

APPENDIX A

Supporting Analysis

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A.1 PARK SETTING

Park Profile

Area: 117 acres
County: Manistee County
Township: Dickinson Township
Latitude: 44.261660
Longitude: -85.940585

Address: 1500 Dilling Road
Brethren, MI 49619
Phone #: (231) 848-4880

Tippy Dam Recreation Area



Location & Community

Tippy Dam Recreation Area is located in rural Manistee County, approximately four miles north of Wellston, and five miles southeast of the village of Brethren. The recreation area is located on the north side of the Manistee River at Tippy Dam.

Currently, the land of the recreation area is owned by Consumers Energy Company and managed by the Michigan Department of Natural Resources (MDNR) under a lease agreement. The site was designated as a State Recreation Area in 2007, having previously been managed as a Boating Access Site. Recreation facilities include two paved boat launches, an accessible fishing deck, a fish cleaning station, a 38 campsite rustic campground and a camper cabin.

Tippy Dam RA is a tremendously popular sport fishing destination, attracting tens of thousands of anglers annually. The area below Tippy Dam is of particular interest to anglers during the fall salmon run. During this time, it is not uncommon to see hundreds of anglers lining the shore of the Manistee River within the first couple of miles of the dam. Although the majority of the annual visitation to the recreation area is during the fall salmon run, there are ample opportunities for sport fishing throughout the year in the Manistee River. The backwaters created by the dam, known as Tippy Dam Pond, also provide a popular fishing destination. Tippy Dam Pond is well-known for its walleye and black crappie fishing. The park, largely due to the fishing opportunities of the Manistee River at Tippy Dam, attracts tourism, making it an important economic resource that helps to support local businesses.

A.2 DEMOGRAPHICS

Manistee County is located in the northern Lower Peninsula along Lake Michigan, organized in 1855 and named after the Manistee River. It covers approximately 585 square miles, nearly 100,000 acres of which are public lands.

The area was originally inhabited by the Ottawa Tribe and remained unsettled until lumber interests brought European settlers to the area in the 1840s. The reservation was subsequently dismantled and given to settlers. After 150 years, the lumbering and agriculture industries have evolved into a stable, diversified industrial base with a high-quality fruit-producing agricultural center.

(Source: www.manistee.mi.gov and www-personal.umich.edu/~abean/mainstee/Manistee_county_recreation_plan)

2010 U.S. Census Data for Manistee County

The U.S. Census Bureau reports that the 2010 population of Manistee County at 24,733. The population of this county has shown little change since 2000.

People QuickFacts	Manistee County	Michigan
Population, 2011 estimate	24,709	9,876,187
Population, 2010 (April 1) estimates base	24,733	9,883,635
Population, percent change, April 1, 2010 to July 1, 2011	-0.1%	-0.1%
Population, 2010	24,733	9,883,640
Persons under 5 years, percent, 2011	4.3%	5.9%
Persons under 18 years, percent, 2011	18.7%	23.2%
Persons 65 years and over, percent, 2011	21.1%	14.1%
Female persons, percent, 2011	48.2%	50.9%

White persons, percent, 2011 (a)	92.5%	80.2%
Black persons, percent, 2011 (a)	3.1%	14.3%
American Indian and Alaska Native persons, percent, 2011 (a)	2.2%	0.7%
Asian persons, percent, 2011 (a)	0.3%	2.5%
Native Hawaiian and Other Pacific Islander persons, percent, 2011 (a)	0.1%	Z
Persons reporting two or more races, percent, 2011	1.8%	2.1%
Persons of Hispanic or Latino Origin, percent, 2011 (b)	2.7%	4.5%
White persons not Hispanic, percent, 2011	90.1%	76.4%

Living in same house 1 year & over, percent, 2007-2011	86.8%	85.4%
Foreign born persons, percent, 2007-2011	1.9%	6.0%
Language other than English spoken at home, percent age 5+, 2007-2011	4.1%	9.0%

