacts and adverse environmental effects: The main intent of the action is protection of associated river values for the benefit and enjoyment of present and future generations. These associated river values include the scenery, high water quality, cold water fishery, historic-archeologic sites, recreational opportunities, and plant and wildlife species.

Social and economic factors would also be affected by classifying the river. Canoeing opportunities would be limited to approximately the current controlled level and residential development of the shoreline would be limited. The dollars that would be spent on administration, and development would not be available for use elsewhere.

IV. Distribution of the draft: Distribution of the draft environmental impact statement was made to the following individuals, organizations and agencies. Copies were also made available at libraries in the area as well as at the Huron-Manistee National Forest supervisor and district ranger offices. Notices saying copies are available upon request were placed in newspapers and public offices.

Federal

U.S. Congressmen from Michigan
U.S. Senators from Michigan
Advisory Council on Historic Preservation
Department of Agriculture:
 Agricultural Stabilization and Conservation Service
 Office of Equal Opportunity
 Soil Conservation Service
Department of Commerce:
 Economic Development Administration
 Environmental Affairs
Department of Defense:
 Army Corps of Engineers
Department of Health, Education and Welfare
Department of Interior:
 Bureau of Land Management
 Heritage, Conservation and Recreation Service
 Bureau of Reclamation
 Fish and Wildlife Service
 Geological Survey
 Office of Land Use and Water Planning
 National Park Service
Environmental Protection Agency
Federal Energy Administration
Federal Highway Administration
Federal Power Commission
Great Lakes Basin Commission
National Aeronautics and Space Administration
Water Resources Council

State of Michigan

Governor
Natural Resources Commission
Department of Agriculture
Department of Commerce
Department of Public Health
Department of Management and Budget
Department of Military Affairs
Department of Natural Resources
Department of State Highways and Transportation
Department of State

County and local governments

County Commissioners -
 Crawford, Kalkaska, Missaukee, Wexford, Lake,
 Manistee, and Osceola Counties

City of Frederick	City of Cadillac
City of Manton	City of Manistee
City of Grayling	City of Reed City
City of Mesick	

Organizations

American Rivers Conservation Council
Audubon Society
Au Sable Property Owners Association
Central Michigan University
Ducks Unlimited
East Michigan Tourist Association
East Michigan Environmental Action Council
Friends of the Earth
Frederick Township Committee
Great Lakes Camp and Trail Association
Kalamazoo Nature Center
Industrial Forestry Association
International Snowmobiles Association
Izaak Walton League
McKinley Civic Organization
Michigan Chamber of Commerce
Michigan Congress of River Associations
Michigan Nature Association
Michigan State University
Michigan Trailfinders Club
Michigan United Conservation Clubs
National Wildlife Federation
Northern Environmental Council
Northern Students for a Better Environment
Pine River Association
Ruffed Grouse Society
Society of American Foresters
Sierra Club
The Nature Conservancy
Thunder Bay Environmental Council
Trout Unlimited
Upper Manistee River Association
United Auto Workers
West Michigan Environmental Action Council
West Michigan Tourist Association
Wilderness Society
Wilderness Watch
Wildlife Management Institute

Public involvement was a continuing activity throughout the study and environmental impact statement process. A chronological summary of meeting and other public contacts is found in Appendix L-1.

DESCRIPTION OF PROPOSED ACTION

On October 8, 1968, Congress passed Public Law 90-542, the "Wild and Scenic Rivers Act". The purpose of the act is to protect selected rivers of the Nation in a natural free-flowing condition. Congress declared that the established national policy of dams and other river construction needed a complementary policy that would allow for the preservation of other selected rivers, or sections thereof, in a free-flowing condition.

When Congress amended the act on January 3, 1975, (Public Law 93-621) it named an additional 29 rivers to be studied for possible inclusion into the National Wild and Scenic Rivers System. The Manistee River in central lower Michigan was one of these. This statement determines the impacts of Manistee River designation.

Classification

The proposed action is to include 51 miles of the Manistee River and its corridor into the National Wild and Scenic Rivers System. This proposal is the result of the study authorized by Section 5(a) of the Wild and Scenic Rivers Act. The following segments of the river are eligible for inclusion in the system. It is recommended that Segments II, III and the upper 21 miles of Segment VIII be included under the State Natural Rivers Act, and that Segments V and the lower 25 miles of Segment VIII be included in the Wild and Scenic Rivers Act. The segments below list the highest possible classification for the river segments.

<u>Segments of Manistee River</u>	<u>Classification</u>	<u>Miles</u>
II. County Road 612 Bridge to County Road 608 Bridge (Sharon)	Recreational	33
III. County Road 608 to Hoenpyl FERC Boundary (Sherman Bridge)	Scenic	83
V. Tippy FERC Boundary to M-55 Bridge (Manistee)	Recreational	26
VIII. Pine River - East-North Branch Intersection to Stronach Pond	Scenic	46

Segment V and 29 miles of Segment VIII are within the Manistee National Forest. Seventeen miles of Segment VIII are within the Pere Marquette State Forest. Segments II and III are entirely within State Forest land outside the National Forest proclamation boundary. These segments (II and III) are dropped from further discussion in this summary of the recommended alternative. Further consideration of the reason for this action may be found on page A-31 of this report.

Approximately 13,406 acres of land are included within this Manistee River Proposal. 1,666 acres of this area is within private ownership. Private ownership is characterized by small recreational lots, and some small commercial livery operations.

River Area in Acres

	<u>Public</u>	<u>Private</u>	<u>Consumers Power Co.</u>	<u>Total</u>
V. Tippy FERC Boundary to M-55 Bridge	7,700	1,220	-	8,920
VIIIa. Pine River - Lincoln Bridge to Stronach Pond	4,040	446	-	4,486

Additional information concerning the proposed action is located in the "Summary of Recommendations" section of the study report page vii.

Descriptions of the present environmental, social, and economic situation are found in Chapters II and III of the study report.



ENVIRONMENTAL IMPACTS

The impacts caused by designating the Manistee River a wild and scenic river would be varied. Some activities and uses would be adversely affected, while others would benefit. This environmental impact statement identifies the effects of including segments VIII and V into the Wild and Scenic Rivers System.

Federal lands within the boundary would be managed to meet the objectives of the National Wild and Scenic Rivers System. Management normally associated with national forest lands would meet those objectives.

Control of activities on private land within the boundary would be accomplished through local zoning and/or the purchase of partial interests. Local governments would be encouraged to enact and administer zoning regulations compatible with wild and scenic river objectives. Partial interests would be negotiated where local zoning was ineffective. The landowner would be compensated for any use taken through partial interests; however, those uses existing prior to the acquisition of an interest could not be purchased without the owner's consent. Zoning and partial interests would be implemented to protect those values for which the river was included into the wild and scenic rivers system. (See Land Use Control and Protection -page 143-144)

State lands within the boundary would be managed by the State of Michigan in a manner similar to federal lands. A memorandum of understanding would be negotiated with the Michigan Department of Natural Resources to assure management consistent with wild and scenic river objectives. Water quality in tributaries and headwaters would be effectively protected by local regulations, the Michigan Inland Lakes and Streams Act, Wetlands Act, Soil Erosion and Sedimentation Control Act, and various others state regulations when definitely enforced.

River classification would assure that river values would receive protection and be maintained in their current condition.

Impact on Water

The Wild and Scenic Rivers Act states that water quality should be protected on selected rivers (Sec. 1(b)). Section 13(d) states that the jurisdiction of the State over waters shall be exercised without impairing the purpose of wild and

scenic rivers. In addition the administering agency is directed to cooperate with the State to eliminate or diminish pollution of the river water.

The wetlands and flood plains within the river corridor (segments V and VIII) will be protected by designation. These lands are also protected by the various State Laws which include the Inland Lakes and Streams Act, Flood Plains Act (Act 167 of the Public Acts of 1968 of the State of Michigan), and the Wetland Protection Act. Local ordinances and regulations provides additional protection for water quality and health.

Lands within the boundary of the wild and scenic river would be managed so as to give priority to protecting water quality. Activities having a significant, adverse impact on water quality would be prohibited.

An areawide Water Quality Management Plan completed by the Northwest Michigan Regional Planning Commission and the proposals have similar goals. The proposed action will complement water quality plans by limiting activities which degrade water quality and provide opportunities to review projects and coordinate corrective action with State and local agencies.

Impact on Vegetation

Activities that would destroy particular botanical values of the vegetation would not be allowed. There are no known threatened or endangered plant species within the river corridor. Undue trampling of vegetation by recreationists would be controlled by limiting the number of users and/or restricting use areas.

Manipulation of vegetation would be allowed as a means of maintaining wildlife habitat, providing it could be accomplished without having an adverse visual or physical impact on the land and river.

Impact on Fish and Aquatic Life

The proposed action would place priority on protecting cold water fishery values. Priority would be given to management that protects streamflow and water quality -particularly by maintaining low water temperatures and avoiding pollutants. If stable streamflow and low water temperature is maintained, the fish habitat would be enhanced. Removal of gravel, which adversely affects habitat, would be restricted.

Impact on Wildlife

Wildlife habitat will be managed to maintain and enhance existing species with emphasis given to habitat of threatened and endangered species. Old growth conditions would be pre-dominate. Control of natural and manmade fires that occur within the river corridor would continue. The role of fire in setting back forest succession would be minimal and less habitat would be available to those species that utilize early successional stages. This would benefit those wildlife species dependent upon old growth and/or snags such as the pileated woodpecker, wild turkey, and northern bald eagle. The black bear and bobcat would also benefit if the river was classified as they are dependent on areas offering solitude. Visual Quality Objectives will be modified with the needs of other resources to make the best possible balance of outputs.

The impact of recreation users on wildlife is expected to be particularly significant in the case of ground nesting birds, red-shouldered, coopers and goshawks and the bald eagle. However, harassment of wildlife, particularly threatened and endangered species, would be reduced by limitations on heavy recreation use and additional residential development.

Impact on Scenic Qualities

The proposed action would provide protection to the natural and scenic qualities of the Manistee River by applying the National Forest Visual Management System 16/. The National Forest controls 88% of the land within the existing river corridor in the preferred alternative. Local zoning would be encouraged, but it is not imperative for the maintenance of river values. Partial interests in private property will be sought only in rare instances to solve specific problems. It is probable that no additional scenic esements will be necessary.

Protecting scenic values will enhance recreation values, but will mean a modification in other types of resource management. This should not mean that such activities will not take place. It means that on National Forest land these uses will be modified for scenic values

16/ National Forest Landscape Management, Volume 2, USDA, Agricultural Handbook Number 462.

SOCIO-ECONOMIC IMPACTS

Impact on Landownership and Use

Table A-1.--Landownership Within Proposed
Manistee Wild and Scenic River

<u>County</u>	<u>Acres Within Proposed Boundary</u>	<u>Acres of Private Land Within Proposed Boundary</u>	<u>Approx. No. of Acres in Tax Base</u>	<u>% of Tax Base Which Could be Affected</u>
Wexford	1,960	330	364,800	.1
Manistee	10,060	1,320	363,520	.4
Lake	1,386	9	369,280	--
Total	13,406	1,659	1,097,600	.15

The proposed action would utilize local zoning where feasible, and the acquisition of partial interest for river protection. Neither zoning nor easements remove land from the tax base. Table II shows the acres of private land within the proposed river boundary. If partial interests were acquired, property use would generally remain unchanged, and the value of the tax base would remain unaffected. The proposal does not include anticipated acquisition of private land unless it is offered on a willing seller/willing buyer basis, and it fits with the acquisition plans of the organization. With the interest and protection given to the designated river areas, property values can be expected to remain stable or increase. This will insure stable or increased returns to local governments. Since partial interests and zoning do not affect existing and prior uses, the values of private properties would not decrease and, therefore, have no adverse affect on existing tax returns. Generally, designation protects existing values and enhances many of those qualities river land owners are seeking. Therefore, developed property values may have a higher rate of increase.

The impact of the proposed action and the extent of local zoning and/or scenic easements would depend on landownership within the boundary. Eighty-eight percent of the river corridor is now public land. (See Wild and Scenic River Study Report, Chapter III, J. Landownership and Uses).

When determining the impact of the proposed action on land use, an assumption has to be made that future land use will follow current county zoning. The impact of river classification is the difference that appears between managing lands to meet the wild and scenic river objectives and what would be permitted under normal zoning stipulations.

Present zoning does not adequately meet wild and scenic river objectives. National designation would require local zoning to place greater limitations on future subdivision, building construction, commercial, industrial and mining activity, landscape modifications, vegetative management, archaeological-historical activities, and water craft launches. National designation and existing state regulations would also limit residential development on river flood plains and wetland areas.

Land uses practiced prior to acquisition of partial interests would not be affected without the owner's consent. A description of the limitations is given in the "Summary of Recommendations", and in the "Conceptual River Plan".

Impact on Archaeology

The river corridor lacks a thorough survey of archaeological and historical sites. However, evidence indicates they do exist and have significant value. Unidentified archaeological sites, evidence of early logging and early structures associated with the Manistee River's culture and famous fishery are of particular value.

Wild and scenic river classification would provide additional protection for historical and archaeological sites located within the boundary. Restrictions on development and earth disturbing land management activities on national forest and State Forest lands would reduce potential adverse impacts on cultural resources. This protection would be extended to sites on private lands through local zoning and/or purchase of partial interests. There would be an opportunity to study, preserve, and interpret cultural resources in their natural river setting. Potential indirect adverse impacts on historical and archaeological sites due to recreation use would be identified and mitigated as needed. (Reference State Historical Officer Comments in Appendix K.)

Measures to identify and protect historical-archaeological values would be addressed in the management plan.

Impact on Population, Employment, and Culture

No significant impacts on population distribution within the general area are anticipated. Seasonal and retirement home development could be expected to continue on private land within the "Recreational" segments, although at a lower density than on a non-designated river.

The proposed action should not change the canoe use of the river greatly. The economic benefits derived locally from the use of the river would not change greatly from the current condition.

Classifying the river would help maintain the cultural values associated with it. These values include items such as solitude, outdoor recreation, and the spiritual value of self-sufficiency in a primitive environment.

Land values and subsequent tax receipts from subject properties would remain unchanged with local zoning and the acquisition of partial interests. Although the landowner rights would be partially acquired, the value is viewed as unchanged because in most situations the land use would remain unchanged.

Impact on Agriculture

Agricultural use within the boundary is insignificant and consists largely of small pastures. Classification would tend to retain this existing agricultural use. There are no known prime or unique farmlands within the river corridor.

Impact on Timber Production

The proposed action would allow tree removal and vegetative manipulation to meet visual quality and wildlife objectives while providing for watershed protection. This could be accomplished by commercial timber harvest but protection of river* values is paramount.

The U. S. Forest Service has developed a visual management system. Regardless of designation, implementation of the system would put very similar restraints on timber harvest operations on public land visible from the river.

*River values are those values which cause a river to be considered for designation. That is water quality, scenic values, remoteness, wildlife populations, cover types, etc.

The proposal would not provide additional impacts on timber management volumes beyond those proposed in the Manistee National Forest Visual Management System.

The proposal would not have a significant impact on the timber harvesting on private lands. Small private lands are managed for uses other than timber production.

Impact on Transportation

New road and bridge construction will be limited by designation. However, there is little need for them. Maintenance and replacement of existing bridges would be permitted where river values would not be significantly impacted. Roads for residential development which were not visible from the river would be permitted where they did not adversely affect the river, and were not generally visible from the river. Some existing forest roads could be converted to foot trails and cross county travel by ORV's would not be permitted. This restriction on ORV's is already in force on the Forest.

The location of future transportation routes on National Forest land would be designated to meet the visual quality objectives of each river segment.

Impact on Recreation

Recreation use would be limited to a level consistent with the protection of river values, reducing user conflict, and providing satisfactory recreation experiences. Use would be limited by Special Use Permits, user reservation systems, state water use regulations, and/or facility design. This would be aimed at maintenance of the current canoe use on Segment VIII. Canoe use is limited by a user permit system which is administered by the Forest Service on 25 miles of Segment VIII. The remaining portion of segment VIII currently has no water use rules in effect. Such rules, if imposed, would be handled by the State of Michigan. Efforts would be made to insure consistent administration and eventual total administration under the state water use rules.

Segment V might see an increase in canoe use due to designation.

Existing canoe use regulations for the Pine River were implemented in 1978. Potential river classification had no bearing on the need to limit canoeing on the Pine River. No further reduction is indicated by classifying this segment scenic.

The overall effect of user limitations would be greater protection of river values and higher quality experiences for all river users. Residents, canoeists, anglers, and campers would benefit through less frequent encounters with each other resulting in more enjoyable experiences. Law enforcement and litter problems would be reduced. There would be a decrease in pollutants entering the water, destruction of shoreline vegetation, and harassment of wildlife.

Existing recreation facilities are considered adequate with the possible exception of a need for additional rest stops. Some reconstruction of existing facilities would be necessary.

Additional foot trails (hiking) would be used largely for fisherman access and reduce trespass on private land. New picnic units at existing access points would also prevent indiscriminate use of private land and reduce litter and shoreline deterioration.

Although management of the "Recreational" river area would allow for a higher level of recreation use and development, existing use and development is at or above river capacity. Therefore, some reductions in use and development are anticipated. The overall goal in the "Recreational" river area would be to provide satisfying recreational experiences without significantly degrading other river values.

Impact on Fire Protection

The risk of people-caused fires would decrease as use was transferred to developed sites rather than indiscriminate use of undeveloped areas and private land. Developed sites would provide safe fire conditions and be readily accessible to fire suppression efforts. Fire size could increase because initial attack might be delayed by closure of some forest roads. Fire fighting methods would become more complex outside of developed areas as they would be designed to minimize negative effects on the river and its associated values.

Impact on Soils

Future streambank stabilization needed for improving fish habitat and erosion control would be planned and accomplished to minimize the negative effects on the river's free flowing nature and scenic values.

Reconstruction of existing recreational facilities and limits on recreational use would reduce soil compaction and erosion. Healthier conditions for vegetation in developed areas and maintenance of fish habitat and higher water quality would result.

Impact on Hydroelectric Power Production

There would be no new effects of hydro electric production on the designated segments.

Segment V below Tippy Dam would continue to be affected by fluctuating waterflow from the hydroelectric facility at Tippy Dam. Although river eligibility and classification are not significantly affected by the fluctuating flow, its impact on water quality, fisheries, and aesthetics are recognized and mitigative measures would be considered.

Impact on Minerals

The impact of hydrocarbon extraction cannot be specifically stated at this point because the location and value of potential wells is not known. Refer to the appendix for an approximation of potential value and the increased recovery costs due to classification.

The geophysical exploration would be modified. Most of the land has already had some methods of exploration. More intense surveys would be subject to controls designed to protect the river corridor, and thus increase the cost of gathering that data.

Additional impacts on exploration/production would involve added expenses and administrative difficulties in locating pipelines, obtaining road access, location of drilling rigs and accessory equipment and timing to avoid conflict with other uses. The added planning and cooperation required with other agencies would also increase administrative responsibilities.

Since petroleum activity is new to the area and most existing deposits were located during the past 5 years, productivity, value, and lifespan is uncertain.

Gravel and sand extraction would be permitted within the river corridor only under very limited conditions. This would not be considered a significant problem because of the availability of these substances in other areas.

Impact on Air

No impact on air quality would result from the proposed action.

SUMMARY OF PROBABLE ADVERSE AND UNAVOIDABLE
ENVIRONMENTAL IMPACTS WHICH CANNOT BE AVOIDED

The Wild and Scenic Rivers Act states:

".....certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife historic, cultural, or other similar values, shall be preserved in free flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

Few adverse environmental effects are anticipated for the portion of river recommended for classification. Those that are conceivable are likely to be the result of natural occurrences. For instance, severe erosion could develop on some of the vulnerable, erodible high banks; a forest fire could destroy some scenic value; or, a safety hazard could develop that would affect recreation use. Classification would not preclude people taking action to overcome this type of problem; however, the constraints and restrictions placed on these actions could add complications, and possibly cost.

Adverse environmental effects could occur on portions of this river not recommended for inclusion. These effects would be primarily related to water quality, land use values, and scenic values. The State Natural Rivers Act could provide additional protection. This river is classed as "high priority" for inclusion in the State Natural Rivers System by persons working with the DNR. Local zoning does not provide adequate protection, and there is potential for incompatible uses to increase. Zone changes or variances would be allowed, even if zoning were enacted, so it is worthy of note that the river would be better protected either under the State Natural Rivers Act or the Federal Wild and Scenic Rivers Act. Enforcement of Michigan's Inland Lakes and Streams Act and water quality standards is difficult. Generally, the more development allowed along the river, the greater the potential for water pollution.

Adverse effects on the cold water fishery would also be possible by not classifying upper portions of the river and branches. Water pollution and removal of streamside vegetation could adversely affect water quality and are a direct result of human encroachment.

If the 8 hydroelectric sites, identified by the Federal Energy Regulatory Commission and presently considered unfeasible for development, were later found to have potential, they would be dedicated to public recreation and conservation purposes rather than hydroelectric power production. The 8 sites have a total potential capacity of 80,100 kilowatts. If developed those sites would contribute to the Michigan power system grid - a system open to all bulk power suppliers in the State of Michigan. Adoption of the proposed action would mean that the 80,100 kilowatts of potential energy within the proposal area would be unavailable for development to help meet anticipated demand.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES
AND LONG-TERM PRODUCTIVITY

Designation of the Manistee River as wild and scenic will preserve and protect, for present and future generations, its free flowing qualities, the natural scenic qualities, cold-water fishery, water-based recreation values, archeological and historical values, existing wildlife habitat, and associated botanical communities. Designation would also reduce conflicts between incompatible river uses.

The proposed actions could affect some of the resources along the Manistee River. Potential hydroelectric sites upstream from Hodenpyl would not be impacted by this action. Timber management would be modified along designated segments to maintain the integrity of the river. Therefore, the full potential for timber management would not be realized in the short run. The potential would remain for future management.

IRREVERSIBLE AND IRRETRIEVABLE
COMMITMENT OF RESOURCES

Designation of the river would limit some timber harvest, dam building, and other types of development. Their outputs are not retrieveable, but the committment is reversible. Congressional action could remove or amend the controls placed by this designation.

Irretrievable commitments would be the person days of canoeing that would be lost through limiting use, the loss of wood fiber through mortality, and the opportunities for residential development.

Production of wildlife species utilizing early successional vegetation stages would be limited. Special management efforts could be taken to mitigate this. These actions will be addressed in the management plan.



DESCRIPTION OF ALTERNATIVES

One of the main objectives of this study is to present a broad range of alternatives to the public. As information and data was gathered and compiled during the course of the study, certain alternatives began to appear logical. The alternatives that were developed are a result of river and environmental conditions, concerns and objectives expressed by people through meetings and correspondence, comments from other agencies and requirements established by the Water Resources Council and the National Environmental Policy Act.

Following are the major objectives and concerns that were expressed:

1. Protect the river in its natural condition.
2. Reduce user conflicts between landowners, canoeists, and anglers.
3. Maintain the private land base.
4. Protect and maintain the coldwater fishery.
5. Maintain water quality.
6. Limit canoe use to levels that are consistent with the designation of the streams.
7. Provide law enforcement activities on National Forest land. (This will generally be handled through the local and state law enforcement agencies.)

Six alternatives were developed and each was analyzed to determine the effects of designating the river as a component of the National Wild and Scenic Rivers System. These alternatives were presented to the public for comment and review in the draft environmental statement. Following public review, this final environmental statement was prepared.

The objectives, direction, and impacts of the alternatives are addressed to in the alternative description found in the study report, Chapter V, "Analysis of Alternatives". Additional accounts of each alternative are in the following Table I and Appendix C.

NO ACTION-ALTERNATIVE 1

The "No Action" alternative evaluates feasible growth under current management. It also assumes that current trends in resource use and development would continue and that no new action would be taken as a result of this study. Federal, State, and county level governments and citizen groups would continue to be involved.

Under this alternative none of the Manistee River would be designated as a National Wild and Scenic River.

Rationale for Not Selecting This Alternative

This alternative is not recommended because it provides no assurance of environmental protection for the river and adjacent lands. The possibilities of losing the intrinsic value of a free flowing stream, natural river scenic values, the cold water fishery, and recreation values were the strongest reasons for rejecting this alternative. Conflicts between users would intensify and recreation experience quality would decrease.

NATIONAL ECONOMIC DEVELOPMENT PLAN A AND B-ALTERNATIVE 2 AND 3

The basis of a National Economic Development Plan (NED) is the increased output of goods and services or the increased economic efficiency in the output of goods and services.

Realistically, there is little that State and Federal governments can do to promote rapid or maximum development within the study area. The local economy is based on light manufacturing, recreation, and forest products and is likely to remain so, even under stimulated conditions. Thus, the distinction between a NED plan and the "No Action Plan" is one of degree rather than kind.

In the formulation of alternative plans, it is necessary to arrange component needs that are essentially complementary, i.e., the satisfaction of one component need does not preclude satisfaction of, or add to, the cost of other needs. "NED Plan A" is essentially a plan that generates maximum recreational benefits. "NED Plan B" is a plan that maximizes timber and mineral development and output.

The study team assumed that the satisfaction of timber-mineral needs inhibited, not precluded, the satisfaction of fishing, canoeing, camping, picnicking, hunting, and hiking component needs.

Neither plan wholly precludes environmental quality objectives; however, satisfaction of environmental quality is reduced.

Rationale for Not Selecting This Alternative

This alternative is not recommended because the economic objectives it favored would reduce environmental quality. The possibility of losing the value of a freeflowing stream and the relatively low level of protection provided environmental objectives compared with the relatively high cost of obtaining economic objectives were the strongest reasons for rejecting these plans.

STATE NATURAL RIVER PLAN-ALTERNATIVE 4

This plan would be dependent on local public support and initiative. The plan would involve State, Federal, and local agencies with administrative responsibilities held by State and local governments. Zoning ordinances adopted by local governments or rules issued by the State of Michigan would provide the primary means to protecting the river and its related resources. Costs for protecting the river would be borne by State and local governments.

Ordinances or rules put into affect under this plan would limit or prohibit placement of structures or designate their location in relation to the water's edge and could limit the subdivision of lands. Location and design of highways, roads, and utility lines could be controlled. A limit on the cutting of vegetation within 100 feet of the river could also be instituted. The State would not have control over lands beyond 400 feet of the river.

Land ownership patterns would remain largely unchanged. State, Federal, and private land exchanges would proceed under existing policies and remain unaffected by this plan.