High school graduate or higher, percent of persons age 25+, 2007-2011	87.1%	88.4%
Bachelor's degree or higher, percent of persons age 25+, 2007-2011	17.6%	25.3%
Veterans, 2007-2011	2,828	711,613
Mean travel time to work (minutes), workers age 16+, 2007-2011	20.1	23.9
Housing units, 2011	15,649	4,525,480
Homeownership rate, 2007-2011	80.2%	73.5%
Housing units in multi-unit structures, percent, 2007-2011	8.3%	18.1%
Median value of owner-occupied housing units, 2007-2011	\$120,000	\$137,300
Households, 2007-2011	10,745	3,825,182
Persons per household, 2007-2011	2.18	2.53
Per capita money income in the past 12 months (2011 dollars), 2007-2011	\$22,258	\$25,482
Median household income, 2007-2011	\$41,169	\$48,669
Persons below poverty level, percent, 2007-2011	14.9%	15.7%
Geography QuickFacts	Manistee County	Michigan
Land area in square miles, 2010	542.15	56,538.90
Persons per square mile, 2010	45.6	174.8
FIPS Code	101	26
Metropolitan or Micropolitan Statistical Area	None	

Compared to the state of Michigan, Manistee County has a relatively high percentage of persons under the age of 65 and a lower than average per capita and household income level.

A.3 HISTORY OF TIPPY DAM RECREATION AREA

The Manistee River watershed was controlled by the Algonquin Indian Nation prior to European exploration. The Huron, Chippewa, Ottawa, and to a less extent, the Potawatomi tribes used this area for its vast resources. European settlers and tribes fought over control of the land, culminating in the displacement of many native inhabitants onto reservations. From 1836 to 1848 much of the Manistee River Valley was an Ottawa Reservation. In the 1840s the area witnessed its first permanent settlements as European settlers came to the area to pursue logging interests. The lumbering activities drove most development in the area until the 1870s when economically viable lumber harvests became scarce.

In 1918, the Junction Hydro was constructed by the Consumers Power Company, know now as Consumers Energy. Junction Hydro was later renamed 'Tippy Dam' in honor of a Consumers Board of Directors member, Charles W. Tippy. The dam is currently Consumers Energy second-largest hydroelectric dam with the capacity to generate up to 20,000 kilowatts.

(Source: www.consumersenergy.com)



(Source: <http://truenorthtrout.com/2009/11/teds-fishing-report-early-november-2009/>)

The Michigan Department of Natural Resources (MDNR) Waterways Division entered into a lease agreement with Consumers Power Company on October 22, 1971 with a basic term expiring in 1981 and renewal options. The lease covered the Public Access Site and Campground at Tippy Dam and was allowed to expire by failing to exercise renewal options on the basis of Policy No. 3401 adopted by the Natural Resource Commission (NRC). This policy indicated that all properties administered by the DNR on leases from utility companies should, in the future, be operated from a cost

perspective. It was intended to require utility companies to pay 100% of costs associated with such facilities. In 1982, after no support for requiring Consumers Power Company to reimburse the Department for all costs incurred for the site by the NRC, negotiations were entered with the Consumers Power Company. The policy was revised to stipulate that the Department should negotiate with the utilities on a case-by-case basis. Further negotiations with Consumers Power Company began in 1984, an agreement for 50% of costs to be paid by Consumers Power beginning in 1985. Since then the MDNR has maintained a leasing agreement with the energy company, with the most recent lease entered into in 2000, which expires in 2015.

Currently, Tippy Dam Recreation Area is used for its various recreational opportunities including, hunting, camping, paddling, and especially sport fishing. The waters below the Tippy Dam are known for being a premium sport fishing area and one of the best salmon fishing locations in the Midwest. The fall salmon run is particular popular with anglers and it is common for the banks of the river to be lined with sportsmen this time of year.