Rationale for Not Selecting This Alternative

This alternative is not recommended because optimum protection of the river corridor lands within the National Forest can best be provided by the National Forest System. Much of the land in question is already in National Forest ownership. To designate these segments with primary National Forest ownership under the State Natural Rivers Act would create a problem of jurisdiction. Conversely, it is logical that segments of the river outside of the National Forest boundary should be considered for inclusion in the State Natural Rivers Act.

PREFERRED ALTERNATIVE - WILD AND SCENIC RIVER PLAN A-
ALTERNATIVE 5

This wild and scenic river option would protect 72 miles of river to be classified as:

<u>Eligible Segments</u>	<u>Proposed Classification</u>
V. Tippy FERC Boundary to M-55 Bridge (Manistee)	Recreational
VIIIa. Pine River - Lincoln Bridge to Stronach Bridge	Scenic

This alternative is a modification of Alternative 5, as presented in the draft proposal, in which the classification of Segment V is changed from "Scenic" to "Recreational." Segments II, III, and the upper 21 miles of Segment VIII are outside of the National Forest boundary and they have been deleted. These segments are to be considered for inclusion in the State Natural Rivers Act. This is consistent with the public comments received for these segments of the river which essentially wanted the river in State control. The change in classification on Segment V reflects new conditions and changes in the amount and type of recreation use which qualifies this for a recreational classification.

This alternative offers statutory protection of the Segments V and VIII of the Manistee. It also anticipates inclusion of Segments II, III, and VIIIa (the upper 21 miles of Segment VIII) under the State Natural Rivers Act.

Rationale for Selecting This Alternative

This modified alternative is recommended because it provides good protection of the river values in Segments V and VIII. It also places the responsibility for river protection outside the National Forest boundary with the State. The State legislation is equal to the National Wild and Scenic Rivers Act and will provide good protection.

Under this alternative, protection costs would be shared by the State and the Federal Government.

This alternative will provide administration by the land managing agency adjacent to the segment of the river.

WILD AND SCENIC RIVER PLAN B - ALTERNATIVE-6

This wild and scenic river option would protect 188 miles of river but in a less protective classification than Wild and Scenic River Plan A. The River would be classified as follows:

<u>Eligible Segment</u>	<u>Proposed Classification</u>
II. County Road 612 Bridge to County Road 608 Bridge	Recreational
III. County Road 608 to Hodenpyl FERC Boundary (Sherman Bridge)	Recreational
VI. Tippy FERC Boundary to M-55 Bridge (Manistee)	Recreational
VIII. Pine River - Source to Stronach Pond	Recreational

Rationale for Not Selecting This Alternative

This alternative is not recommended because it allows for more use and development than the integrity of the river can handle.

Recreational classification of Segment VIII would invite even heavier canoe use and would degrade the very value that we would try and protect. The added protection of the preferred alternative is desirable.

The following matrix shows the effects of each alternative upon those specific criteria used in the final analysis and provides a basis for evaluation of the Proposed Action. The standards for their evaluation reflect two overriding concepts: (1) that the purpose of the Wild and Scenic Rivers Act is to preserve those rivers which possess outstanding characteristics of national merit, and (2) that major adverse impacts to local, regional, and national populations should be avoided.

Evaluation of Alternatives with respect to major impacts and contributions to the National Wild and Scenic Rivers System.

Table A-3

Evaluation Criteria	ALTERNATIVES					
	1	2	3	4	Proposed Action 5 Modified	6
Outdoor Recreation - Provides additional supply of public recreation opportunities and provides a high level experience.	No	Yes	No	Partly	Yes	Yes
Wildlife - Provides stable or improved habitat conditions for existing species.	No	No	No	Partly	Yes	Yes
Hydrocarbon Production - Allows removal of future locatable minerals.	Yes	Yes	Yes	Yes	Yes	Yes
Hydroelectric Power - Avoids foreclosing future development opportunities.	Yes	Yes	Yes	Yes	No	No
Scenic Quality - Acts to maintain study area in its present condition.	No	No	No	Partly	Partly	Yes
Fish - Precludes potential for future detriment while permitting enhancement	No	No	No	Partly	Yes	Yes
Cultural Resources - Offers protection of cultural values.	No	No	No	No	Partly	Partly
Land Use Planning - Offers positive program to assist in control of future development along rivers.	No	No	No	Partly	Partly	Partly
Timber Management - Avoids significant reduction in national timber supply.	Yes	Yes	Yes	Yes	Yes	Yes
Regional Income - Avoids significant reduction in regional incomes.	Yes	Yes	Yes	Yes	Yes	Yes
Wild and Scenic Rivers - Includes major portions of eligible rivers in National System.	No	No	No	No	Partly	Yes
Irreversible Commitments - Avoids irreversible or irretrievable commitments of physical or biological resources.	No	No	No	Partly	Yes	Yes
Cost-Benefit - Offers reasonable public benefit from program investment.	Yes	Yes	Yes	Yes	Yes	Yes

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None of the six alternatives successfully meet all of the evaluative criteria. Because it succeeds in including a portion of the eligible rivers in the National Wild and Scenic Rivers System while avoiding most significant impacts to local, regional and national populations, the proposed Action--which was originally presented to the public as Alternative 5--was selected.

TABLE I
ANALYSIS OF ALTERNATIVES

VALUES	NATIONAL ECONOMIC DEVELOPMENT ALTERNATIVES			ENVIRONMENTAL QUALITY ALTERNATIVES		
	NO ACTION	N.E.D. A	N.E.D. B	STATE NATURAL RIVER	PROPOSED ACTION WILD SCENIC RIVER A	WILD SCENIC RIVER B
ALTERNATIVE PLANS	1	2	3	4	5	6
OUTDOOR RECREATION						
CANOEING (Annual Activity Days)	262124	262124	262124	262124	183408	227737
FISHING (Annual Activity Days)	216227	217227	216227	216227	216227	216227
HIKING (Annual Activity Days)	-	17454	-	-	-	17454
CAMPING (Annual Activity Days)	262124	291001	262124	262124	266505	290860
PICNICKING (Annual Activity Days)	186391	186391	186391	186391	147033	169197
HUNTING (Annual Activity Days)	18433	18433	18433	18433	18433	18433
TIMBER PRODUCTION: Average annual yield of timber produced by each alternative from all lands.	1,563 MBF	412 MBF	4,108 MBF	1,468 MBF	1,062 MBF	412 MBF
Recreation						
Present Net Benefits	\$76,631.2	\$77,185.5	\$76,653.6	\$76,653.6	\$71,783.2	\$77,949.4
Present Net Costs	3,126.7	5,404.6	3,126.7	3,126.7	3,694.3	7,563.6
Timber						
Present Net Benefits	548.6	108.5	1,442.0	482.3	326.0	108.5
Present Net Costs	428.0	169.2	1,124.8	502.4	375.9	169.2
Present Net Value (Benefits-Costs)	\$73,625.1	\$71,720.2	\$73,844.1	\$73,506.8	\$68,039.0	\$70,325.1
<p>Note: Benefits and costs occurring over the 50 year planning period are in thousands of 1978 dollars and discounted using a 4% real interest rate. Recreation quality is not reflected in Recreation Present Net Benefits calculations. Therefore, if an alternative reduces use, calculated benefits are reduced.</p>						
<p>FLOOD CONTROL: Flood damage rarely occurs. Although there are existing structures within the flood plain, State and local regulations prohibit new construction within this zone.</p>		<p>There are no structures developed solely for flood control within the river zone and none are anticipated. Residential development will occur within the river zone to the extent allowed by state and local regulations.</p>		<p>Flood control dams could not be constructed on classified portions of the river. Projects on tributary streams would probably be unaffected unless the Wild and Scenic River values are affected.</p>		
<p>HYDROCARBON PRODUCTION: The possibility of 36 wells occurring within the river corridor, was based on the location and occurrence of nearby producing wells.</p>		<p>Oil well drilling would be affected by state regulation.</p>		<p>Not permitted within 300 feet of the river.</p>		<p>Oil well drilling restricted within a Wild and Scenic River boundary. Mitigating measures are required.</p>
	18,000,000 bbls.	18,000,000 bbls.	18,000,000 bbls.	18,000,000 bbls.	18,000,000 bbls.	18,000,000 bbls.
<p>HYDROELECTRIC POWER PRODUCTION: There are no hydropower dams within the proposed boundary. Potential sites inside the boundary are considered unfeasible for development. Two power dams do exist upstream from proposed classified segments.</p>		<p>Option to develop potential sites. Should they become feasible, would remain open to Federal Power Commission.</p>		<p>Option to develop power dams would be foregone.</p>		

VALUES	NO ACTION	N.E.D. ALTERNATIVES		S.N.R.	E Q ALTERNATIVES	
		N.E.D. A	N.E.D. B		W.&S.R. A	W.&S.R. B
ALTERNATIVES	1	2	3	4	5	6
PRESERVATION OF AREAS OF NATURAL BEAUTY:	Natural beauty would be preserved on 6202 acres of public land under multiple use management. An additional 14705 acres is protected by Consumers Power Co. Beauty may be impaired by intensive development on 10790 acres of private land.	Natural beauty would be preserved on 30370 acres of public and Consumers Power land under Multiple Use management. Natural beauty may be impaired on 10790 acres of private land.	Scenic values may be degraded on 41160 acres of public and private land by intensive timber management and petroleum development.	Scenic values protected on 6202 acres of public land and 18894 acres of private land. Private land values would be protected by local zoning.	National Wild & Scenic River designation would preserve beauty on about 13400 acres of public and private land.	National Wild & Scenic River designation would preserve beauty on about 41160 acres of public and private land.
PRESERVATION OF FISH AND WILDLIFE HABITAT: Degradation of water quality and pressures from heavy use represent the greatest threats fish and wildlife.	Habitat may be degraded by heavy use and could be affected by degradation of water quality.	Habitat would be degraded by heavy use and degradation of water quality.	Habitat would be disturbed by timber harvest and mineral activity.	Habitat could be disturbed by heavy use.	Habitat could be disturbed by heavy use.	Habitat would be disturbed by heavy use.
FISHERY: The Manistee has been known for its excellent cold-water fishery - approximately 26 species of fish inhabit the Manistee of which Brown, Brook, Rainbow trout, Steelhead and Pacific salmon have the highest recreational value. The fishery is largely dependent on maintaining high quality water and habitat.	Resident fishery conditions would not change if State Water Quality Standards are met.	May deteriorate from loss of water quality and heavy use.	Water quality may be affected by increased timber harvest and mineral activity.	Same as No Action.	Cold water fishery values would be protected and maintained. Values would be enhanced to the extent water quality and habitat can be improved and acceptable use levels established. Resident fishery values would not change from existing conditions.	
PRESERVATION OF FREE FLOWING STREAM:	None guaranteed.	None.	None.	None.	51 miles	188 miles

VALUES	NO ACTION	N.E.D. ALTERNATIVES		S.N.R.	E Q ALTERNATIVES	
		N.E.D. A	N.E.D. B		W.&S.R. A	W.&S.R. B
ALTERNATIVES	1	2	3	4	5	6
PRESERVATION OF HISTORIC AND CULTURAL RESOURCES	Federal & State laws protect sites - some damage to areas on private land could occur.	Development and Recreation site construction and higher levels of use will cause damage to sites and artifacts.	Timber harvest and mineral activity is likely to damage or destroy sites or artifacts.	Federal & State laws protect sites - some damage to areas on private land could occur.	Federal and State laws protect sites. Increased visits caused by National designation could result in increased damage and vandalism.	
PROTECTION OF ENDANGERED AND THREATENED SPECIES: WILDLIFE	Bald eagles will be protected and Habitat preserved. Harassment could occur from recreation use.	Eagles will be protected and habitat preserved. Harassment will occur from increased recreation use.	Timber harvest and mineral activity would disturb birds and habitat.	Same as No Action.	Same as No Action.	Eagles will be protected and habitat preserved. Harassment will occur from increased recreation use.
VEGETATION	None known.	None known.	None known.	None known.	None known.	None known.
PRESERVATION OF AIR QUALITY	High quality maintained.	High quality maintained.	High quality maintained.	High quality maintained.	High quality maintained.	High quality maintained.
PRESERVATION OF WATER QUALITY: Although some pollution exists, water quality meets, and in most cases exceeds the standards set by the Environmental Protection Agency. The most critical problems are reducing high water temperatures which result from lakes, impoundments, and areas with little shoreline vegetation.	State standards will be met.	State standards met but local degradation could occur.	State standards met but degradation would occur.	State standards will be met.	State standards will be met.	State standards will be met but some local degradation could occur.
EROSION CONTROL: The major portion of bank erosion occurs on the main stem and directly affects water quality and fish habitat. Existing bank stabilization projects are relatively minor and consist of work accomplished largely for fish habitat improvement.	Eroding banks could be stabilized using any feasible method. It is not likely all actively eroding river banks would ever be stabilized.	Erosion could be accelerated. Projects are probable.	No significant stabilization.	Stabilization projects could be carried out if they are done in a manner which would not destroy the free flowing and scenic qualities of the river. Fish habitat improvement structures, rip rapping, and revegetating stabilized banks would be acceptable if accomplished in a reasonable manner.		Priority would be given to projects under these alternatives.
PRESERVATION OF FREEDOM OF CHOICE:	Many options lost.	Options on developed sites lost.	Options on timber harvest are lost.	Some scenic and wildlife options are lost.	Maintain scenic, wildlife and recreation options - some development choices lost.	Maintain scenic and recreation options - some development choices and wildlife options could be lost.

VALUES	NO ACTION	N.E.D. ALTERNATIVES		S.N.R.	E Q ALTERNATIVES	
		N.E.D. A	N.E.D. B		W.&S.R. A	W.&S.R. B
ALTERNATIVES	1	2	3	4	5	6
AVOID IRREVERSIBLE OR IRRETRIEVABLE EFFECTS:	Some loss of scenic, wildlife, and recreation values on private land.	Loss of scenic and wildlife values on developed sites and private land.	Timber harvest and mineral activity would affect scenic recreation and wildlife values.	Some loss of scenic and wildlife options are lost.	None.	None.
LAND USE: Use of land is currently affected by county zoning restrictions and public land management policy. Existing land use is largely recreation residential development on private land and forest resource on public and quasi-public land.	Development will occur on private land to the extent permitted by local zoning. Public & quasi-public land would continue to be managed for forest resources.	Development would increase and land uses would change to the degree necessary to meet NED objectives.		Development would occur to the extent allowed by local zoning and Michigan Natural River Regulations. Public and quasi-public land would conform with those regulations and be managed for forest and recreation resource.		Wild & Scenic River designation would put restrictions on some public and private land uses. Landowners would be compensated for rights taken under Wild & Scenic management of public lands and would be directed toward meeting Wild & Scenic River objectives.
REGIONAL INCOME GENERATED:						
Hydrocarbon Extraction	\$7,380,100	\$7,473,200	\$7,380,100	\$7,380,100	\$7,473,200	\$7,473,200
Forest Products	40,780	10,750	107,220	38,310	10,750	10,750
Services (Recreation & Tourism)	6,115,000	5,004,900	6,115,000	6,115,000	6,455,700	6,882,000
TOTAL	\$13,535,880	\$12,488,850	\$13,602,320	\$13,533,410	\$13,939,650	\$14,365,950
EMPLOYMENT - Man Years						
Hydrocarbon Extraction	266	266	266	266	266	266
Forest Products	7	2	19	7	5	2
Services (Recreation & Tourism)	787	1052	787	787	794	823
TOTAL	1060	1320	1072	1060	1065	1091
EDUCATION, CULTURAL & RECREATIONAL OPPORTUNITIES	Diversity of opportunities are maintained, quality may be lost.	Diversity of opportunities are enhanced, quality will be lost.	Diversity is limited but activities shown above in NED account will provide some opportunity.	Diversity of existing activities will be maintained.	Diversity and amount of recreation activity will be limited but quality of experience would be enhanced. Educational and cultural opportunities enhanced by preservation of archaeological and historic sites.	
ARCHAEOLOGIC & HISTORIC SITES: Potential sites have not been identified and surveyed but their existence is highly probable.	Potential sites on private land would be susceptible to desires of present and future landowners. Known sites on public land would be protected.				Financing to inventory potential sites would be available. Identified sites would be protected.	

VALUES	NO ACTION	N.E.D. ALTERNATIVES		S.N.R.	E Q ALTERNATIVES	
		N.E.D. A	N.E.D. B		W.&S.R. A	W.&S.R. B
ALTERNATIVES	1	2	3	4	5	6
LIFE, HEALTH & SAFETY	-----All plans are neutral for this component.-----					
INCOME DISTRIBUTION: Hydrocarbon Extraction Forest Products Services (Recreation & Tourism)	-----There is insufficient data to assess the income distribution effects of alternative plans.-----					
EMERGENCY PREPAREDNESS	Supplies of limited fuels will be available.	Supplies of limited fuels will be less available due to slightly higher production costs.	-----Supplies of limited fuels will be available.-----			
CONTROL: Government control of private land is basically by county zoning. Public forest lands are managed according to law and policies for multiple use and sustained yield.	Existing county, state & federal laws & regulations would remain in effect.	Existing county, state & federal laws and regulations would remain in effect. Some modification of existing laws and regulations would be necessary to meet objectives in the above NED accounts.	Existing county zoning regulations would be modified to meet higher standards required by the Michigan Natural Rivers Act. Public land management would follow those standards.	Control would be acquired by either local zoning or scenic easements. Local zoning would conform with Wild & Scenic River standards. The United States could place additional controls on private land thru acquisition of scenic easements. The degree of control sought would depend on the river classification. Federal agencies would be given added direction to protect river values on public lands.		
FREEDOM OF TRAVEL	No restrictions on regional transportation system.	No restriction on regional transportation system. Access may be improved.	No restrictions on regional transportation. Access to and across river will be limited.	No restrictions on regional transportation. Access to and across river will be limited.	No restrictions on regional transportation. Moderate limitations on access to and across river.	

VALUES	NO ACTION	N.E.D. ALTERNATIVES		S.N.R.	E Q ALTERNATIVES	
		N.E.D. A	N.E.D. B		W.&S.R. A	W.&S.R. B
ALTERNATIVES	1	2	3	4	5	6
TAX BASE: Much of Lake, Wexford, and Manistee Counties are presently in federal and other public ownership. Federal lands are not taxable, however, payments in lieu of taxes are made to the counties for those federal lands. Counties are reimbursed for state land by an amount equal to taxes formerly paid on that land.	Tax base would not be affected.	Tax base would not be affected.	Tax base would not be affected.	Tax base would not be affected. Value of private land may increase as protection offered by this plan make those river values more scarce and desirable.	Tax base would be reduced through purchase of partial interests on river property. Partial interests do not remove property from tax sales but may restrict development of land to less than its "highest and best use." Land-owners would be compensated for rights taken under Wild and Scenic River to that of land along other rivers.	
RECREATION:	Recreation use would increase gradually with population but may level off as many river areas reach their capacity. Conflicts will increase and public access in private land areas would likely decrease. Fishing use could decrease as canoeists increase and access decreases. No additional facilities or improvement would be assured.	A full range of recreation development could occur and use would increase dramatically providing people were willing to accept lower quality experience.	Same as No Action but experience level may decrease from visual impact of timber harvest and hydrocarbon extraction.	Same as No Action. Interest and river use may increase from Michigan Natural River designation.	National designation would increase demand and use on the Manistee without user limitations. User limitations would protect river values and user experiences and reduce conflicts. River development would consist largely of improving existing development. Additional picnic facilities would be provided.	
CIVIL RIGHTS:	The implementation of any of these alternatives will not significantly affect the employment of the handicapped, low income employment, civil rights, or any of the associated programs. It is possible that there will be some small business opportunities which may directly affect the minority small businessmen under the economic development proposals. However, because of the small size of the projects and the location of the current minority populations, this will not be significant.					

V. Consultation With Others: An aggressive program was initiated to provide all individuals, organized groups, private businesses and governmental agencies with (1) the opportunity to learn about the Manistee River study; and (2) the opportunity to participate in the study process by communicating with the lead agency - USDA, Forest Service.

The general public was informed of the study by several different means. The public throughout the State and Midwest was invited in 1976, through 600 individual mailings and the news media to comment on river issues. In 1977, approximately 350 individuals, organizations, and news media in the same general area were contacted and asked to evaluate river sections and assist in determining eligibility. Approximately 400 individuals, organizations, and all river land owners were notified in 1978, that the draft report/EIS would be available upon requests. Approximately 400 respondents requested copies of the draft report.

News features totaling over ten minutes of air time were broadcast over regional television stations. Although no estimate of radio time is available, it surely equaled television coverage. Members of the study team met with organizations at 80 different times and various locations to discuss the study. Numerous personal contacts were also made on a one-to-one basis.

Copies of the Draft Environmental Impact Statement on this proposal were transmitted to the Environmental Protection Agency on October 26, 1979. At that time, copies of the statement and study report were also distributed to over 50 Federal, State and local government agencies, 60 businesses, and organizations and approximately 600 landowners and individuals which had expressed interest in the study. Brochures summarizing the proposal were printed and given public distribution. Comments were accepted on the proposal until February 10, 1980.

The public was given two different methods of responding to the proposal. Four public hearings were held to accept verbal testimony and written responses were accepted until February 10, 1980. A transcript of the hearings was made and is available in the office of the responsible official, hearings were held in Grand Rapids, Michigan on November 7, 1979; Farmington, Michigan on November 8, 1979; Wellston, Michigan on November 9, 1979, and Kalkaska, Michigan on November 10, 1979. A total of 173 people attended the hearings.

Response to the study was divided into two groups: those favoring protection of the Manistee River and its tributaries

under some form of Wild and Scenic River status and those opposed to any additional protection.

Those opposed to additional protection for the Manistee and its tributaries generally reside in or own land within the proposal area. Approximately 38% of the total individual responses opposed additional protection of the river area. Many opposed designation because they believe it could usurp some of their property rights, reduce the tax base, increase river recreation use and degrade river values, increase vandalism, litter and noise, and reduce property values. Many people also felt the cost of protection was too high and the Federal Government was unable to protect the area. Many riparians also felt existing regulations provided adequate river protection. Additional federal intervention was strongly opposed. Approximately 62% of the individuals indicated a favorable response to the proposal.

Those favoring federal designation generally live outside the river area. They indicated designation would protect wildlife, historic, water quality, and unique river values, and protection from overdevelopment would be assured. Greater protection from heavy recreation use and reduction of user conflicts would also be obtained through designation. Many supporters felt protection was necessary to protect the resource for future generations and provide protection from mineral development impacts. Designation of the Manistee River headwaters was considered necessary to protect water quality and protect from mineral development.

Generally, landowners and local governments within the study area were most opposed to designation. Most responses from governmental agencies, environmental groups and individuals outside the study area favored designation.

There were 116 written responses to the study/draft environmental impact statement, 48 oral statements at the public hearings, and 27 form letters. Many of the comments were addressed solely to the study proposal and did deal with the draft statement. Several comments were addressed to the study report and provided new or more accurate data; these were incorporated into the final study report. A summary of the response and agency comment is given to the following:

National Elected Officials

<u>Response Code Number and Name</u>	<u>Subject Number</u>
1 Congressman Bob Davis	6,7,9,10,13
<u>Federal Agencies</u>	
2 U.S. Environmental Protection Agency	
3 U.S. Department of Commerce	21
40 Department of the Army	
116 Federal Energy Regulatory Commission	
174 Department of Energy	26,21
175 Department of Housing & Urban Development	
176 Department of Transportation	
177 Department of Interior	59,26,21
178 Soil Conservation Service	21
179 Rural Electrification Administration	21,26,60
<u>State Agencies</u>	
17 Kalkaska Soil Conservation District	2,3,17
123 Department of Natural Resources	2,21,29,30
<u>Local Governments</u>	
96 Kalkaska County Board of Commissioners	5,9,10,18,39,42
135 City of Reed City	2,11,18,26
149 Manistee Planning Commission	37,53,13,45,54,55
<u>Private Organizations</u>	
4 Detroit Free Press	2,14,15,16,18
67 Northwoods Call	18,26
88 Trout Unlimited	2,14,15,18,35,36
92 Camp Jack Inc.	2,3,14
93 Upper Manistee River Association	2,5,6,7,10,11,13,17,18,26,39,44
27 National Environmental Health Association	27
110 Pine River Association	2,3,7,10,11,13,14,16,17,29,24,27,43
125 Michigan Trail Riders	1,2,14,18
142 Michigan United Conservation Clubs	2,50,14,15,16,18,31,45
148 NeBoShone	2,3,13
150 Spirit of the Woods Sportsman's Club	14,31,56,57
166 Manistee Talbot Association	9
172 Manistee River Association	
173 American Rivers Conservation Council	

Private Individuals

<u>Response Code</u> <u>Number and Name</u>	<u>Subject Number</u>	<u>Response Code</u> <u>Number and Name</u>	<u>Subject Number</u>
7 A. Boettcher	2,24	54 A. Frazer	14,18
8 J. Fleming	10,14	55 D. Hoffman	15,18
9 J. Wilson	2,14,27	56 L. Hale	2,5
10 B. Rowe	15,16	57 L. Tarkowski	
11 B. Boruck		58 G&A Botka	2,5,10,11
12 J. Gramza	15,28	59 E. Waltz	2,5,10,11
13 R. Hallead	2,16,29	60 R. Fder	14
14 J. Kuczynski	14,15,30	61 W. Fern	2,14
15 R. Swidorski	30	62 H. Mrs. Lampley	5,10
16 J. Dury	14,16	63 J&D Kurms	14,16
17 M. Johnson	2,15,30	64 C. Ayotte	
18 P. Merhercotte		65 R. Butts	14
19 C. Baribeau	15,18	66 L. Frymire	2,3,17
20 M. Falks	2,15,30	69 F&S Paiz	5,9,10,13,17
21 T. Swidorski	16		
22 S. Hansen	2,27	71 G. Evarts	5,9,10,13,17
23 D. Switalski	2,15	72 E. Horina	2,14,15,16,32
24 J. Witkowski	29	73 P. Evarts	5,9,10,13,17
25 K. Krause		74 D&E Runck	2,8,11,14,18,33,34
26 R. Schvelke	2,15,16	75 M. Mrs. Kearns	2,17
27 K. Wygmans	2,14,30	76 G. Pomeroy	2
28 N. Sorenson	29	77 H. Evarts	5,9,10,13,17
29 L. Sonecki	14	78 G. Evarts	5,9,10,13,17
30 S. Jados	14	79 L. Prumble	5,9,10,13,17
31 J. Miller	14,15	80 K. Braunschneider	2,10,13
32 S. Wisniski	5	81 E. Evarts	5,9,10,13,17
33 J. Shively	2,15,27	82 E. Weist	1
34 A. Tabaczka	2,15,28,30	83 C&R Doonan	3,5,10,13,17
35 S. Herbert	14	84 J&D Gates	14,16,38
36 A. wilkosz	2,15	85 R. Anthony	14,16
37 J. Karas	14,30	86 E&D Nold	3,19,17
38 M. LaFreniere	14	87 J&K Steinebach	5,9,10,13,17
39 J. Gregoriski	5,14,30	89 M. Goetz	3,5,9,13,17
41 J. Ohagan	5,14,16	90 B. Polcyn	14,37
42 T. Bauman	21,30	91 T. Borgeld	38,2,14
43 S. Yoder	14,15,29	94 A. Marek	2,14,16,40,41
44 L. Beutner	14,29	95 L. Yothers	10,14
45 J. Skipel	14	98 L. Kretowicz	14
46 W. Janich	14	99 B. Kretowicz	2,14,16
47 S. Newman	14	100 G. Klieman	2,14,16
48 L. Edmondson	2	101 G. Adams	2,3,11,13,17,34
49 B. Dursurn	14	102 R. Dale	5,9
50 J. Nafri	14	103 R. Roberts	2,14,15,16,29,27
51 J. Stielsta	26	104 W. Borgeld	2,14,16,29
52 E. Thorniley	14,29,26,44	105 M. Simon	14,16
53 L. Porter	2,14,16,18	106 J. Marek	2,14,16

Private Individuals

<u>Response Code</u> <u>Number and Name</u>	<u>Subject Number</u>	<u>Response Code</u> <u>Number and Name</u>	<u>Subject Number</u>
108 G. Marek	2,11,14,16,50	140 E. Nagle	49
	18,29,27,33,38,	141 E. Parks	26
109 W. Stephenson	2,7,14,18	143 R. Stoetzer	2,11,13,14,26,
111 E. Marek	14,16		34,46
112 M. Barber	14,15,16	144 D. Frederick	2,5,11,13
113 W&R Sorenson	2,6,7,9,10,13	145 E. McDonald	2
114 A. West	2,8,18,44	146 S. Wood	14,15,16
115 D. Paiz	5,9,10,13,17	147 F. Waterman	6
117 G. Evarts	5,9,10,13	151 C. Miltner	14,15,16
118 E. Evarts	5,9,10,13,17	152 R. Buda	4,31
119 P. Evarts		153 D. Marquand	15,47,56
120 E. Weist	1,3,17	154 W. Fischer	6,10,15
121 T. Winquist	2,3,6,9,13,14	155 W. Emery	2,5,7,10,13,17
122 R. Trumley	2,7,9,10,13,14,17	156 E. (Mrs)Donner	2,9.
124 R. Grooters	2,7,8,14,15,16,	157 R. Adams	6,10,14,50
	32,45	158 E. Adams	3,11,17
126 C. Moelling	2,14,15	159 P. (Mrs)Allen	3,5,9,14
127 S. Plaxton	2,14,18	160 J. Bennett	3,7,9,13
128 G. Curtin	2,9,46	161 E. Dailey	3,9,11
129 J. Schott	7,14,47	162 C. (Mrs)Francis	5,9,10
130 H. Pattock	2,4,5	163 D. Geiss	2,6,7,10,11,18,55
131 O. Myers	29,48	164 W. Tufts	
132 R. Tuck	3,5,9,11,13,,17	165 K. Harwood	2,3,9,17
133 R. Weber	14,15	167 R. McCarthy	9
134 M. Reynolds	14	168 B. Nordlunds	
136 D. Lawett	2,14	169 W. Stephenson	2,5,9,10,18
137 P. Kennedy	14,18	170 M. Sachs	
138 G. Eberle	2,8,14,15	171 J. Hagerman	4,58
139 W. Hoehn	14,18		

Complete copies of these responses are located in the office of the Forest Supervisor, Huron-Manistee National Forests, 421 South Mitchell Street, Cadillac, Michigan 49601. Responses from elected officials, interested organizations and governmental agencies were included in Appendix O because they are believed to represent individual interests.

In many cases, a single response would speak to a number of different subjects. Rather than deal with each response as a separate entity, responses were categorized into various subject areas and treated collectively. The treatment of these responses and their effect upon the final environmental impact statement follows.

Subject Number and
Summary of Response

Agency Comments

Subject - Cooperative Management

35. River area should be managed by the DNR under cooperative agreement with the U.S. Forest Service.

Management will be shared with the State of Michigan. The U.S. Forest will manage Segments V and VIII. Segments II and III will be managed under the State Natural Rivers Act. Water Use Rules, when established, will be the province of the Michigan DNR.

36. Michigan DNR should be financed to manage the Manistee as a wild and scenic river for a three year trial period.

Finances for this project on Segments V and VIII will be appropriated to the U. S. Forest Service. The remainder of the river, under the State Natural Rivers Act will be funded through the State.

43. Designation could adversely affect existing cooperative working relationships with landowner groups.

Designation would require better communication and coordination. Improved working relationships could result.

45. Local zoning should be utilized but its effectiveness is questionable.

Agreed, see page 136

Subject - Data Correction

26. Report incorrectly describes water quality conditions in Segments I and VI.

Agreed, text has been corrected accordingly

58. U.S. Corps of Engineers and Michigan DNR responses should be included in final EIS.

Agreed - However Corp. of Engineers did not respond. See Appendix O for DNR response.

26. Data for directional oil drilling costs is inconsistent as it appears on page 135, Appendix A-22-31.

Agreed - Text has been corrected.

Subject Number and
Summary of Response

Agency Comments

Subject - Data Correction

26. Clarify the difference in requiring a maximum of 35,000 volts versus 25,000 volts for underground facilities

Data error-REA has adopted specifications for underground power cables up to 25,000 volts. Likewise, Consumers Power Company of Michigan recognizes 25,000 volts as their technical capability limit.

Subject - Federal Involvement

3. Adequate protection has been provided by past and present owners.

Statement of opinion noted, this is true in many cases. However, there is no assurance these conditions will continue indefinitely.

5. Designation would result in loss of private property rights. Maximum privacy for present property owners should be maintained.

Existing and prior property uses would not be affected without consent of the owner. Future uses of private property could be curtailed by local or state zoning or acquisition of partial interests. The property owner would be paid for property rights granted the Federal Government. See text pages 135 and 136. Noted in chapter VI for future use as facilities are planned.

6. Designation would have an adverse effect on the local tax base.

The tax base would be affected only through fee title acquisition of land and the proposal does not recommend land acquisition unless it is offered on a willing seller - willing buyer basis.

7 & 50. Opposing views were offered concerning U.S. Forest Service ability to effectively manage and protect designated rivers.

Response acknowledged.

Subject Number and
Summary of Response

Agency Comments

Subject - Federal Involvement

9. Federal governments should not interfere with state and local government management of river areas.

Federal involvement would assist and encourage other agencies and provide protection in areas where those agencies have no jurisdiction. P.L. 90-542 (section 13) specifically indicates those state rights and authorities which remain unaffected and within state control. In addition, section 10 encourages cooperation in planning and administration of designated rivers through local zoning ordinances.

17 & 33. Opposing views were offered concerning the adequacy of existing laws and regulations to protect the river area.

Although existing regulations provide adequate protection in many situations, they lack authority in certain other areas, are subject to change and variance, and their enforcement is dependent on local commitment and available funds.

54. Designation is not needed for protection because forest planning required by the National Forest Management Act would provide adequate consideration and protection.

Designation provides special emphasis, funding and a higher level of protection than generally attainable in the forest planning process

57. Designation would enable the Federal Government to limit hunting in designated river areas.

Agreed. P.L. 90-542, Section 13(a) could limit hunting in designated zones for public safety, administration or public use and enjoyment.

Subject Number and
Summary of Response

Agency Comments

Subject - Management Costs

13. Estimated costs for plan operation and acquisition of partial interests appear too high.

Proposed operation and acquisition is in line with Wild and Scenic River objectives. Those costs were based on existing conditions on other similar Wild and Scenic Rivers. The cost/benefit analysis indicates project benefits far exceed the cost. (See page A-29)

24. River management budgets will increase because of the priority given to Wild and Scenic Rivers.

Adequate management budgets have generally followed the interest and commitment expressed by Congress during designation on other similar rivers.

Subject - Wildfire

4. Designation will increase the risk of wildfire.

Actual recreation use on all lands will decrease under the proposed alternative and developed sites easily accessible for fire suppression will be available for picnickers, campers and hikers.

Subject - Land Adjustment

10. Landowner rights are threatened by acquisition of private land - particularly through the use of condemnation.

Condemnation would be used only as a last priority to correct incompatible land uses, protect special interest areas and allow for public facilities. See pages 135-136.

32. Land acquisition should be used where necessary to provide for recreation facilities and river protection.

Agreed - see pages 135-136.

47. Private property values may be increased by wild and scenic river designation.

An increase in property values is possible but difficult to predict. See Appendix A 13 and 15.

Subject Number and
Summary of Response

Agency Comments

Subject - Management

8. Develop recreation facilities where needed for resource protection and public use.

Recreation facilities will be provided where needed to provide resource protection, user convenience and reduce user conflict. See pages 139 and 140.

11. Greater emphasis should be placed on enforcement of new and existing regulations.

The special attention and federal commitment assigned designated rivers increases the level of law enforcement and allows the use of SISK funding for cooperative law enforcement.

Text has been revised accordingly to further emphasize law enforcement.

31. Continue current Multiple Use management in river corridor to include timber harvest and maintenance of wildlife habitat.

Timber harvest would continue where the objective is improvement of wildlife habitat, aesthetics, and watershed protection. Protection of river values would be paramount.

4. River values will be threatened by development of new recreation facilities - particularly for hiking and camping.

Proposed development will provide facilities to a level of use consistent with protecting the natural features of the river. The present recreation plan is conceptual and may vary during final planning and construction. See Chapter VI - Recreation Facilities.

40. Need bank stabilization and erosion control.

Bank stabilization would continue with particular emphasis given to correcting man-caused erosion and erosion affecting fish habitat and water quality.

Subject Number and
Summary of Response

Agency Comments

Subject - Management

41. Introduction of anadromous fish into the Pine River should be restricted by designation.

The introduction of anadromous fish could aggravate environmental and social concerns and conflict with Wild and Scenic River Management. These problems will be coordinated and resolved with the State of Michigan if the need ever occurs.

48. Restrict motorized boat use upstream from Sharon.

This portion of the river is no longer considered in the preferred alternative. Such controls should be considered under the State Natural Rivers Act.

55. Recreation use should be reduced where necessary to protect the river area and reduce user conflicts.

Agreed, see page viii, Chapter VI, and Appendix A 16 and 17.

56. Need to retain forest roads and trails to river edge after designation for fishing access.

Road and trail needs will be considered in a final management plan. Existing access will be continued where access is needed and other river values are not significantly degraded.

59. Assess the prospects that counties involved would be willing to undertake zoning for river protection.

Will vary with individual counties and regulations proposed in final management plan.

Subject Number and
Summary of Response

Agency Comments

Subject - Eligibility

1. Proposed river segments do not meet eligibility criteria. River segments are not "outstandingly remarkable" and lack national significance.

The Forest Service and river study team evaluation indicate the proposed segments do meet the eligibility criteria. See Chapter IV. Public input during 1977 also substantiates this determination.

18. River headwaters (segment I) should be designated to assure protection of water quality, fishery and aesthetics.

Evaluation of headwater areas indicate they could be adequately protected if existing State and local regulations are enforced. Public Law 90-542 directs Federal agencies to withhold assistance to any water resource projects which would adversely impact designated river areas. Headwater areas also do not meet eligibility criteria for national designation - see Chapter IV.

34. Segment II should be reclassified from "Recreational" to "Scenic" because "Scenic" would provide greater protection of river values.

This portion of the stream is left for consideration under the State Natural Rivers Act.

31. Bear Creek (segment VII) should be designated.

Segment VII would not qualify on its own because it lacks outstanding values and represents a rather common stream condition in Michigan.

38. Reclassify the lower portion of the Pine River (segment VIII). The segments remoteness, lack of development, and natural environment qualify it for a "Wild" classification.

Although the lower Pine does exhibit some "wild" characteristics, its short length, roads and several homes do not qualify it for that classification. Administering agencies are obligated to protect and enhance those qualities regardless of classification.

Subject Number and
Summary of Response

Agency Comments

Subject - Eligibility

53. Designate segment IV to assure protection of a unique area for educational and recreational purposes.

Segment IV is not eligible because of its short length, isolation from other segments and the effects of water level fluctuation. However existing public ownership of the segment will assure its availability for those purposes.

44. North Branch (segment VI) should be designated to assure protection of water quality.

Water quality protection can be assured through effective use of existing state and local regulations. The high percentage of public ownership (65%) offers further assurance of water quality protection.

Subject - River Protection

2. River values are degraded by heavy recreation use - particularly canoeing, fishing and ORV riding. Vandalism, litter, noise, damage to vegetation and loss of high quality recreational experiences result from heavy use.

Continuing overuse is considered a major threat to the river environment and protection of river values, through limiting use where necessary is a primary objective of national designation. See Summary of Recommendation, Chapter VI and Appendix A-16.

14. Public response indicates desire to protect and maintain existing river values - including but not limited to:

Noted - may be accomplished through inclusion in Wild and Scenic Rivers System.

- 27. Water quality
- 28. Aesthetic qualities
- 29. Fish and wildlife values

Subject Number and
Summary of Response

Agency Comments

Subject - River Protection

15. Need to protect river area from over development.

Designation would limit new development within the seen area except for that associated with existing development on segments classified as "scenic."

On "recreational" classified segments, administering agencies are not obligated to provide more facilities and allow more people than on a "scenic" river. See Chapter VI.

16. Need to protect recreation opportunities for future generations.

The purpose of the Wild and Scenic Rivers Act is to protect the river and its immediate environment for the benefit and enjoyment of present and future generations. Designation would seek to accomplish that objective.

30. Need to protect river area from impacts of mineral development.

Designation would limit mineral activity within the river corridor. See Appendix A page 132.

Existing state & local regulations when effectively enforced also provide adequate protection.

46. Use of horses, particularly at river crossings and in camp areas, causes user conflicts and damages the river environment.

Use of horses would be limited to those situations specified on page 131. Cooperative agreements would be sought to obtain more effective management of existing horse use facilities.

Subject Number and
Summary of Response

Agency Comments

Subject - Clarification (This section contains explanations to responses and questions from various individuals and organizations)

21. Final EIS should assess potential adverse impacts from land use changes on undesignated upstream segments.

See Appendix A - Summary of Probable Adverse Environmental Effects Which Cannot be Avoided.

21. A final management plan should be developed concurrently with the final EIS.

The present plan is conceptual and has been used to identify impacts from the proposed action and provide direction for future planning. The role of this report and environmental statement is to make a recommendation, assess impacts and identify tradeoffs. It cannot provide a comprehensive management plan until a river has been designated and time and money have been allocated.

21. The 12 month period allowed for local governments to enact zoning ordinances is not reasonable.

Agreed - text has been revised accordingly. See study report pages 135 and 136.

21. Present zoning should be compared with national standards to determine where local zoning is inadequate

Chapter VI gives an indication of controls to be sought through local zoning. Detailed standards and a thorough comparison would be completed during final management planning.

21. The preferred alternative does not develop optimum working relationships with all levels of government.

Numerous contacts developed during study periods will evolve into stronger relationships following designation. The proposal emphasizes cooperative working relationships with other levels of government through cost sharing, shared administration and coordination of activities. See Summary of Recommendation, Chapter VI and Appendix L.

Subject Number and
Summary of Response

Agency Comments

Subject - Clarification

21. Administrative costs for state, local, and federal governments should be specified.

Costs are expressed in general terms and would be broken down through cooperative agreements between the agencies involved. Generally those agencies would bear the cost of administering their normal areas of authority.

21. Trees and logs lying on river bottomlands belong to the riparian owner and their removal must be approved by the landowner.

Agreed - The administering agency would limit removal either through zoning or acquisition of partial interest

21. The compatibility of the proposal with Water Quality Management Plans for the area should be addressed.

Water quality plans and the proposal have similar objectives and complement each other well. See Appendix A-11.

21. There is no indication of which visual quality objectives would be utilized.

An acreage allocation for visual quality objectives is given in Appendix E-7. Site specific visual quality objectives would be determined during final management planning.

21. It is not shown whether carrying capacities relate to physical or psychological parameters and how they are established.

Capacity is a functional local condition interacting in such a way that the affects of man's use fall within acceptable social and physical limits. An accurate determination of capacity will be made during final management planning.

21. Controlling overuse and managing for a quality experience needs stronger presentation as a top priority item for management.

Agreed, text revised accordingly

Subject Number and
Summary of Response

Agency Comments

Subject - Clarification

21. Report should acknowledge that state action to control river use will be necessary under any alternative.

Agreed.

21. Recreation development in NED Plan A and the preferred alternative are very similar.

Major difference is the level of use allowed and experience level provided. NED Plan A would permit heavier use and a lower quality experience at basically the same facilities.

21. Alternative plans should address only actions that can be taken under the authority of P.L. 90-542.

The NED alternatives describe likely futures if the river were not designated and are not intended as alternatives to designation. Their consideration complies with Water Resource Planning Act requirements and offers a basis for comparison.

21. Alternative 6 is not a viable alternative and should be deleted from the report.

Alternatives describe conditions for which river segments qualify and any segment meeting "Scenic" criteria would also meet or exceed "Recreation" classification criteria. There is also no direction indicating a river must be classified at the highest level for which it qualifies.

21. The terms activity day and recreation visitor day should be replaced by the correct term "recreation day."

Agreed - text revised accordingly.

21. Facility use and development should be compatible with classification and resource protection

Agreed.

Subject Number and
Summary of Response

Agency Comments

Subject - Clarification

21. Clarify authority to condemn for easements across private land.

The Wild and Scenic Rivers Act Section 6(b) authorizes condemnation for clearing title and acquiring scenic and other easements which are "reasonably necessary" for providing public access to a river system. See pages 135 and 136.

21. The assumption that more new development would be allowed on a "Recreation" segment than a "Scenic" segment is erroneous.

Secretary's guidelines clearly indicate otherwise.

Subject - Cooperative Agreement

29. The final study report should contain the following:

A memorandum of understanding, similar to that developed for the Pere Marquette Scenic River, will be developed following designation. See Appendix M.

A proposed cooperative agreement between the United States Forest Service and the Michigan Department of Natural Resources which outlines the following:

The state's program must be given the first opportunity to protect the river system.

Federal acquisition must not be employed except if, a) it can be proven that the state program is not meeting scenic river objectives, or b) lands or easements are required to provide facilities to reduce user conflicts or to protect critical

Subject Number and
Summary of Response

Agency Comments

Subject - Cooperative Agreement

environmental areas as identified in the state's management plan.

An agreement that the United States Forest Service will manage their lands adjacent to state designated tributaries commensurate with the state's natural river plan.

Subject - Finance Assistance

30. The final report should include:

See Appendix N.

An analysis of federal assistance available to state and local governments for their roles in management of the scenic river area, and where appropriate, includes a statement of support for such assistance.

Subject - Energy Resources

21. Report does not adequately describe all the impacts that could occur on petroleum exploration/production.

Text revised accordingly - See Appendix A-18.

21. The cumulative impact of potential designation of the Manistee, AuSable and Pere Marquette Rivers on power transmission should be discussed.

There is no known need for additional transmission corridors at this time and use of existing transmission corridors is encouraged. If the need arises, the major impact will be the cost of coordinating and routing those corridors to utilize existing river

Subject Number and
Summary of Response

Agency Comments

Subject - Energy Resources

crossings and accommodate other
land use parameters.

21. The depth of Antrim
shales should be estimated
to indicate whether the
shale could be recovered
by conventional mining.

Agreed - Text revised accordingly -
see page 78.

60. The impact of possible
hydroelectric site losses
must be reassessed with the
awareness of current
existing energy needs.

Agreed - Text revised accordingly -
Appendix A-20 & 21

APPENDIX B - MICHIGAN STATE NATURAL RIVER ACT OF 1970

NATURAL RIVER ACT OF 1970

(Act 231 of 1970)



Reprinted From
The Michigan Compiled Laws

Division of Land Resource Programs
DEPARTMENT OF NATURAL RESOURCES

NATURAL RIVER ACT OF 1970

Act 231, 1970, p. 622; Eff. Apr. 1, 1971.

AN ACT to authorize the establishment of a system of designated wild, scenic and recreational rivers; to prescribe the powers and duties of the natural resources commission with respect thereto; to fund necessary study and comprehensive planning for the establishment of the system; to provide for planning, zoning and cooperation with local units of government; to authorize the protection of designated river frontage by acquisition, lease, easement or other means; to authorize local units of government and the commission to establish zoning districts in which certain uses of rivers and related lands may be encouraged, regulated or prohibited; to provide for limitations on uses of land and their natural resources, and on the platting of land; and to provide that assessing officers shall take cognizance of the effect of zoning on true cash value.

The People of the State of Michigan enact:

281.761 Natural river act; short title.

Sec. 1. This act shall be known and may be cited as the "natural river act of 1970".

HISTORY: New 1970, p. 622, Act 231, Eff. Apr. 1, 1971.

281.762 Natural river act; definitions.

Sec. 2. As used in this act:

(a) "Commission" means the natural resources commission.

(b) "River" means a flowing body of water or a portion or tributary thereof, including streams, creeks or impoundments and small lakes thereon.

(c) "Free flowing" means existing or flowing in natural condition without impoundment, diversion, straightening, riprapping or other modification.

(d) "Person" means an individual, partnership, firm, corporation, association or other entity.

(e) "System" means all of those rivers or portions thereof designated under this act.

(f) "Natural river" means a river which has been designated by the commission for inclusion in the wild, scenic and recreational rivers system.

HISTORY: New 1970, p. 622, Act 231, Eff. Apr. 1, 1971.

281.763 Natural river; designation, purpose; long range plans; publicity; cooperation.

Sec. 3. The commission, in the interest of the people of the state and future generations, may designate a river or portion thereof, as a natural river area for the purpose of preserving and enhancing its values for water conservation, its free flowing condition and its fish, wildlife, boating, scenic, aesthetic, flood plain, ecologic, historic and recreational values and uses. The area shall include adjoining or related lands as appropriate to the purposes of the designation. The commission shall prepare and adopt a long range comprehensive plan for a designated natural river area which shall set forth the purposes of the designation, proposed uses of lands and waters, and management measures designed to accomplish the purposes. State land within the designated area shall be administered and managed in accordance with the plan, and state management of fisheries, streams, waters, wildlife and boating shall take cognizance of the plan. The commission shall publicize and inform private and public landowners or agencies as to the plan and its purposes, so as to encourage their cooperation in the management and use of their land in a manner consistent with the plan, and the pur-

poses of the designation. The commission shall cooperate with federal agencies administering any federal program concerning natural river areas, and with any watershed council established under Act No. 253 of the Public Acts of 1964, being sections 323.301 to 323.320 of the Compiled Laws of 1948, when such cooperation will further the interest of the state.

HISTORY: New 1970, p. 622, Act 231, Eff. Apr. 1, 1971.

281.764 Qualifications for designation; categories of rivers.

Sec. 4. A river qualifying for designation as a natural river area shall possess 1 or more of the natural or outstanding existing values cited in section 3 and shall be permanently managed for the preservation or enhancement of such values. Categories of natural rivers shall be defined and established by the commission, based on the characteristics of the waters and the adjoining lands and their uses, both as existing and as proposed, including such categories as wild, scenic and recreational. The categories shall be specified in the designation and the long range comprehensive plan.

HISTORY: New 1970, p. 623, Act 231, Eff. Apr. 1, 1971.

281.765 Land acquisition; purpose; interest acquired; consent.

Sec. 5. The commission may acquire lands or interests in lands adjacent to a designated natural river for the purpose of maintaining or improving the river and its environment in conformance with the purposes of the designation and the plan. Interests which may be acquired include, but are not limited to, easements designed to provide for preservation and to limit development, without providing public access and use. Lands or interests in lands shall be acquired under this act only with consent of the owner.

HISTORY: New 1970, p. 623, Act 231, Eff. Apr. 1, 1971.

281.766 Federal financial assistance programs; leases; expenditures, purposes.

Sec. 6. (1) The commission may administer federal financial assistance programs for natural river areas.

(2) The commission may enter into a lease or agreement with any person or political subdivision to administer all or part of their lands in a natural river area.

(3) The commission may expend funds for works designed to preserve and enhance the values and uses of a natural river area and for construction, management, maintenance and administration of facilities in a natural river area conforming to the purposes of the designation, when the funds are so appropriated by the legislature.

HISTORY: New 1970, p. 623, Act 231, Eff. Apr. 1, 1971.

281.767 Public hearings; notice.

Sec. 7. Before designating a river as a natural river area, the commission shall conduct public hearings in the county seat of any county in which a portion of the designated natural river area is located. Notices of the hearings shall be advertised at least twice, not less than 30 days before the hearing, in a newspaper having general circulation in each such county and in at least 1 newspaper having general circulation in the state and 1 newspaper published in the Upper Peninsula.

HISTORY: New 1970, p. 623, Act 231, Eff. Apr. 1, 1971.

281.768 Land uses; zoning; local ordinances; state rule.

Sec. 8. After designation of a river or portion of a river as a natural river area and following the preparation of the long range comprehensive plan, the commission may determine that the uses of land along the river, except within the limits of an incorporated municipality, shall be controlled by zoning contributing to accomplishment of

the purposes of this act and the natural river plan. County and township governments are encouraged to establish these zoning controls and such additional controls as may be appropriate, including but not limited to building and subdivision controls. The commission may provide advisory, planning and cooperative assistance in the drafting of ordinances to establish such controls. If the local unit does not, within 1 year after notice from the commission, have in full force and effect a zoning ordinance or interim zoning ordinance established under authority of the acts cited in section 11, the commission, on its own motion, may promulgate a zoning rule in accordance with section 13. A zoning rule may also be promulgated if the commission finds that an adopted or existing zoning ordinance fails to meet adequately guidelines consistent with this act as provided by the commission and transmitted to the local units concerned, does not take full cognizance of the purposes and objectives of this act or is not in accord with the purposes of designation of the river as established by the commission.

HISTORY: New 1970, p. 823, Act 231, Eff. Apr. 1, 1971.

281.769 Zoning ordinance or rule; purpose.

Sec. 9. A zoning ordinance adopted by a local unit of government or a zoning rule promulgated by the commission shall provide for the protection of the river and its related land resources consistent with the preservation and enhancement of their values and the objectives set forth in section 3. The ordinance or rule shall protect the interest of the people of the state as a whole. It shall take cognizance of the characteristics of the land and water concerned, surrounding development and existing uses and provide for conservation of soil, water, stream bed and banks, flood plains and adjoining uplands.