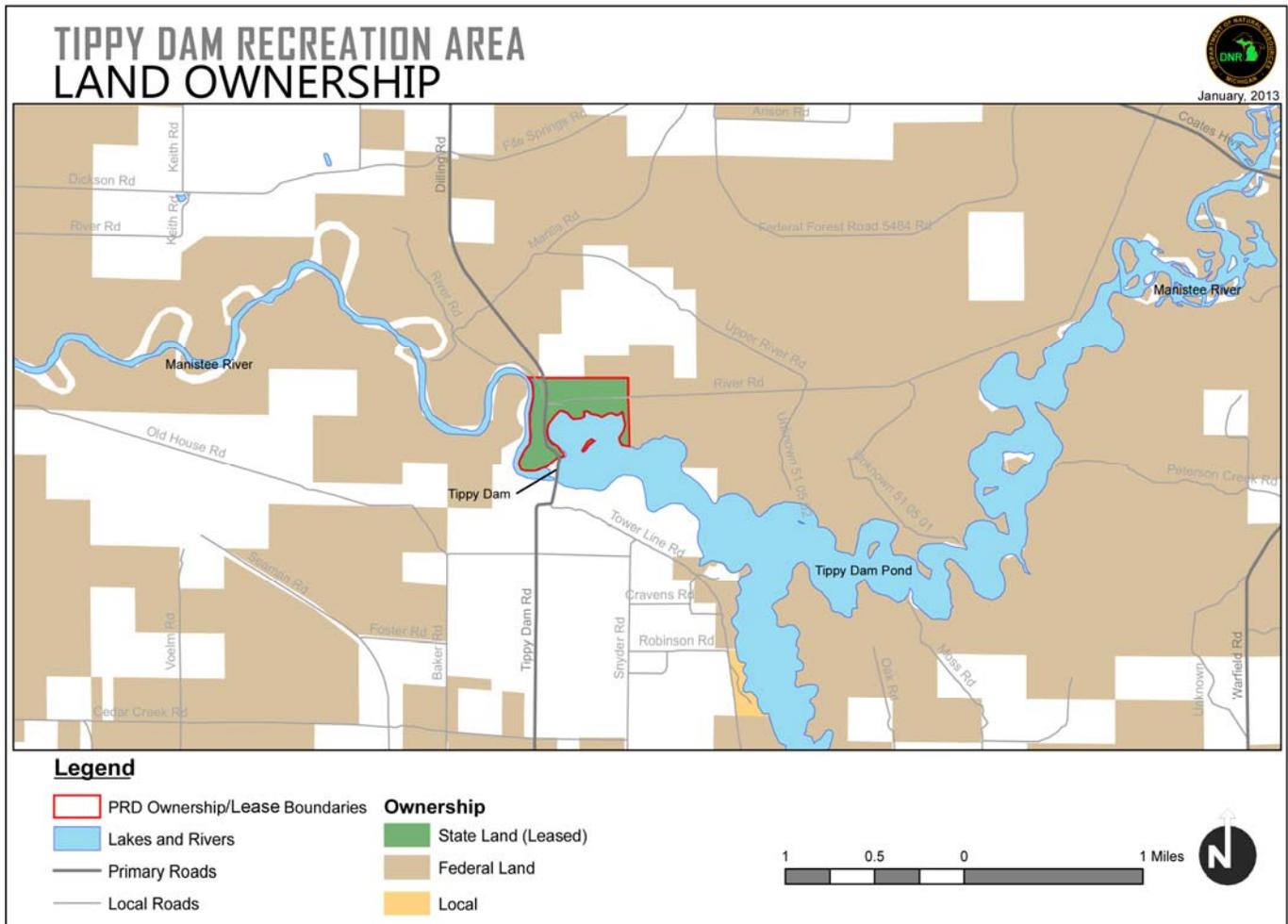
In 2007 the Department of Natural Resources declared Tippy Dam Boating Access Site to be a Recreation Area, placing it into the State Park system.

A.4 LAND OWNERSHIP

The new lease agreement between the MDNR and Consumers Energy Company went into effect May 1st, 2000 and expires in May of 2015 with an option to extend the lease on a year-to-year basis. The lease describes the property as lying within the boundaries of the Tippy Project, a licensed Federal Energy Regulatory Commission (FERC) project (project number 2580). The dam owned by Consumers Energy Company is regulated by the FERC, which has granted the power company licensing for continued operations through 2034, when the agreement is to be reassessed.

According to the leasing agreement between the MDNR and Consumers Energy Company, the project site is to be used for camping, picnicking and boating access in accordance with the attachments to the lease. The lease annual rent to be paid to Consumers Energy Company for use of the land is currently \$2,500. (See Appendix D for Lease Agreement).

A power line corridor runs through the property. The corridor is under an easement agreement between METC and Consumers Energy Company. Any improvement within this 72 foot wide easement corridor needs METC Approval.



A.5 LEGAL MANDATES

For all park General Management Plans, all legal mandates are identified that serve to further guide the development of the General Management Plan and subsequent Action Plans. For our planning purposes, the term “Legal Mandates” refers to not only state law, but also the administrative tools of “Policy” and “Directive” of the Natural Resource Commission, the Department, and the Parks & Recreation Division. Examples include Wildlife Conservation Orders, Orders of the Director, and all other laws, commission orders, and rules or directives that apply to the park. Specific to Tippy Dam Recreation Area, several legal mandates have been identified, which are listed below. Since the property is owned by Consumers Energy and operated under a lease by the DNR, additional rules and regulations apply to this property, including Federal Energy Regulatory Commission (FERC) licensing requirements.