HISTORY: New 1970, p. 824, Act 231, Eff. Apr. 1, 1971.

281.770 Zoning ordinance or rule; districts establishment; powers, distance.

Sec. 10. The ordinance or rule shall establish zoning districts within which such uses of land as for agriculture, forestry, recreation, residence, industry, commerce and additional uses may be encouraged, regulated or prohibited. It may limit or prohibit the placement of structures of any class or designate their location with relation to the water's edge, to property or subdivision lines and to flood flows and may limit the subdivision of lands for platting purposes. It may control the location and design of highways and roads and of public utility transmission and distribution lines except on lands or other interests in real property owned by the utility on January 1, 1971. It may prohibit or limit the cutting of trees or other vegetation but such limits shall not apply for a distance of more than 100 feet from the river's edge. It may specifically prohibit or limit mining and drilling for oil and gas but such limits shall not apply for a distance of more than 300 feet from the river's edge. It may contain other provisions necessary to accomplish the objectives of this act. A zoning rule promulgated by the commission shall not control lands more than 400 feet from the river's edge.

HISTORY: New 1970, p. 824, Act 231, Eff. Apr. 1, 1971.

281.771 Local ordinance; applicable law; construction.

Sec. 11. A local unit of government in establishing a zoning ordinance, in addition to the authority and requirements of this act, shall conform to Act No. 184 of the Public Acts of 1943, as amended, being sections 125.271 to 125.301 of the Compiled Laws of 1948, or Act No. 183 of the Public Acts of 1943, as amended, being sections 125.201 to 125.232 of the Compiled Laws of 1948. Any conflict shall be resolved in favor of the provisions of this act. The powers herein granted shall be liberally construed in favor of the local unit or the commission exercising them, in such manner as to promote the

orderly preservation or enhancement of the values of the rivers and related land resources and their use in accordance with a long range comprehensive general plan to insure the greatest benefit to the state as a whole.

HISTORY: New 1970, p. 624, Act 231, Eff. Apr. 1, 1971.

281.772 Districts; valuation for tax purposes.

Sec. 12. Upon adoption of a zoning ordinance or rule, certified copies of the maps showing districts shall be filed with the local tax assessing officer and the state tax commission. In establishing true cash value of property within the districts zoned, the assessing officer shall take cognizance of the effect of limits on use established by the ordinance or rule.

HISTORY: New 1970, p. 624, Act 231, Eff. Apr. 1, 1971.

281.773 Rules; enforcement; promulgation, existing use.

Sec. 13. (1) The commission shall prescribe such administrative procedures and rules and provide such personnel as it may deem necessary for the enforcement of a zoning ordinance or rule enacted in accordance herewith. A circuit court, upon petition and a showing by the commission that there exists a violation of a rule properly promulgated under this act, shall issue any necessary order to the defendant to correct the violation or to restrain the defendant from further violation of the rule.

(2) A zoning rule of the commission shall be promulgated in accordance with and subject to the provisions of Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Compiled Laws of 1948. The rule shall include procedures for receiving and acting upon applications from local units of government or landowners for change of boundaries or change in permitted uses in accordance with sections 71 to 87 of Act No. 306 of the Public Acts of 1969. An aggrieved party may seek judicial review in accordance with and subject to the provisions of sections 101 to 106 of Act No. 306 of the Public Acts of 1969.

(3) The lawful use of any building or structure and of any land or premise as existing and lawful at the time of enactment of a zoning ordinance or rule or of an amendment thereof may be continued although such use does not conform with the provisions of the ordinance, rule or amendment. The ordinance or rule shall provide for the completion, restoration, reconstruction, extension or substitution of nonconforming uses upon such reasonable terms as may be set forth in the zoning ordinance or rule.

HISTORY: New 1970, p. 624, Act 231, Eff. Apr. 1, 1971.

281.774 National wild and scenic river system; administration.

Sec. 14. Nothing in this act shall preclude a component of the system from becoming a part of the national wild and scenic river system under the federal wild and scenic rivers act, Public Law 90-542, approved October 2, 1968. The commission may enter into written cooperative agreements for joint federal-state administration of rivers which may be designated under Public Law 90-542.

HISTORY: New 1970, p. 625, Act 231, Eff. Apr. 1, 1971.

281.775 Area plans; approval; rules.

Sec. 15. The commission shall approve preliminary and final plans for site or route location, construction or enlargement of utility transmission lines, publicly provided recreation facilities, access sites, highways, roads, bridges or other structures and for publicly developed water management projects, within a designated natural river area, except within the limits of a city or incorporated village. It may require any measure necessary to control damaging erosion or flow alteration during or in conse-

quence of construction. Rules concerning such approvals and requirements shall be promulgated under the provisions of Act No. 306 of the Public Acts of 1969, as amended.

HISTORY: New 1970, p. 625, Act 231, Eff. Apr. 1, 1971.

281.776 Construction of act.

Sec. 16. This act may not be construed to prohibit a reasonable and lawful use of any other natural resource which will benefit the general welfare of the people of this state and which is not inconsistent with the purpose of this act.

HISTORY: New 1970, p. 625, Act 231, Eff. Apr. 1, 1971.

APPENDIX C - PRINCIPLES AND STANDARDS PROCEDURES

APPENDIX C

Principles and Standards Procedures

Introduction

According to the principles and standards, planning for the use and development of the Nation's resources is undertaken to serve two major and equal objectives: national economic development (NED) and environmental quality (EQ). In most cases the objectives can be served by complementary actions; however, occasionally trade offs that allow less than maximum satisfaction of both objectives must be made. Because of these aspects, a number of alternatives must be developed, analyzed, evaluated, and tested. Both objectives are equal in importance and are treated with equal weight in the analysis. Each alternative is measured in terms of satisfaction of the objective for which it was formulated and its effects on the other objective. In addition, the beneficial and adverse effects of each alternative are compared in a system of accounts that includes national economic development, environmental quality, regional development, and social well-being.

Application of WRC Planning Process

Specification of Objectives - The first step in the process is identification of the components of the major objectives. The components must be of concern to the Nation and should be related to the use and management of the resources in the planning setting. They have to be defined so that the type, quantity, and quality of effect are evident. Finally, the components should be those that can be substantially influenced through the management and development of alternatives available to the planners.

National Economic Development Components - The NED objective can be served in two basic ways: (1) increasing economic values by increasing output or production of goods and services, and (2) increasing economic efficiency in the production of goods and services.

The description of the Manistee River basin in Chapter II established that economically, the basin is partly resource oriented. Major goods and services produced in the area are forest products, outdoor recreation, petroleum, retail trade, and manufacturing. Retail trade and manufacturing are interrelated with other goods and services provided.

National economic development can be served by increasing production of any of these components, provided that the share of national demand allocated to the Manistee River exceeds the current or projected production.

The components of NED identified in the Manistee River basin are increased or more efficient:

1. Output of outdoor recreation services and uses.
 - a. canoeing and boating
 - b. fishing
 - c. hiking and walking for pleasure
 - d. camping
 - e. picnicking
 - f. hunting
2. Production of timber.
3. Production of mineral resources.

Environmental Quality Components - the components of EQ identified in the Manistee River basin are:

1. Protect 26 miles of Scenic river characteristics from Lincoln Bridge downstream to Stronach Pond and 26 miles of Recreational characteristics from Tippy FERC Boundary to M-55.
2. Identify and protect archaeological and historical artifacts and sites in the river corridor.
3. Preserve the free flowing stream.
4. Preserve or enhance water quality.
5. Avoid irreversible and irretrievable commitment of resources and maintain options for future Americans on 188 miles of the Manistee River eligible for inclusion in the National Wild and Scenic Rivers System.
6. Preserve and protect habitat of endangered or threatened wildlife or vegetation.

Table 13 is a comparison of demand, supply, and identification of need for the NED components.

Assumptions for Component Need Specification

1. Assumptions derived from demand and supply levels for NED components.

a. Canoeing demand was based on extrapolation of current 1976 usage and projected at 2 percent per year. Canoeing supply exceeds demand on all river segments except the Pine River.

b. Fishing demand was computed from data provided by an independent economic study of the river and projected at 2 percent annually. Supply and catch data are unavailable. However, fishing use could increase disproportionately when compared to supply as anglers are expected to seek quality experiences and be satisfied with lower catches.

c. Hiking and walking demand was extrapolated from the Michigan Recreation Plan and projected at an annual rate of increase of 2 percent. There are no developed hiking trails associated with the river corridor.

d. Camping demand was computed from historic use data and the assumption that anglers and canoeists will require camping opportunities near the river. Supply was determined from the capacity of existing developed sites. Supply exceeds demand because present site development is intended to provide for peak use periods. No additional camping facilities are planned.

e. Picnicking was based on demands of the largest single user group. It was assumed that use levels of that group would remain at capacity for that activity and river segment and that canoeing is the single largest use group.

f. Hunting demand was computed from current use within the river corridor. Supply was derived from Michigan Recreation Plan projections and based on the assumption that hunting participation would continue to rise disproportionately to success rates. Thus, demand would equal supply.

g. The demand for timber was based on its present supply within the river corridor along with future projections using current growth rates. The supply information was derived from inventory and aerial photo data. It is assumed that in the river corridor, the demand for this resource is equal to or greater than supply.

h. Current crude oil supplies are based on production from four existing wells. Projections for future production were based on extrapolation of data from surrounding areas. The occurrence of surrounding wells indicate a potential supply within the river corridor. It was assumed that in the corridor, the demand for this resource is equal to, or greater than, the supply.

i. Natural gas supply and demand assumptions were identical to crude oil.

j. Supply and demand levels for commercial development were unknown but do exist and will probably increase as demand for other resources increases. It was assumed that commercial development in the corridor would serve the needs of other resource users.

k. Supply and demand for residential development were unquantified. Supply was based on current residential land development and its increase, depending on the number of suitable building sites available. The availability of marginal land for development would be affected by local zoning ordinances and centralized waste water treatment systems.

MANISTEE RIVER CORRIDOR

Table C-1.---

Demand, Supply and Need for Components of NED Objectives*

	Units	1976			1980			1990		
		Demand	Supply	Need	Demand	Supply	Need	Demand	Supply	Need
Canoeing	AD	198,729	526,645	-	214,794	526,645	-	262,124	526,645	-
Fishing	AD	163,933	-	-	177,375	-	-	216,227	-	-
Hiking	AD	13,232	-	13,232	14,317	14,317	-	17,454	17,454	-
Camping	AD	198,729	294,812	-	214,794	290,577	-	262,124	290,577	-
Picnicking	AD	141,312	20,200	121,112	152,784	152,784	186,391	186,391	186,391	-
Hunting	AD	15,277	-	-	16,535	-	-	18,433	-	-
Timber	MBM	4,108	4,108	-	4,108	4,108	-	4,108	4,108	-
Petroleum	1,000 barrels	222	222	-	1,997	1,997	-	-	-	-
Commercial Development		Unquantified	Presently Some	Unknown	Unquantified	Presently Some	Unknown	Unquantified	Presently Some	Unknown
Residential Development		Unquantified	Presently Some	Unknown	Unquantified	Presently Some	Unknown	Unquantified	Presently Some	Unknown

*See following pages - Assumptions for Component Need Specification

C-5

Economic Analysis

I. Outdoor Recreation

A. Benefits - Activity Value Calculation. Values for activity days (AD) of the various recreation activities occurring in the corridor were derived from figures used in the 1980 RPA Program report as follows:

1. Canoeing - Derived from RPA figure for dispersed recreation of \$5.50 per recreation visitor day (RVD = 12 hours of activity participation). Average activity day participation time for canoeing = 5.4 hours.^{1/}

$$\text{Canoeing Value/AD} = \frac{5.4 \text{ hours}}{12 \text{ hours}} \times \$5.50 = \$2.48$$

2. Fishing - Figure, from 1980 RPA Program, \$5.25 per activity day for cold water fishing was used.

3. Hiking - Derived in same manner as for canoeing, using 2.9 hours as average AD participation time.

$$\text{Hiking Value/AD} = \frac{2.9 \text{ hours}}{12 \text{ hours}} \times \$5.50 = \$1.32$$

4. Camping - Derived in same manner as for canoeing, using 10.6 hours as average AD participation time.

$$\text{Camping Value/AD} = \frac{10.6 \text{ hours}}{12 \text{ hours}} \times \$5.50 = \$4.84$$

5. Picnicking - Derived in same manner as for canoeing, using 2.4 hours as average AD participation time.

$$\text{Picnicking Value/AD} = \frac{2.4 \text{ hours}}{12 \text{ hours}} \times \$5.50 = \$1.10$$

6. Hunting - Derived from RPA program values for activity days of small and big game hunting as follows:

- a. RPA value/AD small game hunting = \$8.00
RPA value/AD big game hunting = \$10.50

^{1/} Source = Huron-Manistee N.F.'s RIM figures dated 9/23/80

b. Ratio Calculation 1/

$$13.3\text{M RVD small game hunting} \times \frac{12 \text{ hours } 2/}{4.5 \text{ hours}} = 35.51\text{M AD}$$

$$21.5\text{M RVD big game hunting} \times \frac{12 \text{ hours } 2/}{6.6 \text{ hours}} = 39.13\text{M AD}$$

Total 74.64M AD

c. AD Value Calculation

$$\text{Hunting Value/AD} = \frac{(\$8.00 \times 35.51\text{M AD}) + (\$10.50 \times 39.13\text{M AD})}{74.64\text{M AD}} = \$9.31$$

Summary:

<u>Activity</u>	<u>Value per Activity Day</u>
Canoeing	\$2.48
Fishing	\$5.25
Hiking	\$1.32
Camping	\$4.84
Picnicking	\$1.10
Hunting	\$9.31

B. Benefits - Annual Recreation Benefits by Alternative.

An estimate of annual activity days of participation in the various recreational pursuits was made for each alternative. It is assumed that the estimated figure represents the average annual use throughout the 50 year period to be used in the economic analysis formula.

Activity day participation figures are multiplied by the value assigned to each activity, and summed to arrive at a total annual recreational benefit \$ figure, in 1980 dollars.

1/ Use figures from RIM 1981 data for National Forest lands in Manistee County.

2/ Average AD participation time.

Alternative #1 - No Action

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	262,124		\$2.48		\$ 650,068
Fishing	216,227		5.25		1,135,192
Hiking	--		1.32		--
Camping	262,124		4.84		1,268,680
Picnicking	186,391		1.10		205,030
Hunting	18,433		9.31		171,611
			Total		<u>\$3,430,581</u>
			Approx.		\$3,430,000

Alternative #2 - N.E.D. A

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	262,124		\$2.48		\$ 650,068
Fishing	216,227		5.25		1,135,191
Hiking	17,454		1.32		23,039
Camping	291,001		4.84		1,408,445
Picnicking	186,391		1.10		205,030
Hunting	18,433		9.31		171,611
			Total		<u>\$3,593,384</u>
			Approx.		\$3,593,000

Alternative #3 - N.E.D. B

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	262,124		\$2.48		\$ 650,068
Fishing	216,227		5.25		1,135,191
Hiking	--		1.32		--
Camping	262,124		4.84		1,268,680
Picnicking	186,391		1.10		205,030
Hunting	18,433		9.31		171,611
			Total		<u>\$3,430,580</u>
			Approx.		\$3,431,000

Alternative #4 - State Natural River

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	262,124		\$2.48		\$ 650,068
Fishing	216,227		5.25		1,135,191
Hiking	--		1.32		--
Camping	262,124		4.84		1,268,680
Picnicking	186,391		1.10		205,030
Hunting	18,433		9.31		171,611
			Total		\$3,430,580
			Approx.		\$3,431,000

Alternative #5 - W&S Designation (2 segments)

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	183,408		\$2.48		\$ 454,852
Fishing	216,227		5.25		1,135,191
Hiking	--		1.32		--
Camping	266,505		4.84		1,289,884
Picnicking	147,033		1.10		161,736
Hunting	18,433		9.31		171,611
			Total		\$3,213,274
			Approx.		\$3,213,000

Alternative #6 - W&S Designation B (4 segments)

<u>Activity</u>	<u>Estimated Annual Activity Days</u>	X	<u>Activity Day Value</u>	=	<u>Annual Recreational Benefit</u>
Canoeing	227,737		\$2.48		\$ 564,788
Fishing	216,227		5.25		1,135,191
Hiking	17,454		1.32		23,039
Camping	290,860		4.84		1,407,762
Picnicking	169,197		1.10		186,117
Hunting	18,433		9.31		171,611
			Total		\$3,488,508
			Approx.		\$3,489,000

Summary:

<u>Alternative #</u>	<u>Annual Recreational Benefits</u>
1	\$3,430,000
2	3,593,000
3	3,431,000
4	3,431,000
5	3,213,000
6	3,489,000

- C. Recreation Development Costs. The following assumptions are used in the cost/benefit calculations regarding recreational developments associated with each alternative.

Alternative 1 - No Action

No additional recreational developments are associated with this alternative.

Alternative 2 - N.E.D. A

Development costs for additional or improved recreational facilities of \$704,260 (from Draft EIS, updated to 1980 dollars) are assumed to be spread uniformly over the first five years of the program. Annual cost would therefore be \$140,850 during this five year period.

Alternative 3 - N.E.D. B

No additional recreational developments are associated with this alternative.

Alternative 4 - State Natural River

No additional recreational developments are associated with this alternative.

Alternative 5 - W&S Designation (Segments V and VIII)

The proposed schedule of recreational development is outlined on pages 164 through 166 of the study report.

Alternative 6 - W&S Designation (4 segments)

Development costs for additional or improved recreational facilities of \$693,900 (from Draft EIS, updated to 1980) are assumed to be spread uniformly over the first five years of the program. Annual cost would therefore be \$138,780 during this period.

D. Recreation Administration, Operation and Maintenance Costs. An annual cost of \$110,000 was used in the cost/benefit computations for recreation administration, operation, and maintenance of use and facilities within the two segments proposed for designation in Alternative 5. This was computed as follows:

<u>Component</u>	<u>Cost</u>
Admin. O&M, Segment V-Manistee River	\$15,000 ^{1/}
Admin. O&M, Segment VIII-Pine River	<u>40,000</u>
	\$55,000
Overhead 100%	<u>55,000</u>
Total	\$110,000

State O&M costs on the remaining 116 miles of undesignated river in Segments II & III, and on the upper Pine are estimated at \$85,000. State designation as a natural river is assumed.

Total O&M Cost	
Forest Service	\$110,000
State	<u>85,000</u>
	\$195,000

II. Scenic Easement Acquisition

Only one of the six alternatives considered involve a significant amount of acquisition of scenic easements. The following assumptions were used in developing scenic easement cost estimates for Alternative #6:

1. A combination of State Natural River designation, local zoning, existing compatible uses, undevelopable riverfront, and high percentage of public ownership, will greatly reduce the need for scenic easement acquisition in the segments proposed for designation, compared to Draft EIS proposal.
2. Segment V will require no scenic easement acquisition, due to the factors noted above.
3. The upper portion of Segment VIII has an estimate potential need for approximately 400 acres of scenic easement acquisition. This could occur on those tracts where the factors listed in item #1 above did not constrain land uses visible from the river to the degree needed to meet "Scenic" river standards.

^{1/} 1980 dollars

4. Segments II and III have an estimated potential need for approximately 870 acres of scenic easement acquisition, based on the same rationale applied to Segment VII.
5. Scenic easement acquisition costs are estimated at \$750 per acre (1980 costs). These would be incurred through years 6 through 10 of the program. This would allow a five year period at the beginning of the program for State designation and local zoning to occur and for funds to be requested and appropriated through the Federal program budget process.

Total Acres Scenic Easement

Segments II & III	879 acres
Pine, Segment VIII	<u>400 acres</u>
Total	1,270 acres

Cost = \$750/acre x 1270 acres = \$952,500

The acquisition cost would be spread uniformly during years 6 through 10 of the program. The annual cost during this period would be \$952,500 ÷ 5 = \$190,500.

A partial interest administration cost of \$10/acre/year is assumed. For purposes of analysis, this cost is assumed to be incurred annually, starting with program year 6. The annual cost for 1270 acres calculates to \$12,700.

III. Hydrocarbon Production Costs

All alternatives considered have an estimated potential for producing 18,000,000 barrels of oil. Directional drilling could be considered as an added cost of production for those alternatives considering designation of river segments. However, hydrocarbon well drilling is a permitted activity in river corridors designated "scenic" or "recreational," provided adequate mitigating measures are feasible and applied.

Since no alternative considers designation for other than "recreational" or "scenic," and much of the corridor is not visible from the river, it is assumed that drilling within the corridor will be permitted. Mitigating measures in the way of screening, or slight location adjustments, will have minimal effect on the overall cost of productions.

Therefore, since all alternatives are approximately equal from the standpoint of hydrocarbon production, neither the benefits or costs of that activity are entered into the cost/benefit computations for any alternative.

IV. Timber Production

The timber production function within the corridor was entered into the cost/benefit computations, using the following assumptions:

1. Costs and benefits are measured at the stumpage level; i.e. benefits are equal to stumpage dollar received by the landowner, and costs are equal to sale preparation and administration costs incurred by the landowner.
2. As a base level, average Huron-Manistee National Forests figures for FY82 were used for the above costs/benefits:
 - a. Average stumpage = \$20.00/MBF
 - b. Average sale preparation/administration cost = \$14.93, approximately \$15.00/MBF.
3. Costs/benefits were adjusted for various alternatives as follows:
 - a. Alternative 1, No Action - Average costs/benefits used.
 - b. Alternative 2, N.E.D. A - Costs adjusted up on total volume by 50%, to reflect higher sale layout and administration costs associated with extensive adjacent recreation facilities and activities. Benefits are reduced by 25% to reflect added logging cost associated with operating under additional constraints.
 - c. Alternative 3, N.E.D. B - Average costs and benefits were used. This would reflect normal timber operations, with adequate mitigation measures to protect the basic river water quality resource.
 - d. Alternative 4, State Natural River - Costs increased 25% over entire volume, to reflect mitigating measures necessary under State river designation. Benefits reduced by 10% due to higher logger operating costs under those measures.

- e. Alternative 5, W&S Designation Segments V & VIII - Costs increased by 50% on that timber produced in the segments proposed for designation under Federal authority (181/MBF). Benefits reduced by 25% on the same volume. Benefits/costs on remaining volume adjusted as in Alternative 4.
- f. Alternatives 6, W&S Designation A&B - Costs inflated 50% over entire volume for mitigating measures; benefits reduced 25% for same reason.

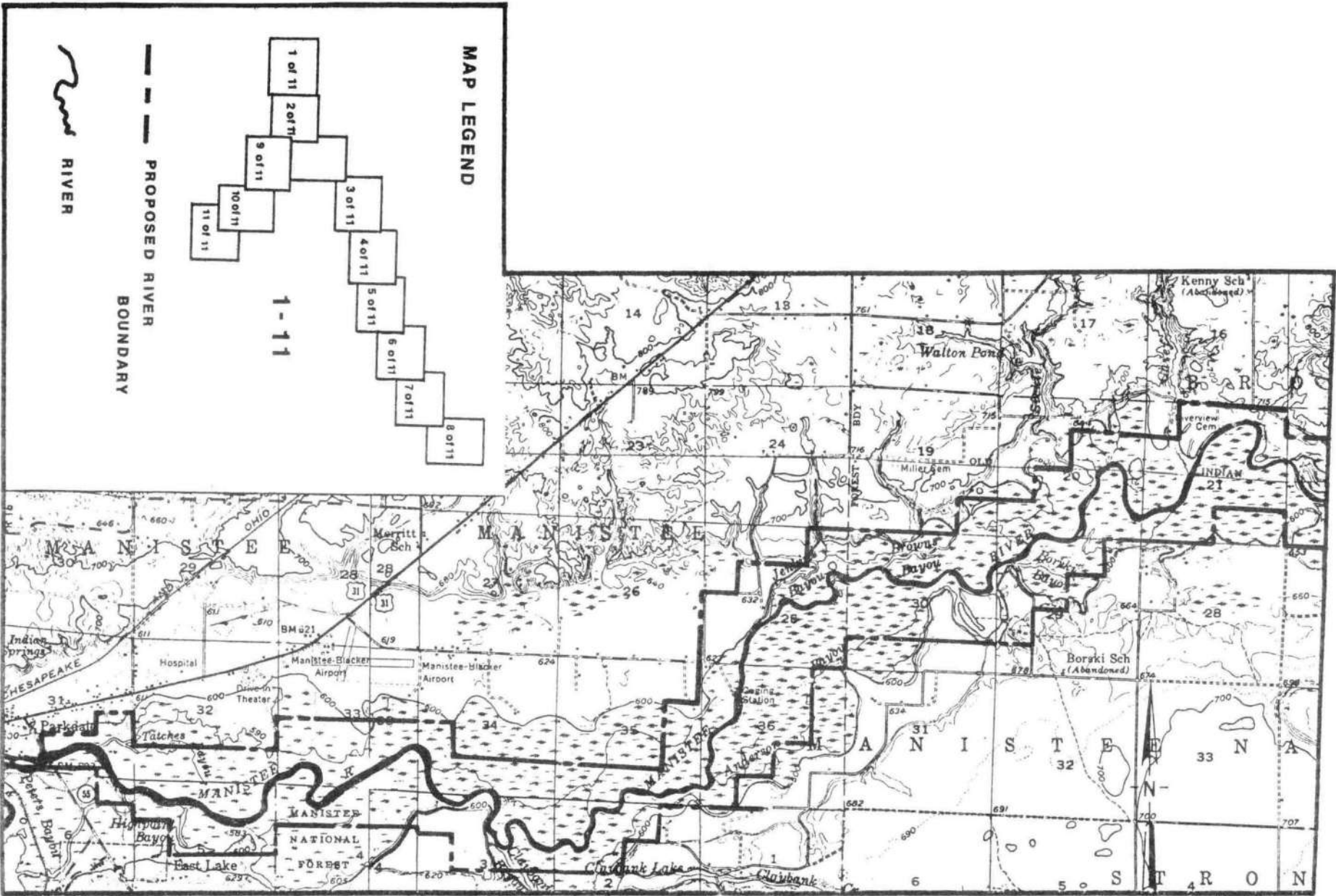
4. Alternative Annual Cost/Benefit Calculations - Timber

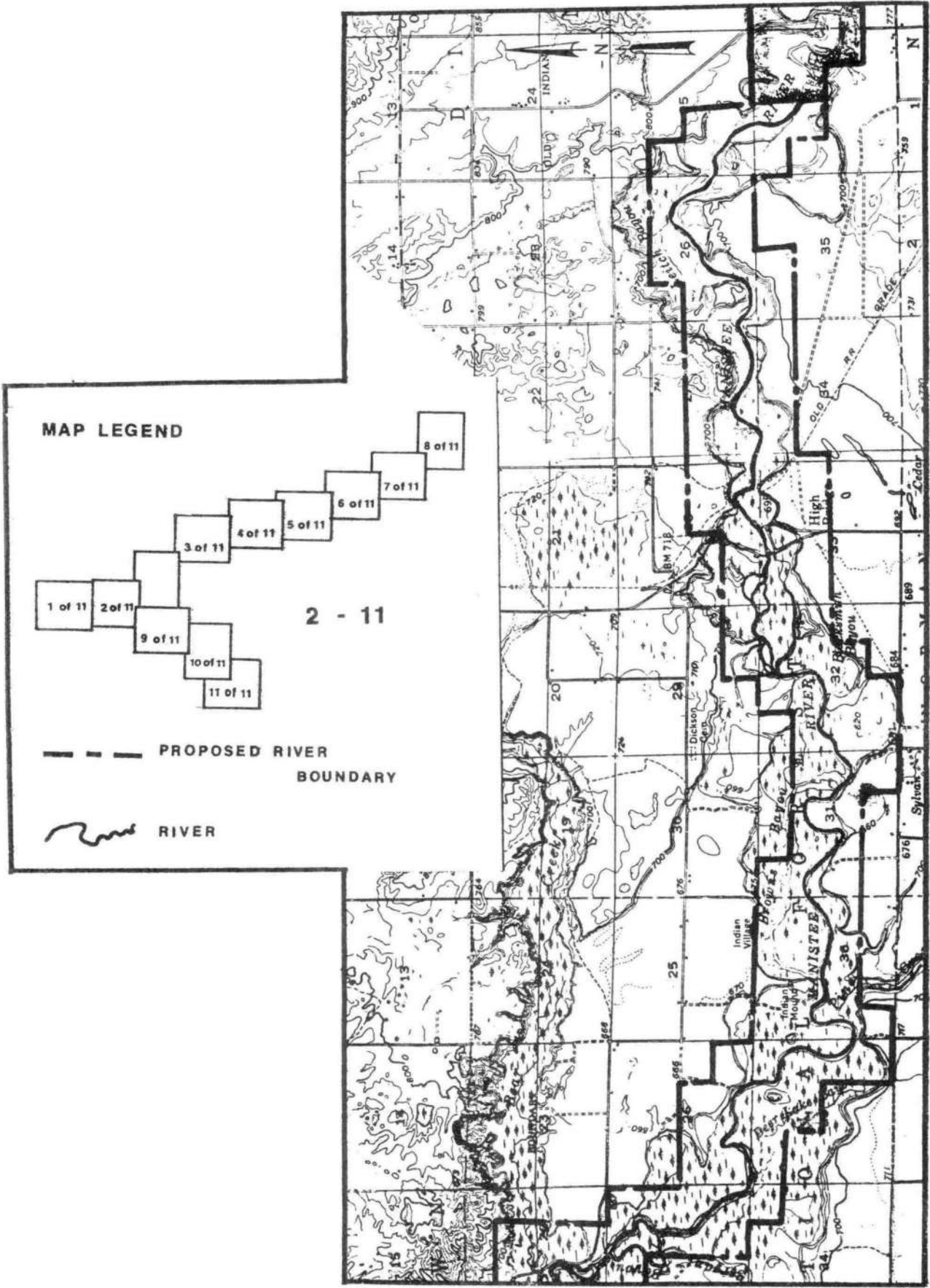
- a. Alternative 1, No Action -
 - Benefits: 1,563 MBF x \$20 = \$31,260
 - Costs: 1,563 MBF x \$15 = \$23,445
- b. Alternative 2, N.E.D. A -
 - Benefits: 412 MBF x \$15 = \$6,180
 - Costs: 412 MBF x \$22.50 = \$9,270
- c. Alternative 3, N.E.D. B -
 - Benefits: 4,108 MBF x \$20 = \$82,160
 - Costs: 4,108 MBF x \$15 = \$61,620
- d. Alternative 4, State Natural River -
 - Benefits: 1,468 MBF x \$18 = \$26,424
 - Costs: 1,468 MBF x \$8.75 = \$27,525
- e. Alternative 5, Wild & Scenic Designation, 2 segments -
 - Benefits: 181 MBF x \$15 = \$ 2,715
 - 881 MBF x \$18 = 15,858
 - Total = \$18,573
 - Costs: 181 MBF x \$22.50 = \$ 4,073
 - 881 MBF x \$18.75 = 16,519
 - Total = \$20,592
- f. Alternative 6, Wild & Scenic Designation, 4 segments -
 - Benefits: 412 MBF x \$15 = \$6,180
 - Costs: 412 MBF x \$22.50 = \$9,270

Table C-2 - Recreation Use and Timber Outputs by Segment and Alternative

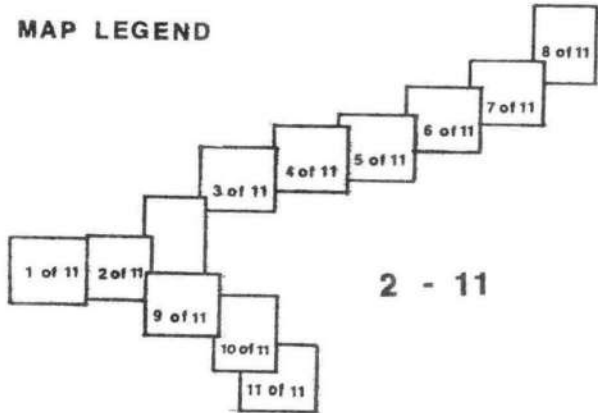
	Canoeing	Fishing	Hiking	Camping	Picnicking	Hunting	Timber
Alt. 1, Seg. II	77,855	35,155	--	77,855	77,855	3,359	285
" III	30,278	88,423	--	30,278	30,278	7,031	596
" V	2,525	41,211	--	2,525	2,525	3,995	339
" VIII	151,466	51,438	--	151,466	75,733	4,048	343
Total	262,124	216,227	0	262,124	186,391	18,433	1,563
Alt. 2, Seg. II	77,855	35,155	3,180	53,166	77,855	3,359	75
" III	30,278	88,423	6,658	110,999	30,278	7,031	157
" V	2,525	41,211	3,783	62,923	2,525	3,995	89
" VIII	151,466	51,438	3,833	63,913	75,733	4,048	91
Total	262,124	216,227	17,454	291,001	186,391	18,433	412
Alt. 3, Seg. II	77,855	35,155	--	77,855	77,855	3,359	749
" III	30,278	88,423	--	30,278	30,278	7,031	1,567
" V	2,525	41,211	--	2,525	2,525	3,995	890
" VIII	151,466	51,438	--	151,466	75,733	4,048	902
Total	262,124	216,227	0	262,124	186,391	18,433	4,108
Alt. 4, Seg. II	77,855	35,155	--	77,855	77,855	3,359	264
" III	30,278	88,423	--	30,278	30,278	7,031	558
" V	2,525	41,211	--	2,525	2,525	3,995	323
" VIII	151,466	51,438	--	151,466	75,733	4,048	323
Total	262,124	216,227	0	262,124	186,391	18,433	1,468
Alt. 5, Seg. II	77,855	35,155	--	53,025	77,855	3,359	285
" III	30,278	88,423	--	39,592	30,278	7,031	596
" V	2,525	41,211	--	22,422	2,525	3,995	91
" VIII	72,750	51,438	--	151,466	36,375	4,048	90
Total	183,408	216,227		266,505	147,033	18,433	1,062
Alt. 6, Seg. II	77,855	35,155	3,180	53,025	77,855	3,359	75
" III	30,278	88,423	6,658	110,999	30,278	7,031	157
" V	2,525	41,211	3,783	62,923	2,525	3,995	89
" VIII	117,079	51,438	3,833	63,913	58,539	4,048	91
Total	227,737	216,227	17,454	290,860	169,197	18,433	412

APPENDIX D - PROPOSED RIVER BOUNDARY MAPS



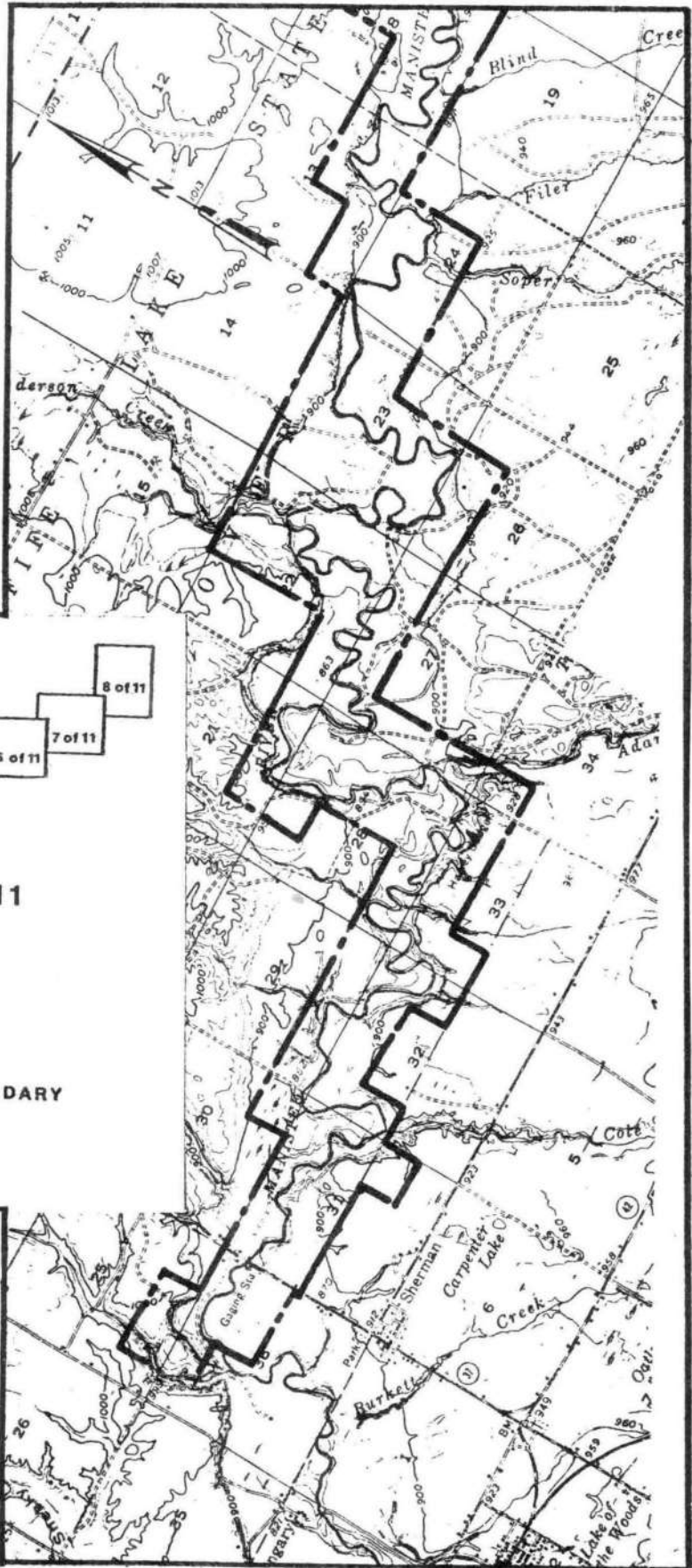
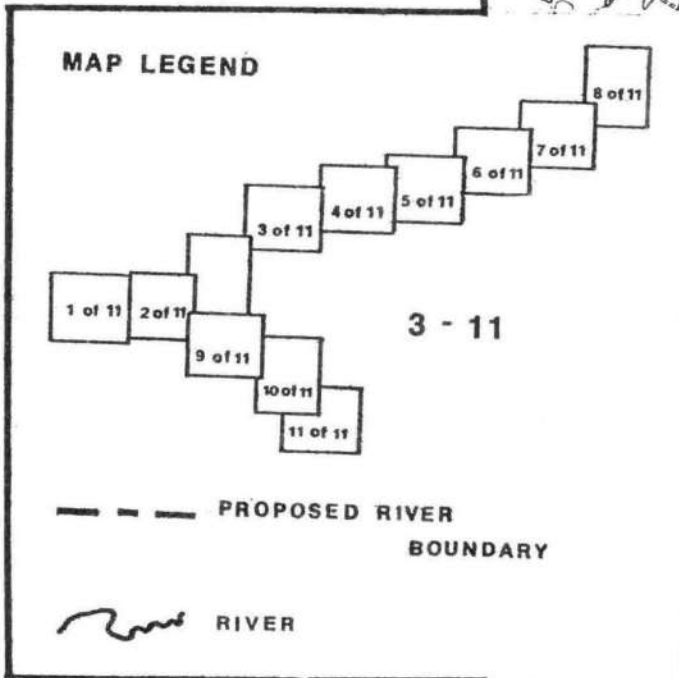


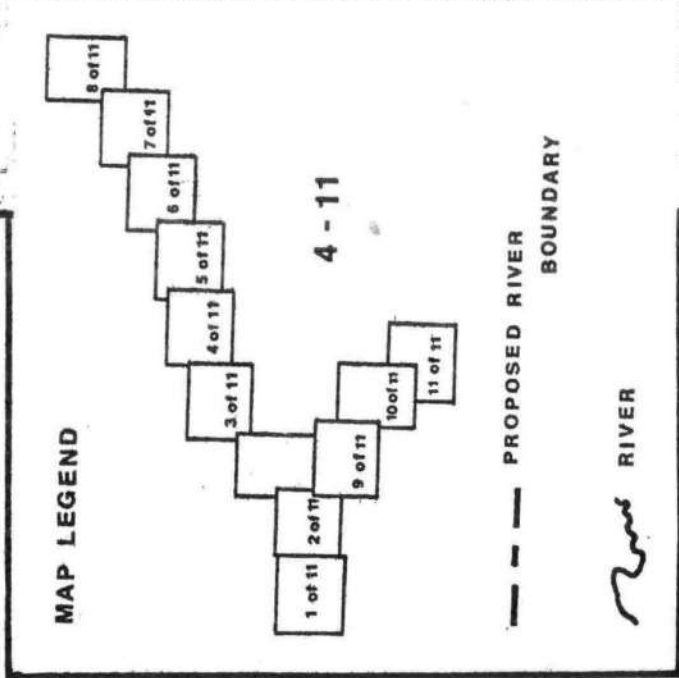
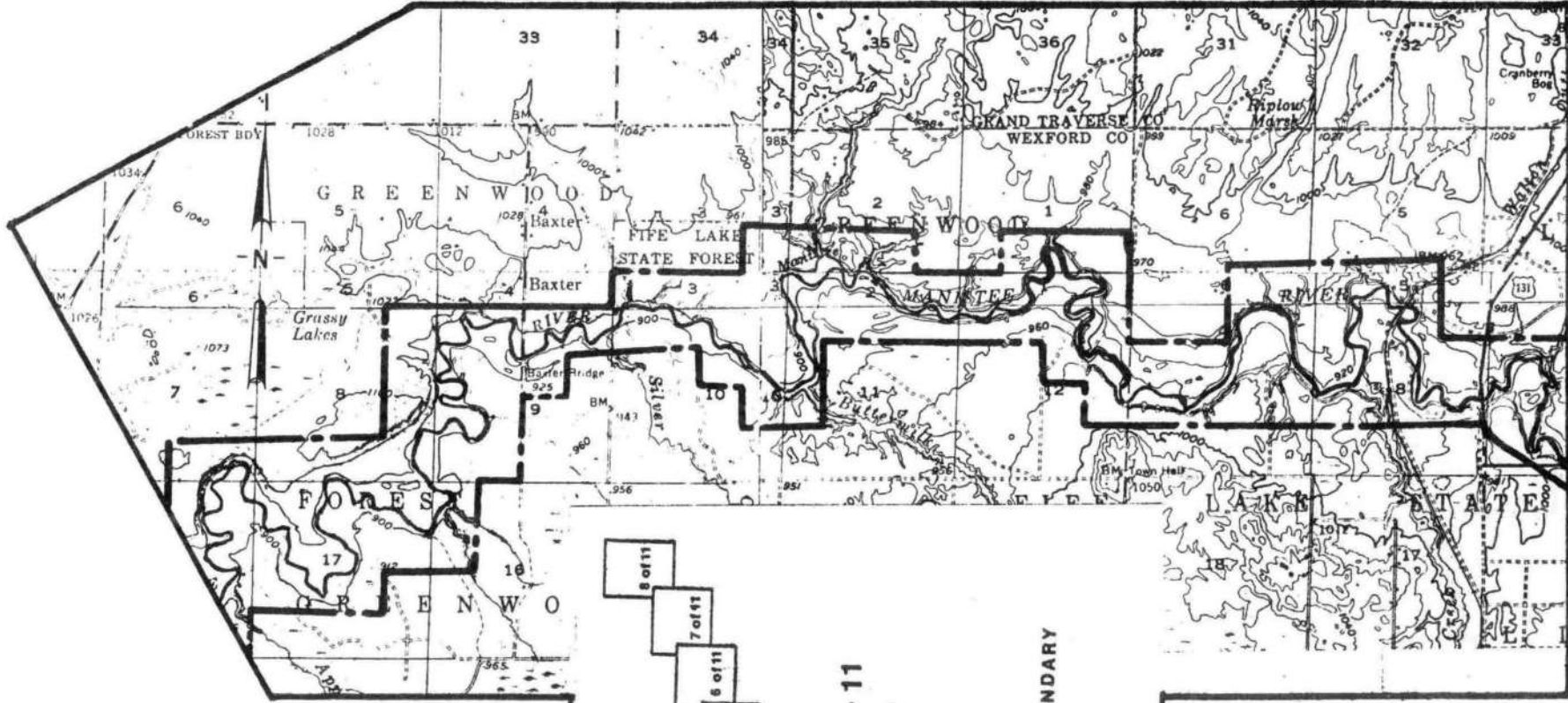
MAP LEGEND



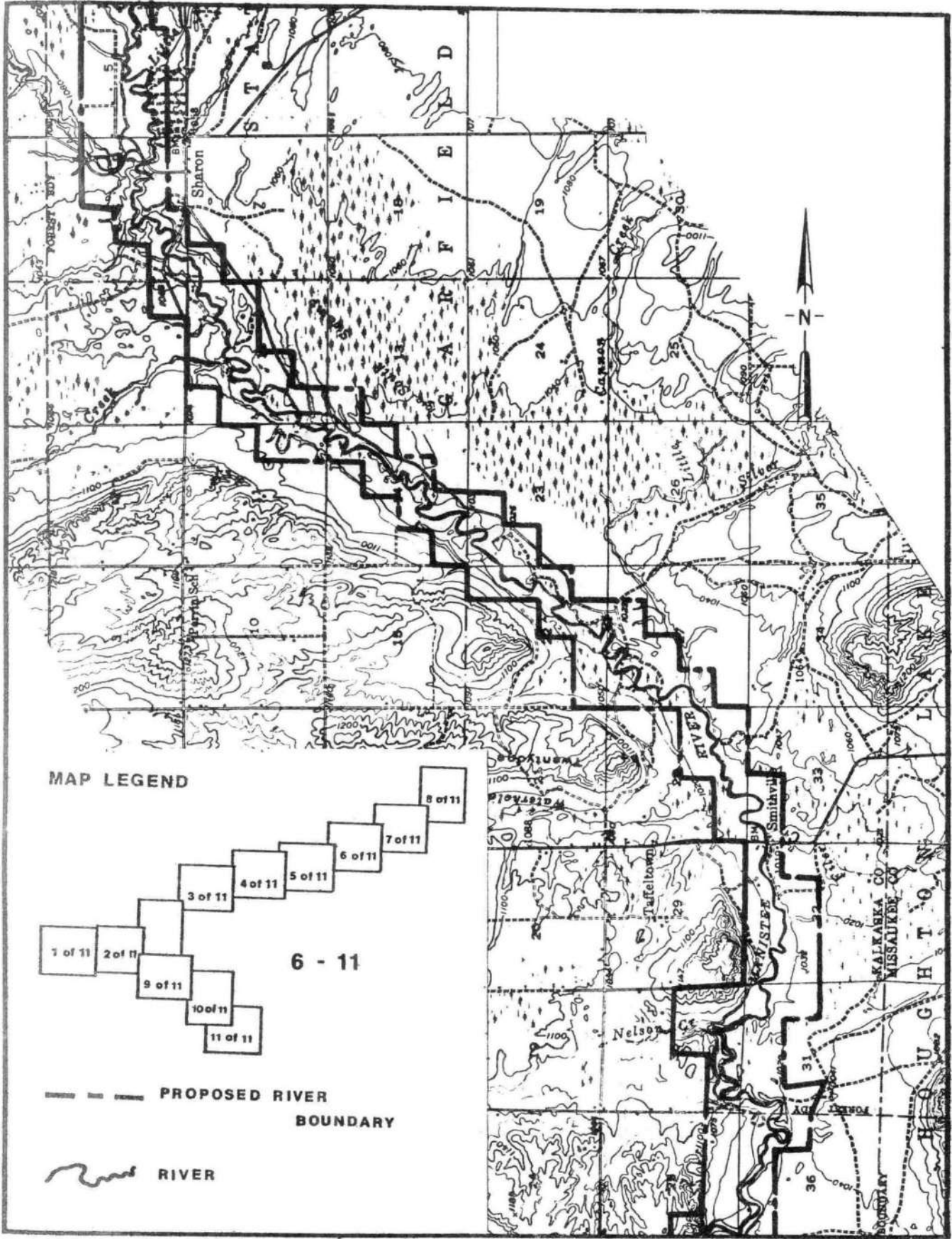
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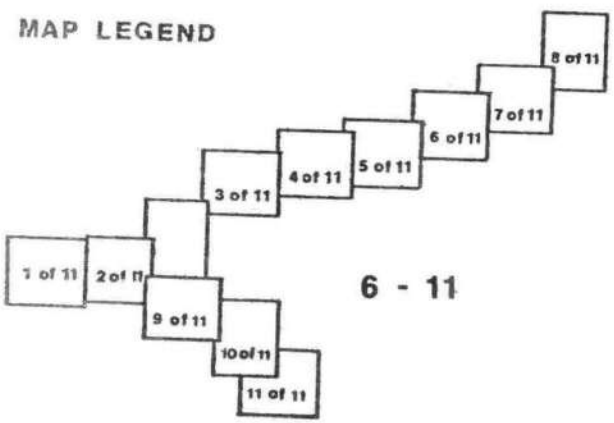






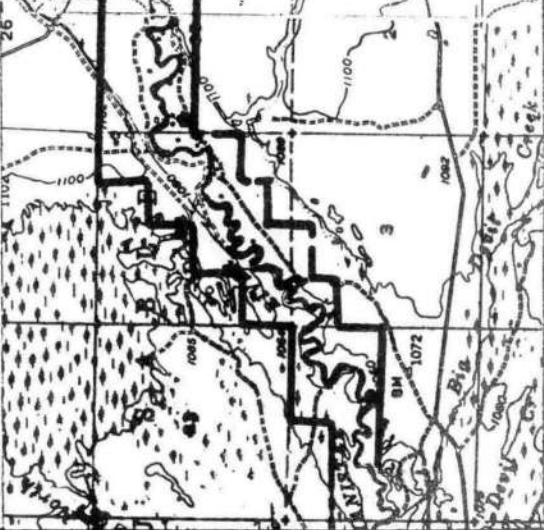
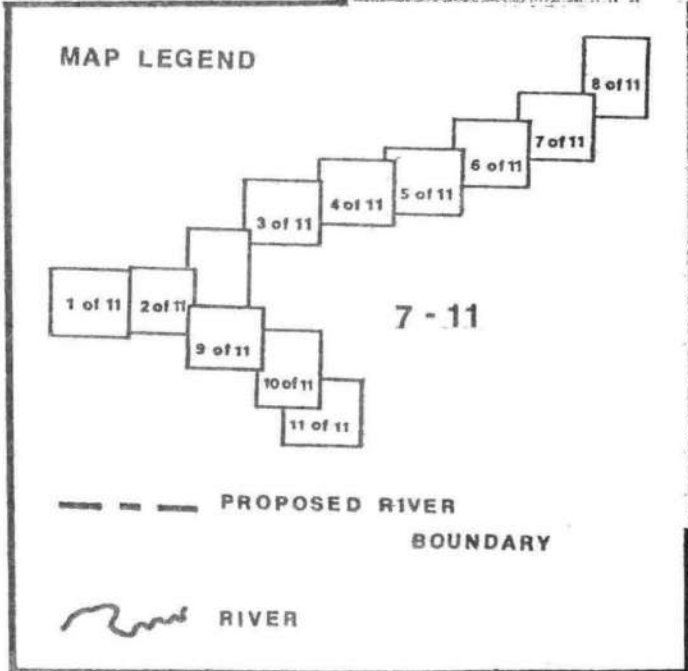
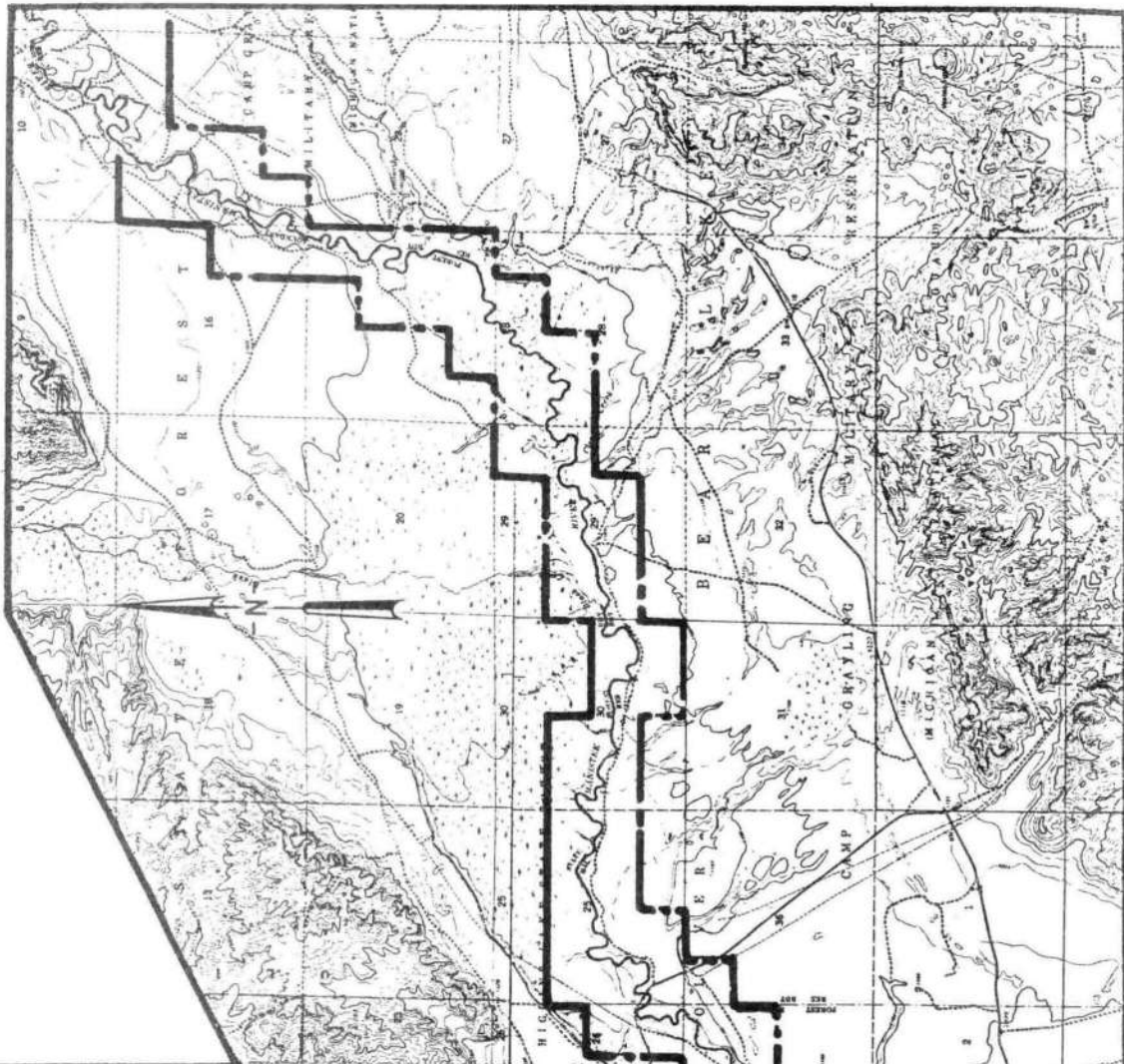