Department of Natural Resources State Land Use Rules

- Issued by authority conferred on the Michigan Department of Natural Resources (DNR) by Section 504 of 1994 PA 451 MCL 324.504.
- Covers rules on state land relating to camping, motorized vehicle use, control of animals, trail use etc.

DNR Policies and Procedures – Series 26 - State-Owned Lands

- General principles established by the Department that guide the administration of authorities delegated to the Department by the Legislature and the Governor.
- 26.04-04 - Use Of State-Owned Lands Administered By The Michigan Department of Natural Resources (ISSUED: 02/01/2006). The NRC will manage state-owned lands in a manner that protects and enhances the public trust while providing for the use and enjoyment of those lands as outlined in the Natural Resources and Environmental Protection Act.

PA 368 OF 1978, ARTICLE 12 - ENVIRONMENTAL HEALTH, PART 125 – CAMPGROUNDS – Part 125 of the Public Health Code

- Established to protect and promote the public health by establishing health code requirements and regulations that all public (including DNR) and private campgrounds must meet.
- Campground wastewater system must meet the construction permit, design, and operation requirements under Michigan’s Public Health Code.

PA 451 OF 1994, PART 22 – CAMPGROUND WASTEWATER SYSTEMS

- These rules apply to all campground wastewater systems and regulates discharges to groundwater; administered by the Water Division, Groundwater Discharge Unit.

PA 451 of 1994, PART 31 – WATER RESOURCES PROTECTION

- Administered by the DEQ and part of the Natural Resources and Environmental Protection Act, this legislation defines specific rules for the regulation of permitted activities in a floodplain in Michigan.

PA 451 of 1994, PART 303 - WETLANDS PROTECTION (formerly Act No. 203, P.A. 1979 Wetland Protection Act)

- Administered by the DEQ and part of the Natural Resources and Environmental Protection Act, this legislation provides clarification and guidance on interpreting Part 303 by defining specific rules for the regulation of wetlands in Michigan.
- The law requires that persons planning to conduct certain activities in regulated wetlands apply for and receive a permit from the state before beginning the activity.

PA 451 OF 1994, PART 419 - HUNTING AREA CONTROL

- Administered by the DNR, this part of PA 451 establishes the powers of the Department to establish safety zones for hunting.

PA 451 OF 1994, PART 504 - STATE LAND USE RULES / LAND USE ORDERS OF THE DIRECTOR

- Administered by DNR Law Division.
- States that the department shall promulgate rules for the protection of the lands and property under its control against wrongful use or occupancy.

PA 451 OF 1994, PART 741 - STATE PARK SYSTEM - NATURAL RESOURCE AND ENVIRONMENTAL PROTECTION ACT

- Notable in this law is Section 324.74102, which identifies the duties of the DNR and reinforces those core values concerning preservation, protection and management cited above.

PA 35 of 2010, Part 741 (“Recreation Passport”)

- This act amended the Michigan Motor Vehicle Code to provide for a State Park and State-operated public boating access site “Recreation Passport” that a Michigan resident may obtain by paying an additional fee when registering a motor vehicle.
- The Recreation Passport is required for entry into all PRD administered facilities and takes the place of the Motor Vehicle Permit (MVP).

PA 45 OF 2010 - NATURAL RESOURCE AND ENVIRONMENTAL PROTECTION ACT

- Amends the Natural Resources and Environmental Protection Act (PA 451 of 1994) to require the DNR to establish a plan for a statewide trail network that includes Michigan trailways, pack and saddle trailways, and other recreational use trailways, and to permit pack and saddle animals on designated trailways managed by the DNR.

PA 46 OF 2010 - NATURAL RESOURCE AND ENVIRONMENTAL PROTECTION ACT

- Amends the Natural Resources and Environmental Protection Act (PA 451 of 1994) with a finding that a statewide system of trails, trailways, and pack and saddle trailways is in the best interest of the state; requires the DNR to establish an “adopt-a-trail” program that allows volunteer groups to assist in maintaining and enhancing Michigan trailways, pack and saddle trailways, and rail-trails; and creates the Michigan snowmobile and trails advisory council within the department.