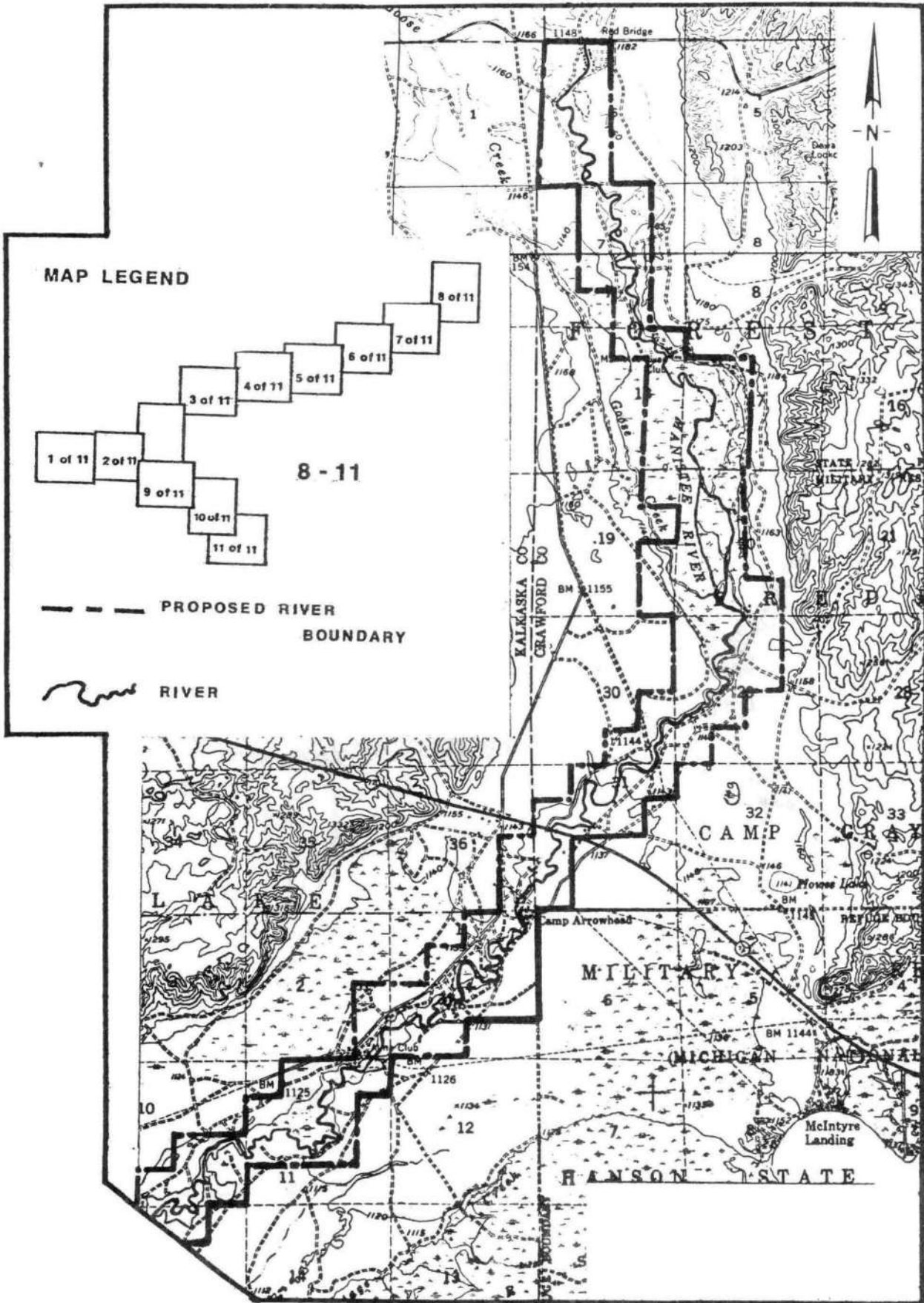


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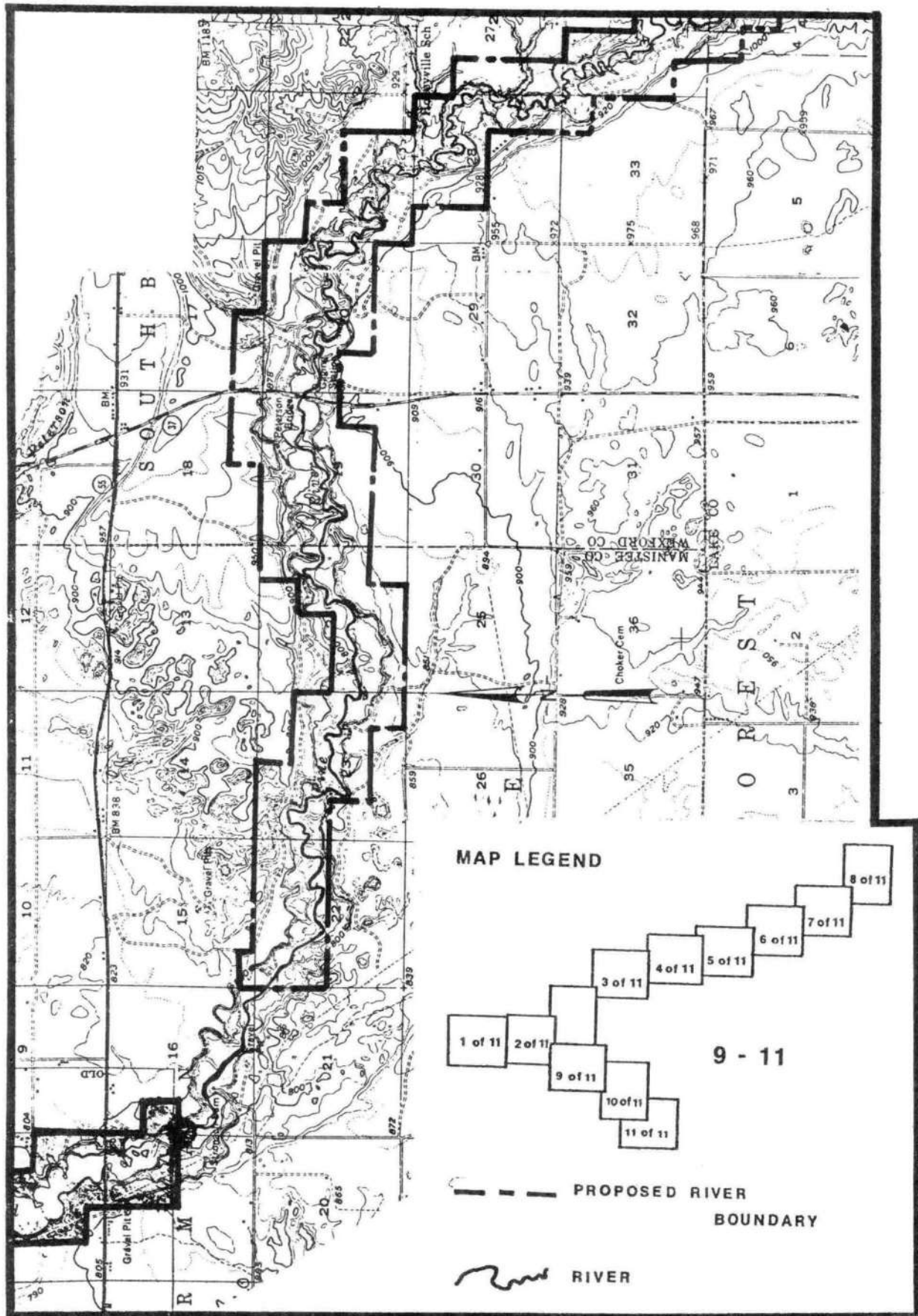


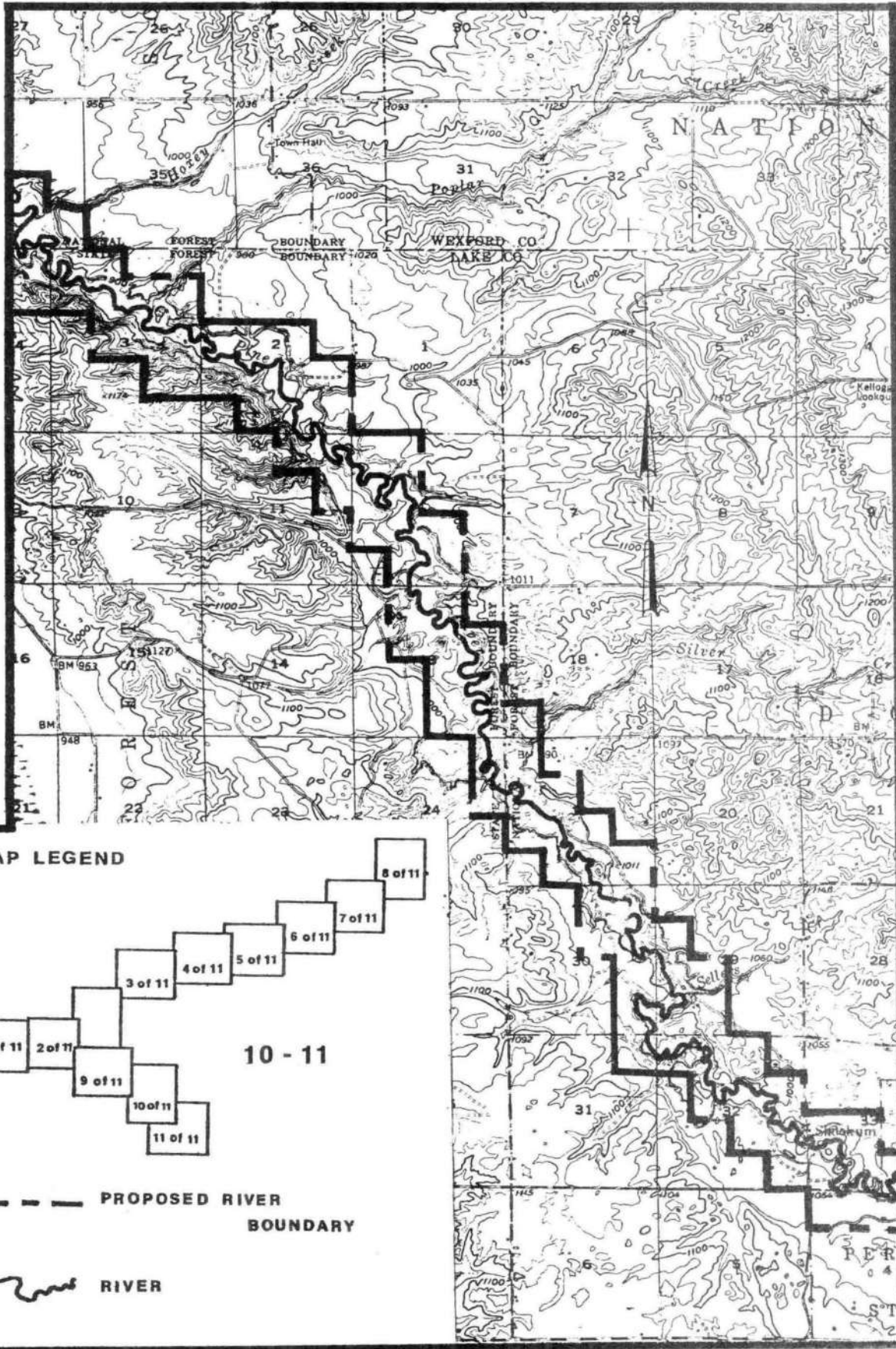
 **PROPOSED RIVER BOUNDARY**  
 **RIVER**

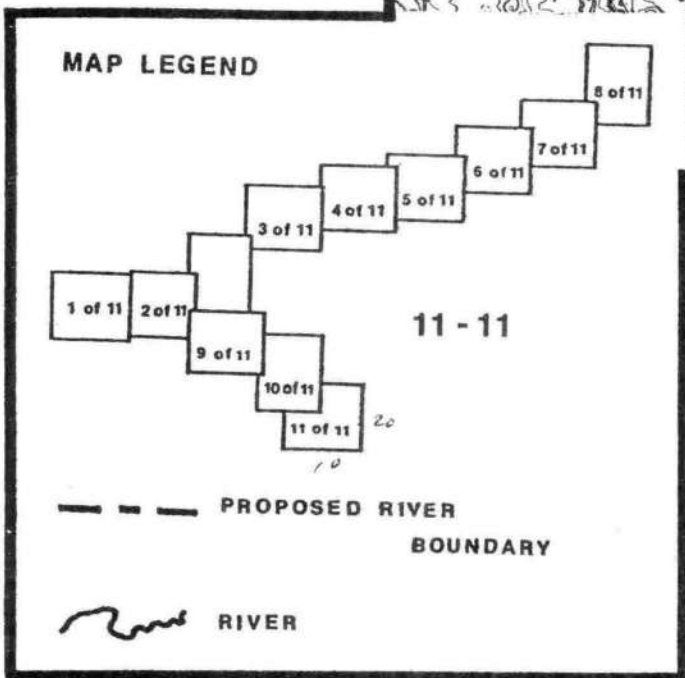
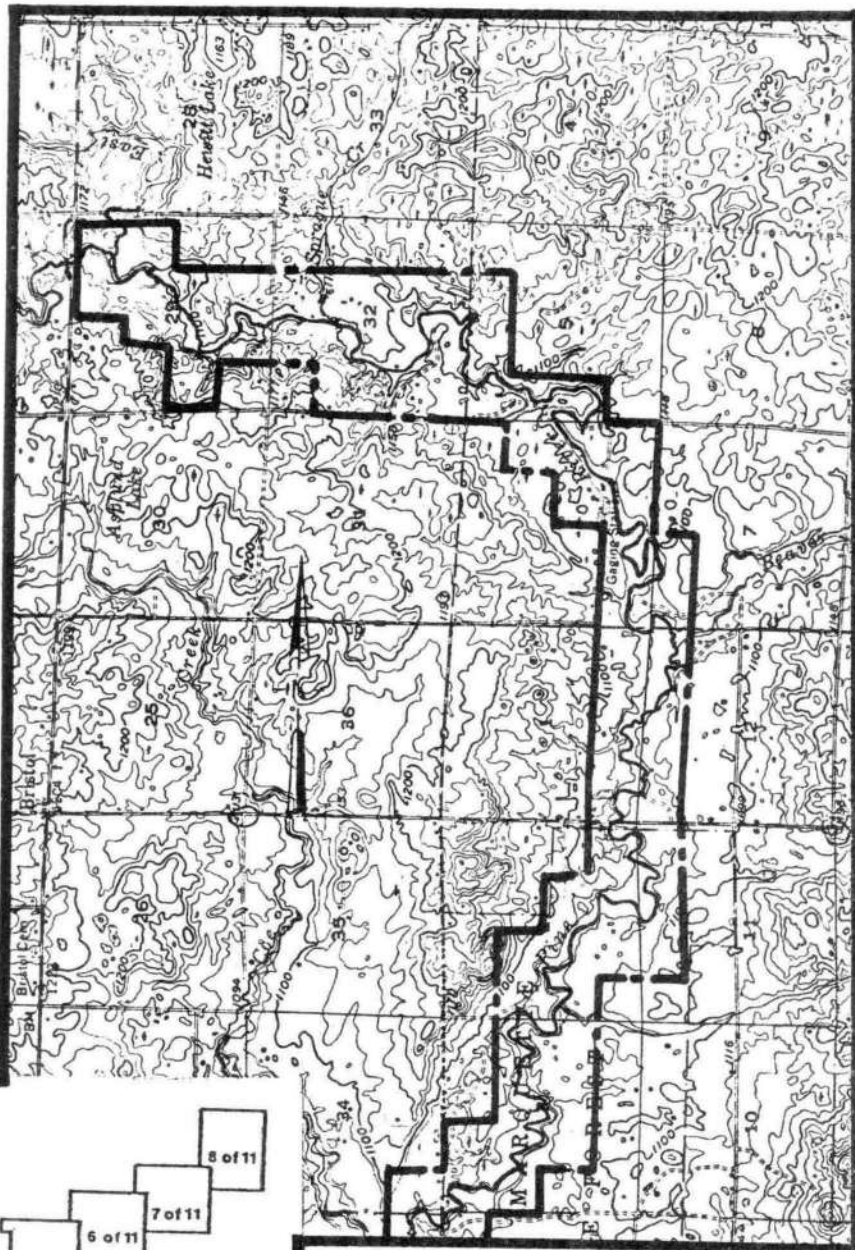










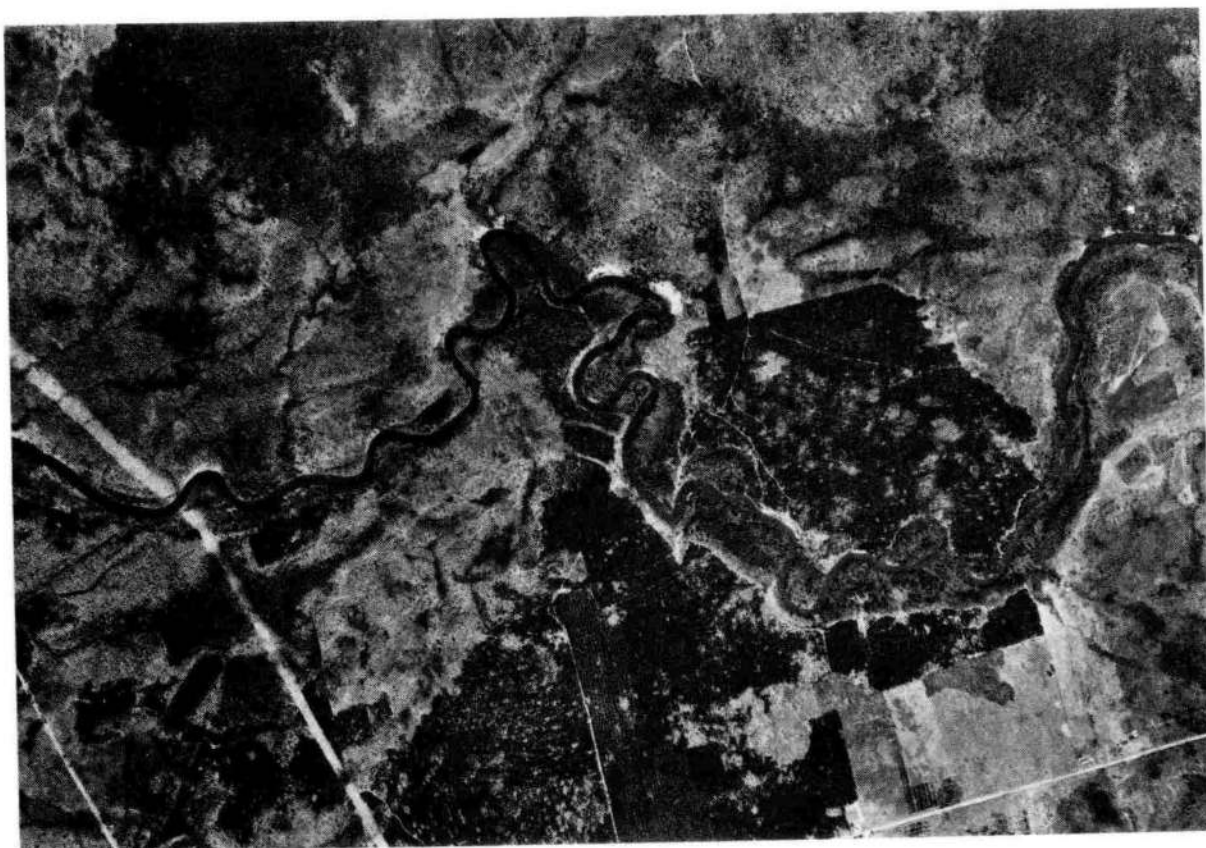


**APPENDIX E - VISUAL MANAGEMENT SYSTEM**

## APPENDIX E

### Visual Management System

The river basin is a broad, flat, often monotonous sand plain where glacial pattern is frequently evident by large areas of rolling ground moraines. Swamps, scattered lakes, and rivers add variety to the landscape. The vegetation consists of dense stands of pine, aspen, birch, oak, and occasional northern hardwoods and lowland conifers and shrubs.



The broad landscape type is further subdivided into easily recognizable environments - urban, pastoral, and primitive. The transition is often sharp and easily recognized - from the developed urban areas of the middle river, out into the semi-residential, heavily forested pastoral areas and merging into primitive undeveloped public and power company lands.

The three landscape environments can be defined as:

Urban - Characteristic of a city or town.

Pastoral - Mixed forest and small openings with single and clustered residential development that appears simple, peaceful, and "rustic".

Primitive - Land largely without manmade developments, where the forest predominates.

These three landscape environments occur through the river basin but in this section are limited to their occurrence within the "seen area". The seen area is that portion of landscape visible from the river and its tributaries. - a visual corridor perceived from any number of points along the river surface and immediate shoreline.

The river traveler is in a different world, perceptually. Although the river banks and morainal hills are still present and very important visually during leaf-off seasons, the vegetation along the river channel confines vision to such a limited degree that river travel is perceived as mostly a back-country experience. An occasional opening, bridges, frequent clusters of modest homes, and powerline crossings are obvious but occur only on limited river sections and are often obscured from the low vantage point of the river.

The river experience, then, is one of seclusion.

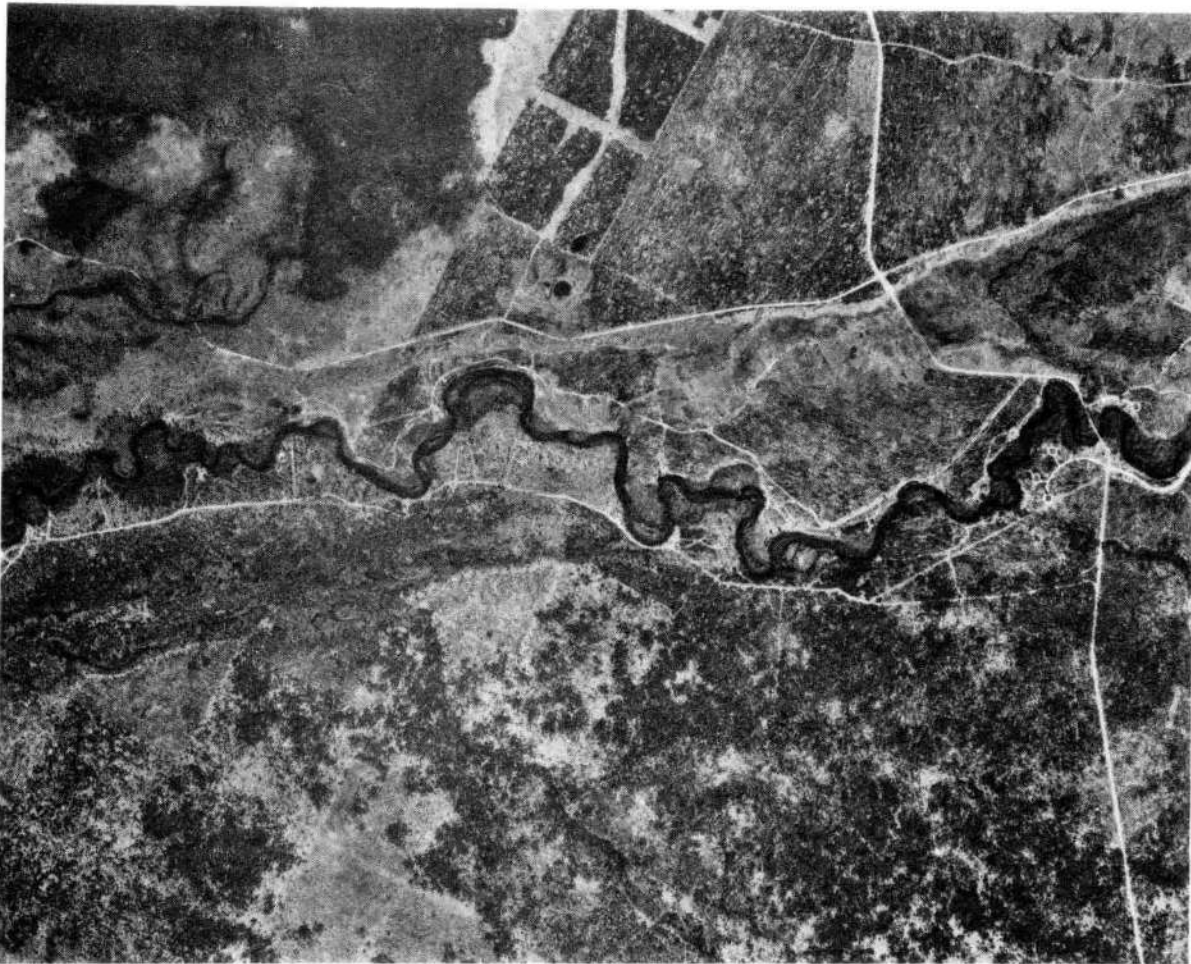
The following photos of the river environments display the realm of the seen area or visual corridor. They show foreground and middleground. They show both manmade and natural environments. The intensive use area is often on the river fringe. The extensive use area is on the high ground beyond the river.