WILDLIFE CONSERVATION ORDERS

- Established by the Natural Resources Commission (NRC).
- Describes hunting and trapping regulations including methods of take, bag limits, license quotas, and season dates are established by the NRC and are described in the Wildlife Conservation Orders.

A.6 RELATIONSHIP OF TIPPY DAM RA TO OTHER RECREATION RESOURCES

There are over 220 recreational assets within Manistee County, according to the 2008-2013 Manistee County Recreation Plan. This plan reports that sixteen of the twenty local municipalities within the county offer local and community recreation opportunities, complimenting the vast opportunities on State and Federal lands. These local opportunities account for approximately 50 parks. There are several unique recreational opportunities within Manistee County, one of which is the Lake Bluff Audubon Center. This 76 acre area overlooking Lake Michigan offers great wildlife viewing. Additionally, the Grand Traverse Regional Land Conservancy has significant in-holdings within the county.

Outdoor recreation and game opportunities compose the majority of the recreational opportunities in the area. The Manistee River provides ample opportunities for fishing, especially just below the Tippy Dam which hosts one of the best areas for trout, steelhead, and salmon fishing in the Midwest. Being largely surrounded by the Huron-Manistee National Forest, facilitated recreation opportunities are largely limited to municipal parks in nearby villages.

The Huron-Manistee National Forest comprises 978,906 acres of public land, which largely surround Tippy Dam Recreation Area. The Huron-Manistee National Forest offers fishing, camping, boating, snowmobiling, cross-country skiing, hiking, and hunting.

The Manistee River is recognized as one of the premier canoeing and kayaking rivers in Lower Michigan for multi-day trips. The section of river near Tippy Dam has been federally designated as a Wild and Scenic River by the U.S. Forest Service. Numerous access sites along the river allow for excursions ranging from 2 hours to 10 days. Due to the paddling, fishing, and camping opportunities along the Manistee River, the river is popular with scout troops, youth groups and families.

The North Country Trail and the Manistee River Trail are main linear trails that are located approximately 1.5 miles north of the Tippy Dam RA. These trails pass through the Huron-Manistee National Forest and follow the general course of the Manistee River. The North Country Trail is a scenic hiking trail that stretches approximately 4,600 miles from Crown Point, New York to Lake Sakakawea State Park in central North Dakota. The Manistee River Trail is an 11 mile trail running along the east side of the river from Coates Highway to Hodenpyl Dam. A suspension bridge over the river connects with the North Country Trail.

Nearby Municipal Parks

Brethren Village Park; Crystal Lake Township Park; Dickinson Township Park; Fawn Crest Golf Course; Manikiwa Recreation Area; Tippy Dam Backwater Park

Nearby State Parks:

Orchard Beach (Manistee); William Mitchell (Cadillac); Ludington; Interlochen; Traverse City

Nearby State Forest Campgrounds:

Healy Lake Rustic; Baxter Bridge Rustic; US-131 Rustic; Spring Lake; Long Lake; Lincoln Bridge Rustic; Silver Creek Rustic; Carrieville; Bray Creek Rustic; Leverentz Lake Rustic; Platte River Rustic; Veterans Memorial Rustic; Lake Ann Rustic; Lake Dubbonet Trail; Lake Dubbonet Rustic; Arbutus No 4 Rustic; Scheck's Place; Forks Rustic

Nearby State Forest Pathways:

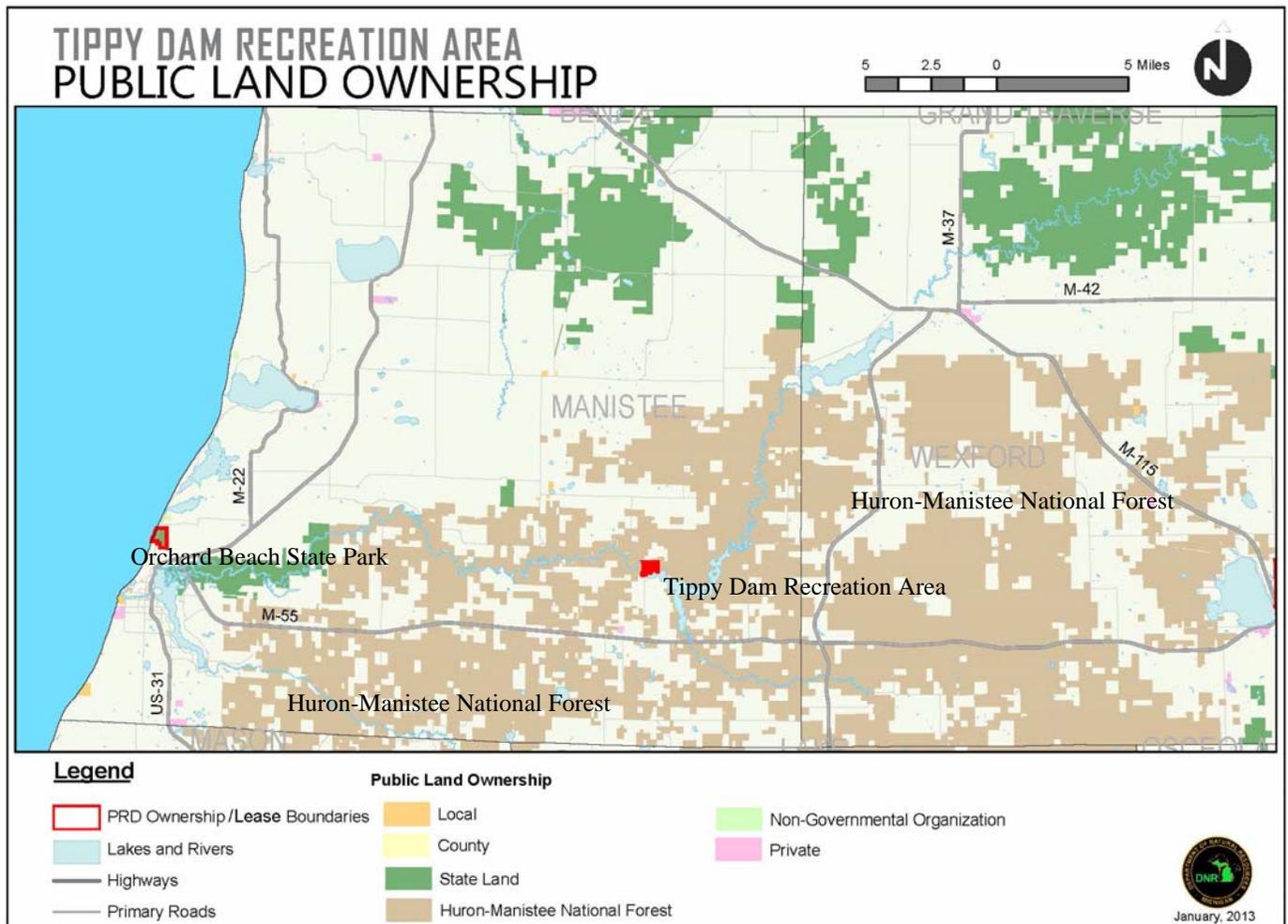
North Country Trail; Manistee River Trail; Garey Lake Trail; Lake Dubbonet Trail; Scheck's Place Trail

Nearby Huron-Manistee National Forest Pathways:

Bestie River; Platte Springs; Lake Ann; Lost Lake; Muncie Lake; Vasa Trail; Sand Lake Quiet Area; Silver Creek; Pine Valley; Pine Forest; Sheep Ranch

The Manistee River State Game Area is also present within Manistee County, just South of Orchard Beach State Park.

(Source: 2008-2013 http://www-personal.umich.edu/~abean/manistee/manistee_county_recreation_plan.pdf)



A.7 LAND USE

Manistee County's 2008 master plan identified approximately 90 percent of county land area classified as open space. 46,440 acres of land area, as of 2008, were used for active farmland. The county's approximately 356,000 acres consists of roughly 73,000 acres of wetlands (21% of total land area), which are primarily located along the Manistee River, and within the Pere Marquette State Forest and the Huron-Manistee National Forest.