## Pastoral Environment

Its Present Character.....

- \* The word "pastoral" defines a feeling of idealized simplicity, peacefulness, and apartness from the rest of the world. In the Manistee River basin, this atmosphere exists from 612 Bridge to Sharon and the vicinities of Smithville and Sherman Brides on the mainstem. The intensity of urban development gives way to often well-spaced, vegetatively screened homes, tracts of woods and dense forest, occasional small openings, and a conspicuous decrease in landscape modifications. This countryside evokes reactions of peace, harmony, and simplicity. Man is still present but his activity no longer dominates the entire landscape.

The important visual feature of this landscape is the dominant presence of forest land with intermingled homes and the river. There are approximately 37 miles of river in the pastoral environment.



.....and Ability to Withstand Change

The pastoral environment contains a mixture of forest land and homes. It is triply fragile because three different kinds of change could affect it: it could be extensively cut and managed for timber production; it could be intensively developed for human habitation and recreation and approach urban densities; or, it could be turned entirely back to timber land. Then, of course, it could be kept the way it is now.

Visually, the environment can accept a great diversity of uses without apparent change. Its capacity to accept change is due to the large proportion of vegetative screening. Consequently, change that is accomplished in harmony with the forest would be generally acceptable.

This environment is visually suited for medium density uses in the forest areas. Inappropriate cottage, cabin, camper, or community can impart a drastic negative visual impression. The pastoral environment is not the place for clusters of homes within view of the river. Such clusters could be acceptable provided they are effectively screened.

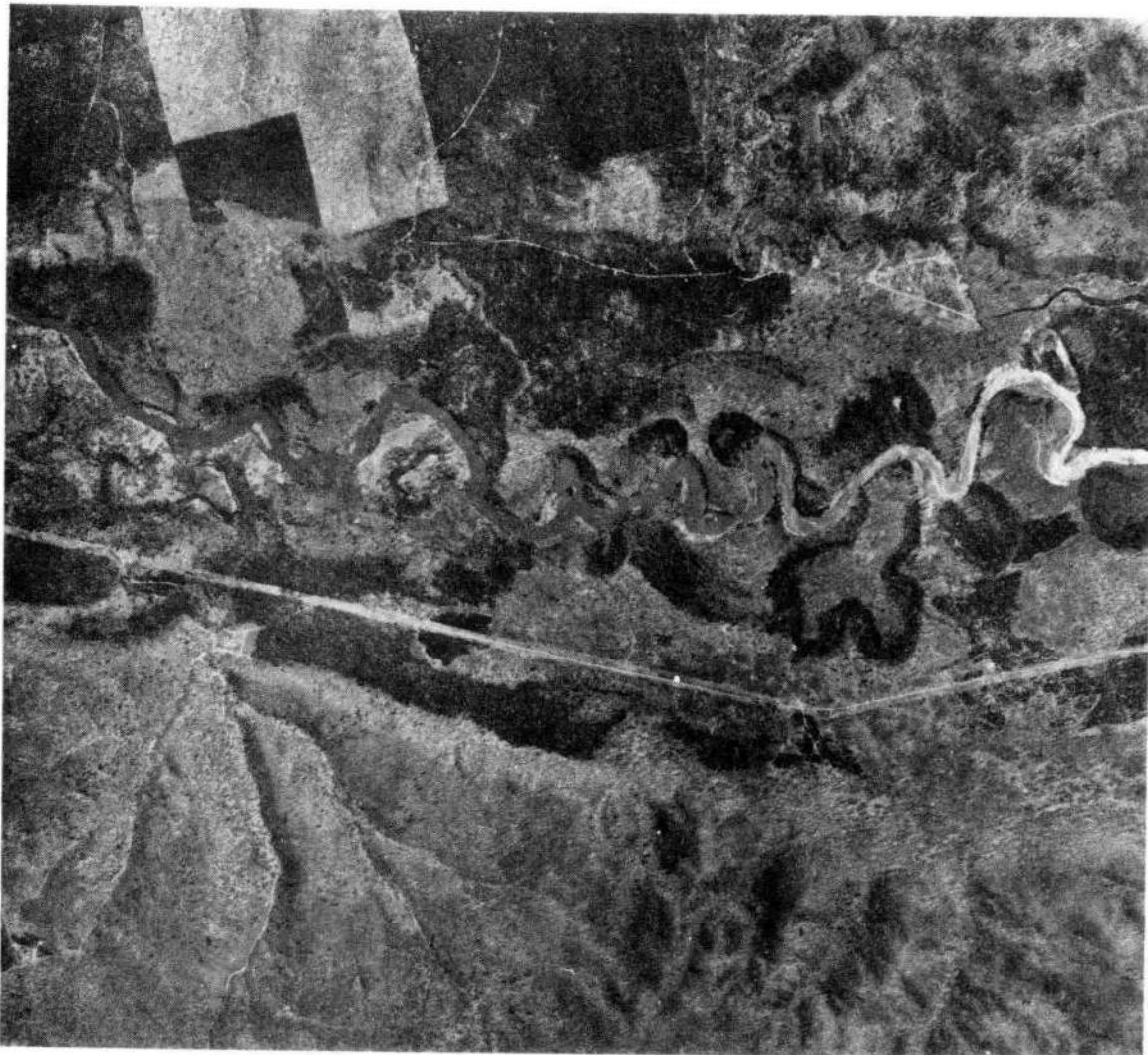


Primitive Environment

Its Present Character.....

The natural appearing landscape of the primitive environment is dominant along approximately 151 miles of study river. Except for a few settlements, summer homes, and public recreation sites, this environment is only sparsely modified. Occasional summer cabins and gravel roads heavily traveled by hunters, campers, canoeists, loggers, and local residents represent the chief modifications of the landscape.

The roads are generally the terrace away from the river and well-screened by vegetation. Scattered, modest value dwellings are isolated and placed barely in view of the river. Without the roads and occasional structures this country could be perceived as "wild".



.....and Ability to Withstand Change

This environment is essentially unchanged from its natural state except for the presence of roads and occasional dwellings.

Changes in land use in this environment are immediately and dramatically obvious. New roads, powerlines, logging activity, or residential development on a large scale all require the removal of dense forest cover - presenting an obvious visual impact.

Fortunately, it is possible to modify the extent, shape, and design of planned developments to harmonize with the natural patterns of the forest cover, thus minimizing their visual impact. When these mitigations cannot or will not be employed, serious conflicts could arise and threaten the integrity of this most fragile of the environmental landscapes within the river corridor.

Determination of Seen Area Boundary in the  
Manistee River Corridor

River Corridor Boundary - The corridor boundary would enclose the seen area and land areas necessary for protection and management of wild and scenic river values. The boundary would include those areas where existing or future land uses would adversely affect values such as water quality, scenery, air quality, solitude, recreation experience, and unique, natural, historical, geological, or wildlife areas associated with the river.

ACREAGE ALLOCATION FOR VISUAL QUALITY OBJECTIVES

| <u>Variety Class</u> | <u>Sensitivity Level</u> |            |              |            |
|----------------------|--------------------------|------------|--------------|------------|
|                      | <u>Fg1*</u>              |            | <u>3*</u>    |            |
|                      | <u>Acres</u>             | <u>VQR</u> | <u>Acres</u> | <u>VQR</u> |
| Distinctive - A      | 26,736                   | R          | 6,162        | PR         |
| Common - B           | 5,601                    | R          | 2,464        | M          |
| Minimal - C          | <u>87</u>                | PR         | <u>110</u>   | MM         |
| Total Acres          | 32,424                   |            | 8,736        |            |

\*Note: Foreground Sensitivity Level 1 (Fg1) refers to that portion of the river corridor that lies within the "seen area". Three (3) refers to areas within the river corridor that lie outside the "seen area".

# Visual Management System -- U.S.D.A. Ag. Handbook 462

## Quality Objectives

### Preservation P

This visual quality objective allows ecological changes only. Management activities, except for very low visual-impact recreation facilities, are prohibited.

This objective applies to Wilderness areas, primitive areas, other special classified areas, areas awaiting classification and some unique management units which do not justify special classification.

### Retention R

This visual quality objective provides for management activities which are *not visually evident*.

Under Retention activities may only repeat form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, pattern, etc., should not be evident.

**Duration of Visual Impact**  
Immediate reduction in form, line, color, and texture contrast in order to meet Retention should be accomplished either during operation or immediately after. It may be done by such means as seeding vegetative clearings and cut-or-fill slopes, hand planting of large stock, painting structures, etc.

### Partial Retention PR Modification M

Management activities remain *visually subordinate* to the characteristic landscape when managed according to the partial retention visual quality objective.

Activities may repeat form, line, color, or texture common to the characteristic landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape.

Activities may also introduce form, line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape.

**Duration of Visual Impact**  
Reduction in form, line, color, and texture to meet partial retention should be accomplished as soon after project completion as possible or at a minimum within the first year.

Under the modification visual quality objective management activities may visually dominate the original characteristic landscape. However, activities of vegetative and land form alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type. Additional parts of these activities such as structures, roads, slash, root wads, etc., must remain visually subordinate to the proposed composition.

Activities which are predominately introduction of facilities such as buildings, signs, roads, etc., should borrow naturally established form, line, color and texture so completely and at such scale that its visual characteristics are compatible with the natural surroundings.

**Duration of Visual Impact**  
Reduction in form, line, color, and texture should be accomplished in the first year or at a minimum should meet existing regional guidelines.

**APPENDIX F - FISH AND WILDLIFE.**

MANISTEE RIVER - FISH HABITAT, POTENTIAL

|                       | Fish Populations                                                            | Fishing Pressures                                            | Fish Habitat                                                                                     | Potential                         | Remarks                                                                 |
|-----------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------|
| Manistee to Tippy     | Salmon and Steelhead runs very high. Pike, Bass, Trout, rough fish moderate | Very high - Salmon and Steelhead. Moderate for other species | Marginal trout water. Relatively high temp. Sandy bottom. Good Salmon spawning.                  | Very high for anadramous fishing. | Fishing pressure extremely high for salmon.                             |
| Sherman to Hwy. 131   | Trout - Low. Pike, Bass, rough fish moderate.                               | Low                                                          | High water temperatures. Sandy-rock bottom - deep water, very little cover.                      | Very high for anadramous fishery. | -----                                                                   |
| 131 to Rainbow Jim    | Trout - marginal to low. Pike, Bass, rough fish moderate.                   | Moderate to low.                                             | Sandy rock bottom. Deep water. Adequate cover. Borderline water temp. for trout.                 | Very high for anadramous fishery. | -----                                                                   |
| Rainbow Jim to Sharon | Low populations. Density large. Brown Trout, moderate rough fish.           | Moderate to low.                                             | Sand, rubble bottom. Adequate cover. Good water temperature. Reasonable water level fluctuation. | Very high for anadramous fishery. | -----                                                                   |
| Sharon to Hwy. 72     | High trout populations.                                                     | Moderate (underfished)                                       | Gravel rubble bottom. Adequate cover and high water temperature.                                 | Very high for anadramous fishery. | Best trout fishing on the Manistee but has not been discovered.         |
| Hwy. 72 to 612        | High populations of Brook and Brown Trout.                                  | Moderate                                                     | Sand gravel bottom. Adequate cover. Low water temperature.                                       | High for anadramous fishery.      | Very early habitat work done in this section - 1930.                    |
| North Branch          | Moderate populations of Brook Trout.                                        | Low                                                          | Sand Bottom. Water temperature may be marginal.                                                  | —                                 | No reliable data available.                                             |
| Bear Creek            | Very high Salmon Steelhead. Moderate trout.                                 | Very high for anadramous fish.                               | Sand, rubble bottom.                                                                             | Very high for anadramous fish.    | -----                                                                   |
| Pine River            | Very good trout populations.                                                | Moderate                                                     | Sand, gravel, rubble. Good cover and water temperature.                                          | Very high for anadramous fish.    | Fishing pressure reduced by heavy canoe use. Bank stabilization needed. |

REPTILES, AMPHIBIANS, MAMMALS, AND BIRDS  
KNOWN TO OCCUR IN THE RIVER BASIN

REPTILES & AMPHIBIANS (41 species)

Turtles (8)

Common snapping turtle  
Wood turtle  
Spotted turtle  
Stinkpot  
Midland painted turtle  
Eastern box turtle (threatened)  
Blandings turtle  
Eastern sping softshell (rare)

Skinks (1)

Five-lined skink (rare)

Snakes (14)

Red-bellied snake  
Northern brown snake  
Midland brown snake  
Northern water snake  
Queen snake  
Eastern garter snake  
Eastern ribbon snake  
Eastern lognose snake  
Northern ringneck snake  
Blue racer  
Eastern smooth green snake  
Black rat snake (threatened)  
Eastern milk snake  
Eastern massasuga

Giant Salamanders (1)

Mud puppy

Newts (1)

Central newt

Mole Salamanders (3)

Blud-spotted salamander  
Spotted salamander  
Tiger salamander

Woodland Salamanders (1)

Red-backed salamander

Lungless Salamanders (1)

Four-toed salamander (rare)

Toads (2)

American toad  
Fowlers Toad

Tree frogs (2)

Northern spring peeper  
Eastern gray tree frog

Cricket frogs (1)

Blanchard's cricket frog

Chorus frogs (1)

Western chorus frog

True frogs (5)

Pickerel frog  
Leopard frog  
Green frog  
Wood frog  
Bull frog

MAMMALS - (50 species present - 9 extirpated)

Opossum

Eastern mole  
Star-nosed mole  
Northern water shrew  
Masked shrew  
Short-tailed shrew  
Pygmy shrew  
Little brown bat  
Keen bat  
Silver-haired bat  
Big brown bat  
Hoary bat  
Red bat

Black bear  
Raccoon

Short-tail weasel  
Long-tail weasel  
Least weasel  
Mink  
River otter

Striped skunk

Badger

Red fox  
Gray fox  
Coyote

Bob cat

Woodchuck

Striped ground squirrel  
Eastern chipmunk  
Red squirrel  
Gray squirrel  
Fox squirrel  
Southern flying squirrel  
Northern flying squirrel

Beaver

Deer mouse  
White-footed mouse

Bog lemming

Red-backed vole  
Meadow vole  
Pine vole  
  
Muskrat  
  
Back-house rat  
House mouse  
Meadow jumping mouse  
Woodland jumping mouse

Porcupine

Snowshoe hare  
Cottontail

White-tailed deer

Extirpated

Marten  
Fisher  
Wolverine  
Timber wolf  
Cougar  
Lynx  
Eastern elk  
Moose  
Woodland caribou



Common Loon  
Pied-billed Grebe  
Great Blue Heron  
Green Heron  
Least Bittern  
American Bittern  
Canada Goose  
Mallard  
Black Duck  
Green-winged Teal  
Blue-winged Teal  
Shoveler  
Wood Duck  
Ring-necked Duck  
Common Goldeneye  
Hooded Merganser  
Common Merganser  
Red-breasted Merganser  
Turkey Vulture  
Goshawk  
Sharp-skinned Hawk  
Cooper's Hawk  
Red-shouldered Hawk  
Broad-winged Hawk  
Bald Eagle  
Marsh Hawk  
Osprey  
Sparrow Hawk  
Spruce Grouse  
Ruffed Grouse  
Greater Prairie Chicken  
Sharp-tailed Grouse  
Turkey  
Sandhill Crane  
Virginia Rail  
Sora  
Yellow Rail  
Common Gallinule  
American Coot  
Killdeer  
American Woodcock  
Common Snipe  
Upland Sandpiper  
Spotted Sandpiper  
Herring Gull  
Ring-billed Gull  
Common Tern  
Black Tern  
Caspian Tern  
Mourning Dove  
Yellow-billed Cuckoo  
Black-billed Cuckoo  
Screech Owl

Great Horned Owl  
Barred Owl  
Saw-whet Owl  
Whip-poor-will  
Common Nighthawk  
Chimney Swift  
Ruby-throated Hummingbird  
Belted Kingfisher  
Yellow-shafted Flicker  
Pileated Woodpecker  
Red-headed Woodpecker  
Yellow-bellied Sapsucker  
Hairy Woodpecker  
Downy Woodpecker  
Black-backed Three-toed  
Woodpecker  
Eastern Kingbird  
Great Crested Flycatcher  
Eastern Phoebe  
Traill's Flycatcher  
Least Flycatcher  
Eastern Wood Pewee  
Horned Lark  
Tree Swallow  
Bank Swallow  
Rough-winged Swallow  
Barn Swallow  
Cliff Swallow  
Purple Martin  
Blue Jay  
Common Raven  
Common Crow  
Black-capped Chickadee  
White-breasted Nuthatch  
Red-breasted Nuthatch  
Brown Creeper  
House Wren  
Long-billed Marsh Wren  
Short-billed Marsh Wren  
Catbird  
Brown Thrasher  
Robin  
Wood Thrush  
Hermit Thrush  
Veery  
Eastern Bluebird  
Golden Crowned Kinglet  
Cedar Waxwing  
Loggerhead Shrike  
Starling  
Yellow-throated Vireo  
Red-eyed Vireo  
Warbling Vireo

Black & White Warbler  
Golden-winged Warbler  
Nashville Warbler  
Parula Warbler  
Yellow Warbler  
Magnolia Warbler  
Black-throated Blue  
Warbler  
Yellow-rumped Myrtle  
Warbler  
Black-throated Green  
Warbler  
Blackburnian Warbler  
Chestnut-sided  
Warbler  
Pine Warbler  
Kirtland's Warbler  
Prairie Warbler  
Palm Warbler  
Ovenbird  
Northern Waterthrush  
Mourning Warbler  
Yellowthroat  
Canada Warbler  
American Redstart  
House Sparrow  
Bobolink  
Eastern Meadowlark  
Red-winged Blackbird  
Northern Oriole  
Rusty Blackbird  
Brewer's Blackbird  
Common Grackle  
Brown-headed Cowbird  
Scarlet Tanager  
Cardinal  
Rose-breasted Grosbeak  
Indigo Bunting  
Evening Grosbeak  
Purple Finch  
American Goldfinch  
Rufous-sided Towhee  
Savannah Sparrow  
Grasshopper Sparrow  
Vesper Sparrow  
Dark-eyed Junco  
Chipping Sparrow  
Clay-colored Sparrow  
Field Sparrow  
White-throated Sparrow  
Lincoln's Sparrow  
Swamp Sparrow  
Song Sparrow

**APPENDIX G - DATA SOURCES**



Table G-1 - MANISTEE RIVER CORRIDOR LAND OWNERSHIP (ACRES) 1/

|       | <u>MAINSTEM</u>     | <u>Private</u> | <u>State</u> | <u>Federal</u> | <u>Consumers<br/>Power</u> | <u>Total</u> |
|-------|---------------------|----------------|--------------|----------------|----------------------------|--------------|
| I.    | Source - 612 Road   | 840            | 1,680        | -              | -                          | 2,520        |
| II.   | 612 Road - Sharon   | 4,770          | 2,420        | -              | 310                        | 7,500        |
| III.  | Sharon - Sherman    | 3,120          | 60           | -              | 12,520                     | 15,700       |
| IV.   | Hodenpyl - Tippy    | -              | -            | 1,720          | -                          | 1,720        |
| V.    | Tippy Dam - M-55    | 1,220          | 2,330        | 5,370          | -                          | 8,920        |
| VI.   | <u>NORTH BRANCH</u> | 800            | 1,920        | -              | 240                        | 2,960        |
| VII.  | <u>BEAR CREEK</u>   | 2,540          | 20           | 1,080          | -                          | 3,640        |
|       | <u>PINE RIVER</u>   |                |              |                |                            |              |
| VIII. | Source - Stronach   | 3,600          | 1,400        | 4,040          | -                          | 9,040        |
| IX.   | Stronach - Tippy    | -              | -            | 180            | 200                        | 380          |
|       | TOTAL               | 16,890         | 9,830        | 12,390         | 13,270                     | 52,380       |

1/ Chart reflects ownership status after acquisition of Consumers Power Company land offered to State and Federal Governments and private leaseholders.

Approximately 7090 acres of Consumers Power land within the proposed river corridor was optioned by the Federal Government on March 17, 1980. Acquisition of the optioned land is expected by June 1981.

An additional 1,240 acres of Consumers Power land was optioned by the State of Michigan in 1979. Acquisition of that land is expected November 1980. The remaining 12,830 acres offered to the State of Michigan may be optioned and acquired in the future.

Consumers Power Company has also offered + 10 acres to their leaseholders within the river corridor. This report/EIS assumes that land offered to leaseholders will be acquired in the near future.

Table G-2 - REGIONAL INCOME GENERATED 1/

| ACTIVITY                              | ALTERNATIVE PLANS (1000 Dollars Annually - 1979) |         |         |         |        |         |
|---------------------------------------|--------------------------------------------------|---------|---------|---------|--------|---------|
|                                       | No Act.                                          | NED A   | NED B   | SNR     | WSR A  | WSR B   |
| Canoeing                              | 1867.1                                           | 2512.9  | 1867.1  | 1867.1  | 1867.1 | 1867.1  |
| Fishing                               | 2181.7                                           | 2181.7  | 2181.7  | 2181.7  | 2179.6 | 2181.7  |
| Hiking                                | -                                                | 139.6   | -       | -       | 139.6  | 139.6   |
| Camping                               | 1260.0                                           | 1999.2  | 1260.0  | 1260.0  | 946.4  | 1260.0  |
| Picnicking                            | 294.1                                            | 372.8   | 294.1   | 294.1   | 294.1  | 294.1   |
| Hunting                               | 340.8                                            | 340.8   | 340.8   | 340.8   | 340.8  | 340.8   |
| Total                                 | 5943.7                                           | 5004.9  | 5943.7  | 5943.7  | 5767.6 | 6083.3  |
| Operation and Maintenance of:         |                                                  |         |         |         |        |         |
| Camp Units                            | 148.5                                            | 195.9   | 148.5   | 148.5   | 148.4  | 195.9   |
| Picnic Units                          | 5.3                                              | 49.2    | 5.3     | 5.3     | 38.8   | 47.9    |
| Trails                                | -                                                | 3.3     | -       | -       | 3.3    | 3.3     |
| Access Sites                          | 17.5                                             | 17.6    | 17.5    | 17.5    | 17.6   | 17.6    |
| Total                                 | 171.3                                            | 266     | 171.3   | 171.3   | 208.1  | 264.7   |
| Hydrocarbon<br>Production             | 7380.1                                           | 7473.2  | 7380.1  | 7380.1  | 7473.2 | 7473.2  |
| Timber Production                     | 40.8                                             | 10.7    | 107.2   | 38.3    | 10.7   | 10.7    |
| Recreation Facility<br>Reconstruction |                                                  | 542     |         |         | 480    | 534     |
| Grand Total                           | 13535.9                                          | 13296.9 | 13602.3 | 13533.4 | 13939  | 14365.9 |

1/ Regional Area would include States of Michigan and northern half of Ohio, Indiana, and Illinois.

Source: Economic Impact of Designation of the Manistee and AuSable Rivers Under the Wild and Scenic Rivers Act, 1976, Commonwealth Associates, Jackson, MI.

Table G-3 EMPLOYMENT GENERATED BY CORRIDOR ACTIVITIES - MANISTEE

| Expenditure<br>per<br>Activity Day<br>in Dollars <sub>1</sub> / | Activity                            | A L T E R N A T I V E P L A N S         |        |        |        |        |        |
|-----------------------------------------------------------------|-------------------------------------|-----------------------------------------|--------|--------|--------|--------|--------|
|                                                                 |                                     | Man years of employment at Minimum Wage |        |        |        |        |        |
|                                                                 |                                     | No Act                                  | NED A  | NED B  | SNR    | WSR A  | WSR B  |
| 9.46 <u>2</u> /                                                 | Canoeing                            | 472                                     | 675    | 472    | 472    | 472    | 472    |
| 6.21 <u>3</u> /                                                 |                                     |                                         |        |        |        |        |        |
| 5.65                                                            | Fishing                             | 222                                     | 222    | 222    | 222    | 222    | 222    |
| 1.79                                                            | Camping                             | 60                                      | 94     | 60     | 60     | 45     | 60     |
| 5.14                                                            | Hunting                             | 17                                      | 17     | 17     | 17     | 17     | 17     |
| Operation and Maintenance (O&M) of Recreation Facilities:       |                                     |                                         |        |        |        |        |        |
| Annual O&M<br>Cost Per Unit                                     |                                     |                                         |        |        |        |        |        |
| \$250                                                           | Camping                             | 13                                      | 13     | 13     | 13     | 13     | 13     |
| 126                                                             | Picnic                              | .5                                      | 4      | .5     | .5     | 3      | 3      |
| 66                                                              | Hiking(trails)                      | -                                       | .6     | -      | -      | .6     | .6     |
| 323                                                             | Access                              | 2                                       | 2      | 2      | 2      | 2      | 2      |
|                                                                 | Hydrocarbon Production              | 266.4                                   | 266.4  | 266.4  | 266.4  | 266.4  | 266.4  |
|                                                                 | Timber Productivity                 | 7.3                                     | 1.9    | 19.2   | 6.9    | 1.9    | 1.9    |
|                                                                 | Recreation Facility<br>Construction | -                                       | 23.9   | -      | -      | 19.4   | 23.3   |
|                                                                 | Total                               | 1060.2                                  | 1319.8 | 1072.1 | 1059.8 | 1062.3 | 1091.2 |

1/Primary level expenditures in Regional Area

2/Rental Canoe - Activity day expenditures

3/Self owned canoes - Activity day expenditure

Source: Economic Impact of Designation of the Manistee and AuSable Rivers Under the Wild and Scenic Rivers Act, Commonwealth Associates.

**APPENDIX H - ACCESS, CAPACITY, EXPERIENCE CRITERIA**

## APPENDIX H

### Access, Capacity, Experience Criteria

#### Criteria for Determining Accessibility to River Areas

- I. Criteria for measuring accessibility on river sections proposed for classification as wild, scenic, or recreation.

Access is defined by the following situations:

- A. Undeveloped, loading-unloading ramps on public land accessible by maintained public roads.
- B. Developed access sites on public land or land leased by a public agency.
- C. Public road bridge crossings.
- D. Public roads on public land that pass within a negotiable distance of the river, have vehicular parking space and receive moderate use.

These situations do not constitute access:

- A. Public roads across quasi-public land (Consumers Power Company) that approach or pass near the shoreline.
- B. Nonpublic roads across quasi-public land that approach or pass near the river shoreline.

- II. These conditions related to access can be expected to prevail under the following river classifications:

#### Recreation

- A. Access would be more frequent and the river more easily reached.
- B. Frequent access sites would generally attract heavier recreation use.
- C. Frequent access at shorter intervals of 4 hours floating time or less would generally attract users seeking social, challenging, or physical type experiences.

- D. Reducing or closing access points could be difficult for the public to accept.

Scenic

- A. Access would be less frequent and more difficult to reach.
- B. More time (up to 6 hours) could be required by users in this section to satisfy need and therefore greater distance between accesses would be acceptable.
- C. Users of this section would generally seek satisfaction of needs for solitude and enjoyment of outdoor environs.

Source: Wild and Scenic River Study Team.



### Watercraft Use Regulations

Segment VIIIa and IX have controls which are enforced through Land Use Permits issued by the U. S. Forest Service. This system, developed by the Forest Service in cooperation with the commercial liveries, has limited canoe use to 70% of its pre 1978 level. This use is considered compatible with the scenic qualities of the river.

The State of Michigan water use rules are pending at this time. If such rules are instituted they may provide other controls on the actual use of the water.

There are not watercrafts use rules on Segment V. The primary purpose for watercraft on this segment is for fishing. Therefore, the river is self limiting. Once the good places to fish have been taken, most of the fishermen move on. Use on the river is seasonal coinciding with the anadromous runs of steelhead trout and salmon.

At this time, no further controls on watercraft use are anticipated.

**APPENDIX I - GLOSSARY**

A Glossary of Common Environmental Terms Used  
in this Report and Environmental Impact Statement

FERC - Federal Energy Regulatory Commission

Designated Camp Areas - An overnight camp area specifically designed, constructed, and/or indicated for camping.

Access Site - A developed or undeveloped area providing legal entry to the water. Site may be served by road or trail.

Rest Area - A day-use area only; usually providing sanitary facilities and frequently trash cans and picnic tables. Accessible by river and administrative trail use only.

Outstandingly Remarkable - For the purposes of river classification, values that are comparatively rated far greater than similar values on other rivers within the same regional area. Values to include scenic recreation, historic, fish and wildlife, geologic, and water resources.

Characteristic Landscape - The naturally established landscape within a scene or scenes being viewed.

Recreation Experience Levels - The extent to which various classes of outdoor recreation experiences provide opportunities for satisfying some of the basic needs of individuals - such as isolation or self-fulfillment, etc.

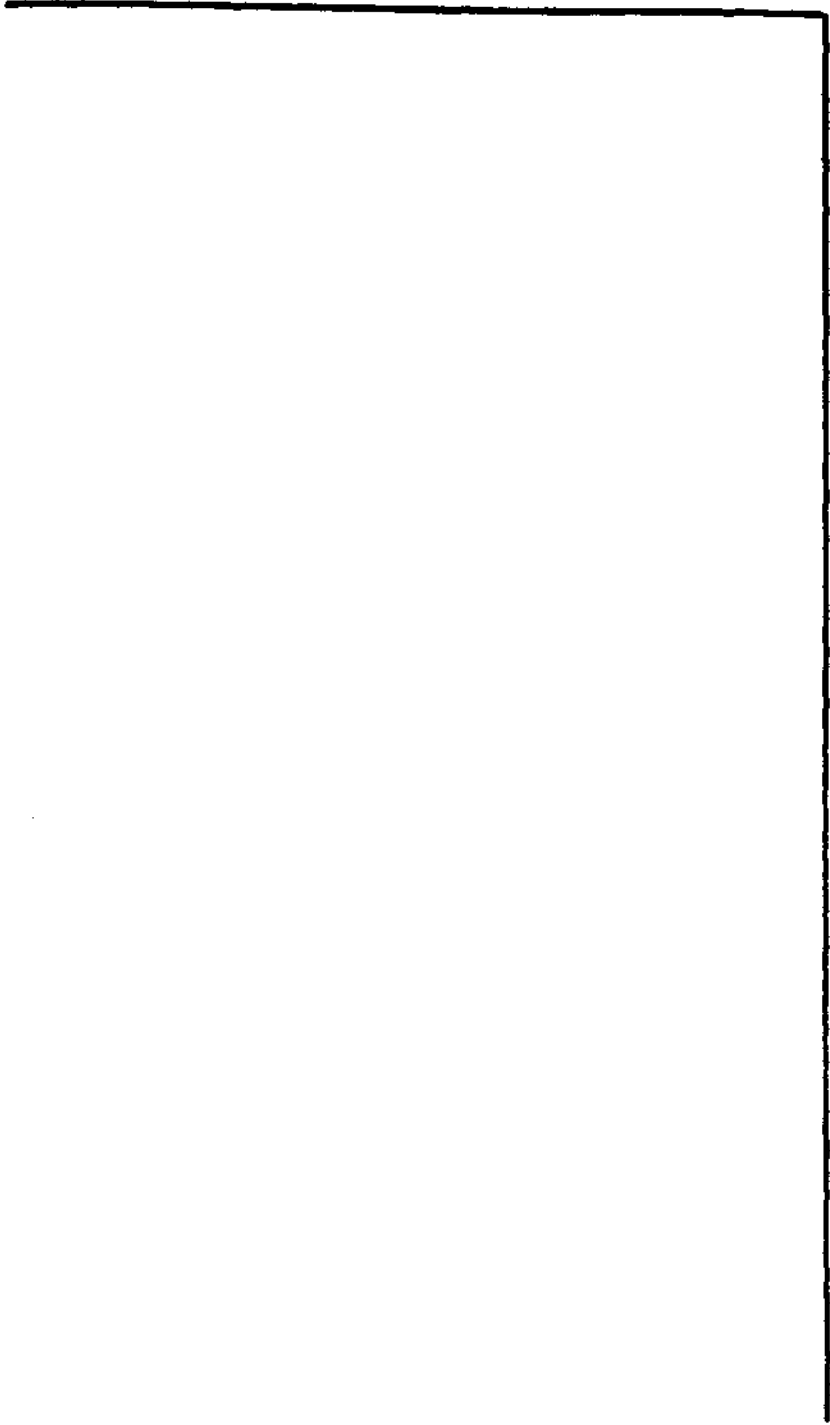
Seen Area - The area visible from 2 feet above the water surface to the topographical break. Generally including all foreground and middleground area visible during leaf-off seasons.

Activity Day - A visit of one person for a specific recreation activity.

Recreation Day - A standard unit of use consisting of a visit by one individual to a recreation development or area for recreation purposes during any reasonable portion or all of a 24-hour period.

Sustained Yield - Achievement and maintenance in perpetuity of a high level annual or regular output of various renewable resources without impairment of land productivity.

Leaf Off - Season during which deciduous vegetation is without leaves.



**APPENDIX J**

## APPENDIX J

### Nearby Rivers Offering Similar Recreational Opportunities

The following series of sketches is included to provide comparative information on recreational opportunities offered by rivers within a 150-mile radius of the Au Sable and Manistee Rivers. Emphasis is on scenic and recreation qualities.

Jordan River - Charlevoix and Antrim Counties - The Jordan River was designated a Michigan Natural River and is well known for its exceptionally high water quality. It also offers excellent fishing and has high scenic values.

Betsie River - Manistee and Benzie Counties - The upper section of this 50-mile river is very scenic and undisturbed. The Betsie River is also a Michigan Natural River and particularly well known for its scenic qualities and steelhead fishing.

Black River - Cheboygan County - This 45-mile river is being considered for inclusion in the Michigan Natural Rivers System. It is a river for experts and is particularly well known for its fishing, scenery, and undisturbed shoreline.

Boardman River - Grand Traverse County - The 23-mile Boardman River is being considered for State natural river designation and requires moderate to expert canoeing skills. This river has excellent cold water fishing.

Little Manistee River - Lake, Mason, and Manistee Counties - The Little Manistee River is being considered for State natural river designation. It is a fast, "sporty", canoeing river and offers the highest quality steelhead fishing in Michigan.

Indian River - Schoolcraft County - The Indian River offers 50 miles of excellent canoeing, although there is no fast water. The river was proposed as a study river for inclusion in the Michigan Natural River System.

Rifle River - Ogemaw and Aranac Counties - The Rifle River offers 90 miles of clear, fast water with some boulders and occasional rocky bottom. It is heavily canoed.

Pere Marquette River - Mason and Lake Counties - The Pere Marquette River is a Michigan Natural River and a component of the National Wild and Scenic Rivers System. It offers 66 miles of outstanding scenery, fishing, and canoeing. There are some rapids, log jams, and sharp turns.

**APPENDIX K CULTURAL RESOURCES**

MICHIGAN DEPARTMENT OF STATE  
RICHARD H. AUSTIN SECRETARY OF STATE



LANSING  
MICHIGAN 48918

MICHIGAN HISTORY DIVISION  
ADMINISTRATION, ARCHIVES,  
HISTORIC SITES, AND PUBLICATIONS  
3423 N. Logan Street  
517-373-0510  
STATE MUSEUM  
505 N. Washington Avenue  
517-373-0515

November 25, 1980

Mr. Wayne K. Mann  
Forest Supervisor  
USDA Forest Service  
Huron-Manistee National Forests  
421 S. Mitchell  
Cadillac, MI. 49601

Re: ER-4398

Dear Mr. Mann:

Our staff has reviewed the "Manistee River Wild & Scenic River Draft Study Report & Environmental Statement and support the inclusion of the Manistee River into the National Wild and Scenic River System as it would provide additional protection for historical and archaeological sites located within the boundary.

Once the specific measures to identify and protect historical and archaeological resources are drafted for inclusion into the management plan, we would again appreciate the opportunity for review.

Sincerely,

Martha M. Bigelow  
Director, Michigan History Division  
and  
State Historic Preservation Officer

MMB/DEW/s1

- REG. ....
- ADVP. ....
- D. SUPV. ....
- F.I.E. ....
- Hydrog. ....
- Soils. ....
- Mnpwr't. ....
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- B&F. ....
- Pers. ....
- Supv.Clk. ....
- RGRS. ....
- C&M(H)(M)....



**APPENDIX L - PUBLIC INVOLVEMENT**

APPENDIX L

SUMMARY OF PUBLIC INVOLVEMENT

Contact and communication with private individuals and organizations was a continuing activity throughout the study process. There were also numerous personal contacts with interested persons, property owners and river users in addition to those listed below:

1975

November - Press release announcing AuSable and Manistee River studies.

1976

February - Presentation to Michigan Forestry and Parks Association.

Meeting of interested agencies and formation of study team.

Meeting with Oscoda County Road Commission to discuss future of McKinley Bridge.

News release inviting public comment on preliminary issues.

Letter to 600 people and organizations inviting public comment on preliminary issues.

March - Meeting with Northwest Michigan Regional Planning Commission to preview Wild and Scenic River Studies.

Meeting with Manistee Chamber of Commerce to discuss Wild and Scenic River Studies.

April - Meeting with East Tawas Kiwanis Club to explain river study.

Radio interview with WIOS (East Tawas).

Meeting with Tawas City Lions Club to explain river study.

Meeting with Tawas City Chamber of Commerce to discuss river study.

Meeting with Tawas City Rotary Club to explain river studies.

Radio interview with station WDBT (East Tawas).

- May - Meeting with Trout Unlimited in Grayling.  
Meeting with Pine River Association to explain intent of river study.
- June - Meeting with Oscoda Kiwanis Club to explain river study.
- July - Meeting with Youth Conservation Corps to explain objectives of Wild and Scenic Rivers Act.
- September- Meeting with AuSable Property Owners Association (Board of Directors) to discuss intent of River Studies.  
Meeting with River Study team (9/14).  
Meeting with River Study team (9/27).  
Meeting (Field trip with Department of Natural Resources and Heritage Conservation and Recreation Service) to inventory river area.
- October - Meeting with River Study team.  
Meeting with Cadillac Kiwanis Club to discuss intent of Wild and Scenic Rivers Act.
- November - Meeting with River Study team.
- December - Meeting with River Study Team.

### 1977

- January - Meeting with Cadillac Rotary Club to explain intent of Wild and Scenic Rivers Act.  
Meeting with Wexford County Soil Conservation District to discuss river study.
- February - Norman Township Zoning Board - presented information on possible effects of river designation.

Frederick Township Landowners Association - meeting to discuss intent and effects of river designation.

News Release inviting comments on qualifying segments of study rivers.

Letter to approximately 700 individuals and organizations to invite comments on qualifying segments of Study rivers.

Radio WGRY (Grayling) panel discussion involving effects of river designation.

Meeting with Missaukee County Soil Conservation District to explain river studies.

Meeting with Grayling Rotary Club to explain intent of river studies.

Manistee County Planning Commission-invited to explain intent of river studies.

March - Meeting with Oscoda County Road Commission to discuss McKinley Bridge.

Interview by Northwoods Call Newspaper to obtain information on river study process.

Meeting with Onkema Lions Club to explain intent of Wild and Scenic River Act.

Meeting with AuSable River Watershed study Council to discuss effects of study recommendations.

Meeting with River Study team.

Grayling Township Planning Commission - explained river study recommendations and possible effects.

Meeting with Pine River Association President to discuss study recommendations and effects.

Upper Manistee River Association - meeting to discuss effects of designation and obtain comments.

June - Field trip with study team members on AuSable River.

- July - Meeting with Youth Conservation Corps to explain objectives of Wild and Scenic Rivers System.
- September- Field trip with Heritage Conservation and Recreation Service on Pine River.
- October - AuSable Property owners Association requested to explain study proposal and effects and obtain comments.  
  
Meeting with Cadillac Lions Club to explain intent of Wild and Scenic Rivers Act.
- November - Meeting with Pine River Association to discuss study proposal and obtain comment.

1978

- February - Meeting with river study team.
- April - Meeting with Oscoda County Road Commission to discuss McKinley Bridge.  
  
Meeting with Cadillac American Businessman's Club to explain river studies.  
  
Meeting with Upper Manistee River Association to discuss study proposal and obtain comments.
- May - Lovells Township Board Meeting to discuss study proposal and get landowner comments.  
  
Meeting with Pine River Association to explain study proposal and obtain comments.
- June - Meeting with Grayling Township Board to discuss study proposal and effects.
- July - Meeting with AuSable Property Owners Association to explain proposal and obtain comments.  
  
Invited to discuss intent of Wild and Scenic Rivers Act to Youth Conservation Corps.  
  
Meeting with AuSable Watershed Study Council to discuss study proposal and effects

Meeting with Frederick Township Association to discuss study proposal and effects.

August - Meeting with North Branch AuSable Property Owners to discuss study proposal and effect.

Meeting with Rural Conservatin and Development Commission to discuss intent of river studies.

September- Meeting with Michigan Fly Fishing Federation to discuss intent of Wild and Scenic Rivers Act.

Great Lakes Outdoor Writers Association . explained study proposals and discussed effects.

October - Meeting with river study team.

Meeting with Warbler's Hideaway landowners to discuss study proposal and effects.

#### 1979

January - Meeting with Ray Rustem MUCC to discuss river study proposals.

Meeting with Baptist Men's Brotherhood to discuss intent of Wild and Scenic Rivers Act.

March - Meeting with Michigan United Conservation Clubs to discuss river study proposal.

Meeting with North Branch Property Owners to discuss intent of river designation and discuss effects.

April - Met with Rotary in Manton to explain study process and results.

June - Met with Manistee County Planning Coordinator to discuss study proposal.

July - Meeting with MUCC committee to discuss study proposal.

Public hearings for AuSable River Proposal:

July 18 - Grand Rapids, Michigan

July 19 - Farmington, Michigan

July 20 - Grayling, Michigan

November- Public Hearings for Manistee River Proposal:

November 7 - Grand Rapids, Michigan

November 8 - Farmington, Michigan

November 9 - Wellston, Michigan

November 10 - Kalkaska, Michigan

December- Met with Audubon Society - Big Rapids Chapter -  
to discuss river study proposal.

Met with Audubon society - Big Rapids Chapter -  
to discuss river study proposal

Met with Trout Unlimited in Gaylord to discuss  
study proposal.

### 1980

January - Meeting with Kalkaska County Commissioners and  
public to discuss study proposal and impacts.

February- Meeting with Methodist Church Adult Group  
(Cadillac) to explain study proposal.

**APPENDIX M- FINANCIAL ASSISTANCE**



Financial and Technical Assistance Programs Available to State and Local Governments and Private Landowners

This is a summary of assistance programs available in the region to assist in managing and protecting designated Wild and Scenic Rivers. It outlines programs available primarily for water quality management and planning through section 208 of the Federal Water Pollution Control Act. Detailed information regarding these programs can be obtained through the Tri-County Regional Planning Commission, 2722 East Michigan Avenue, Lansing, Michigan 48912.

| <u>Agency/Subagency</u>              | <u>Program Name</u>                                 | <u>Federal Assistance Program Number</u>                      |        |
|--------------------------------------|-----------------------------------------------------|---------------------------------------------------------------|--------|
| U.S. ENVIRONMENTAL PROTECTION AGENCY | "201" Construction Grants for Wastewater Works      | 66.418                                                        |        |
|                                      | "201" Loan Guarantees                               | 66.603                                                        |        |
|                                      | "208" Areawide Water Quality Management Planning    | 66.426                                                        |        |
| U.S. DEPARTMENT OF AGRICULTURE       | AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE | Water Bank Program                                            | 10.062 |
|                                      |                                                     | Agricultural Conservation Program                             | 10.063 |
|                                      |                                                     | Forestry Incentives Program                                   | 10.064 |
|                                      |                                                     | Irrigation, Drainage, & Other Soil & Water Conservation Loans | 10.409 |
| FARMERS HOME ADMINISTRATION          | Resource Conservation & Development Loans           | 10.414                                                        |        |
|                                      | Soil & Water Loans                                  | 10.416                                                        |        |
|                                      | Watershed Protection & Flood Prevention Loan        | 10.419                                                        |        |
|                                      | Community Facilities Loans                          | 10.423                                                        |        |

2.

| <u>Agency/Subagency</u>                    | <u>Program Name</u>                                  | <u>Federal Assistance<br/>Program Number</u> |
|--------------------------------------------|------------------------------------------------------|----------------------------------------------|
| U.S. FOREST SERVICE                        | Cooperative Forestry Assistance                      | 10.664                                       |
| SOIL CONSERVATION SERVICE                  | Resource Conservation & Development                  | 10.901                                       |
|                                            | Soil & Water Conservation                            | 10.902                                       |
|                                            | Watershed Protection & Flood Prevention              | 10.904                                       |
|                                            | Plant Materials for Conservation                     | 10.905                                       |
|                                            | Resource Appraisal & Program Development             | 10.909                                       |
| DEPARTMENT OF HOUSING & URBAN DEVELOPMENT  | "701" Comprehensive Planning Assistance              | 14.203                                       |
| U.S. DEPARTMENT OF THE INTERIOR            |                                                      |                                              |
| HISTORIC CONSERVATION & RECREATION SERVICE | Land & Water Conservation Fund Grants                | 15.402                                       |
|                                            | Outdoor Recreation-Technical Assistance              | 15.402                                       |
| U.S. FISH & WILDLIFE SERVICE               | Environmental Contaminant Evaluation                 | 15.607                                       |
| U.S. GEOLOGICAL SURVEY                     | Water Resources Investigations                       | 15.804                                       |
| SMALL BUSINESS ADMINISTRATION              | Water Pollution Control Loans                        | 59.024                                       |
|                                            | Small Business Pollution Control Financing Guarantee | 59.031                                       |
| DEPARTMENT OF JUSTICE                      | Cooperative Law Enforcement (Sisk Fund)              |                                              |

**APPENDIX N-RESPONSE TO DRAFT REPORT**

RESPONSE TO THE DRAFT REPORT

This information is filed in the Forest Supervisor's Office:

Huron-Manistee National Forests  
421 South Mitchell Street  
Cadillac, Michigan 49601

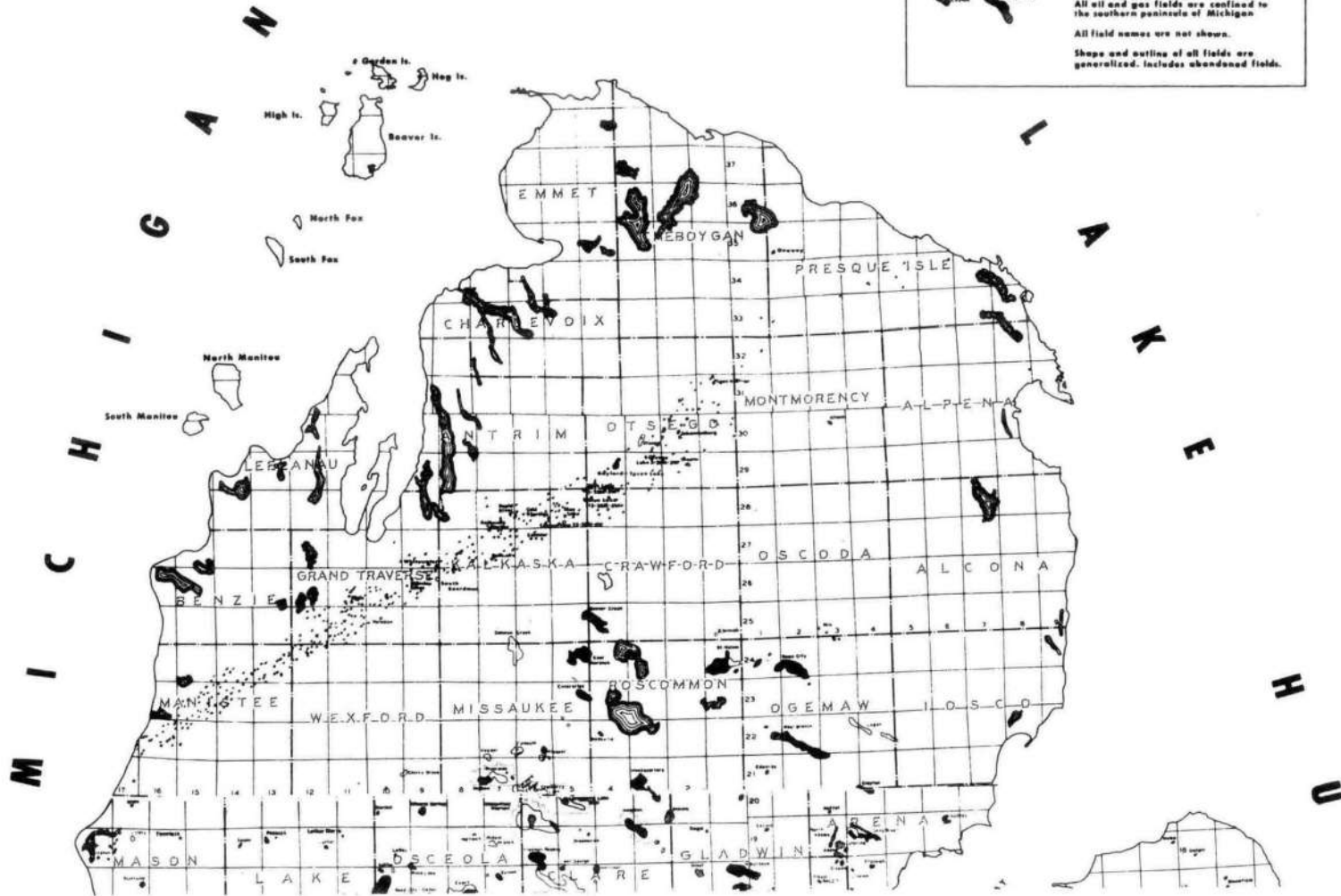
It is summarized in Appendix A, the FEIS, of this document.

**APPENDIX O- OIL & GAS FIELDS**

DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY DIVISION  
**MICHIGAN OIL AND GAS FIELDS, 1978**  
 SOUTHERN PENINSULA



|                                                                                 |                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>OIL FIELDS</b></p> <p>SINGLE POOL</p> <p>2 OR MORE POOLS</p>              | <p><b>GAS FIELDS</b></p> <p>DEVELOPED GAS STORAGE ARE</p>                                                                                                                                                   |
| <p><b>COMBINATION OIL AND GAS FIELDS</b></p> <p>1 OR MORE OIL AND GAS POOLS</p> | <p>All oil and gas fields are confined to the southern peninsula of Michigan.</p> <p>All field names are not shown.</p> <p>Shapes and outline of all fields are generalized. Includes abandoned fields.</p> |



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**APPENDIX P-LIST OF PREPARERS**

## List of Preparers

The following people were involved in preparing the study report/environmental impact statement in various capacities as either study team members, consultants, writers, or leadership.

- Doug Carter - In charge of Natural Rivers Section, Michigan Department of Natural Resources; Study Team Member; B.S. Parks and Recreation Administration, M.S. Resource Development.
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- Sharon Dougall - Wildlife Biologist, U.S. Fish and Wildlife Service, Lansing, MI; Study Team Member, B.S. Wildlife Management.
- Carl F. Gebhardt - Study Project Leader and River Planner, U.S. Forest Service, Cadillac; B.S. Forest Management.
- Bill Green - Special Studies Coordinator, Heritage Conservation Recreation Service, Ann Arbor, MI; Study Team Member, B.S. Forest Management.
- Jack Mathews - Consultant-Commonwealth Associates Inc., Jackson, MI; B.S. Geography.
- Louis Meyer - Planner - Great Lakes Basin Commission, Ann Arbor, MI; Study Team Member, B.S. Resource Planning.
- Monte Montgomery - In charge of Recreation Land Use Division, Michigan Department of Natural Resources; Study Team Member; B.S. Forest Management.
- John Kuhr - Interdisciplinary Planning Team Member, U.S. Forest Service, Milwaukee, WI; Reviewer; B.S. Landscape Architecture.
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- Bruce Vollmer - Natural Rivers Specialist, Michigan Department of Natural Resources; Study Team Member; B.S. Forest Management; M.S. Wildlife Management.
- Russell M. Garrigus - BS Forestry, University of Connecticut, 1958, District Ranger, Manistee Ranger District, Huron-Manistee National Forests.
- Thomas V. Lea - BS Forestry, Michigan State University, 1967, District Ranger, Cadillac Ranger District, Huron-Manistee National Forests.



**APPENDIX Q - INDEX**



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