The Northwest Michigan Council of Governments conducted a comparative analysis of land use changes between 1995 and 2000. This comparison was completed in 2006 and documented the following changes:

- 75 acres changed from vacant or bare land to development
- 312 acres changed from agricultural use to development
- 138 acres changed from forest use to development

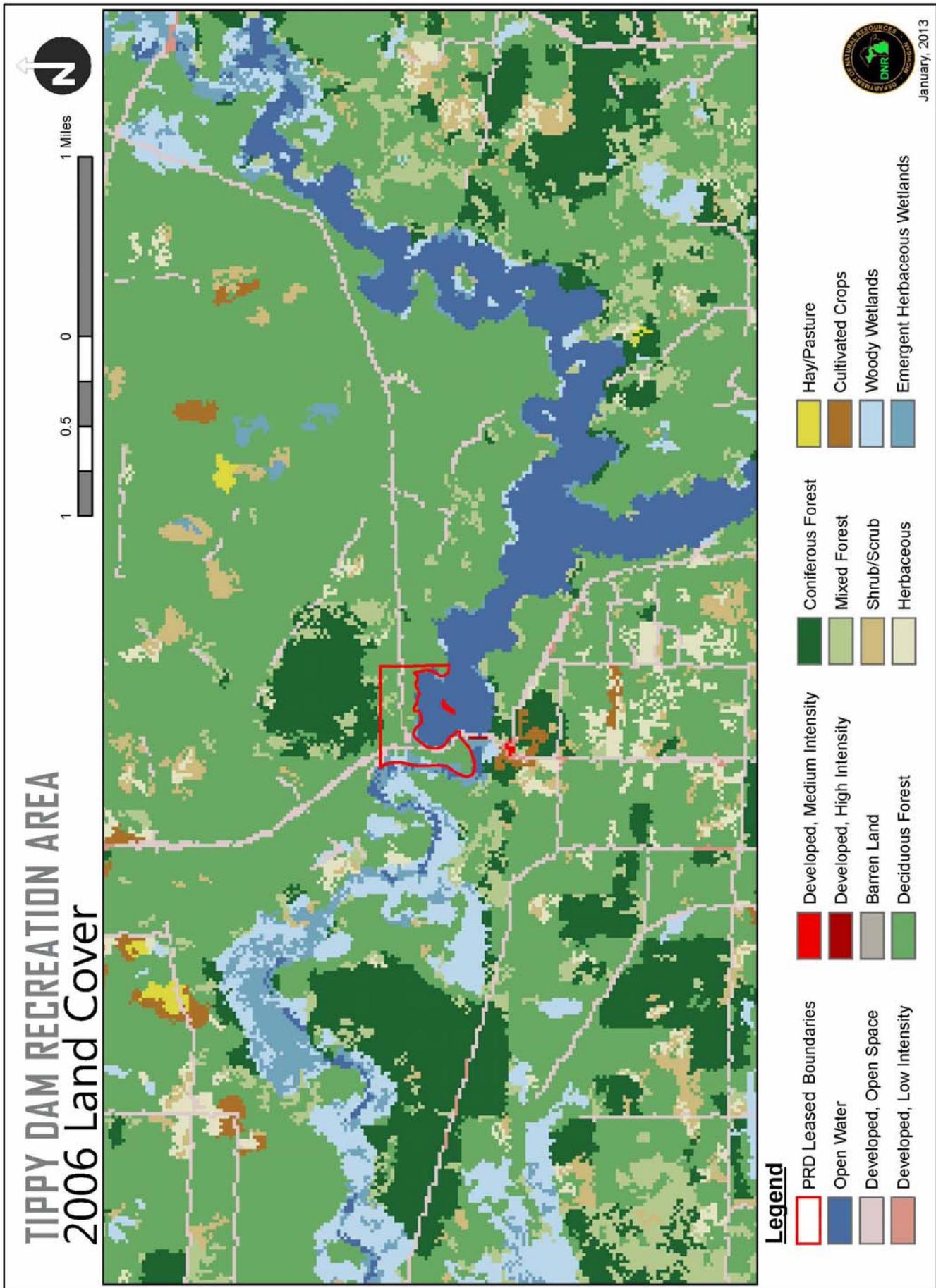
As described by the above figures, there has been little development in Manistee County during this period. The following images illustrate land cover around Tippy Dam RA in 2006, and the future land use plan established by Planning Commissioners for the 2008 Master Plan for Manistee County. The latter (2008) plan is simplified by grouping low-impact uses into one category: low-density residential, agriculture and forestry. The area directly around Tippy Dam RA will be maintained within this category to preserve the natural features in this region. This is consistent with land cover from 2006, indicating little change to the immediate area.

Land use restrictions include a 100 foot buffer zone around Tippy Dam Pond where development is restricted. Any proposed development in this area needs approval from Consumers Energy and FERC. A cultural resource review is also required for any proposed improvement that involves excavation.

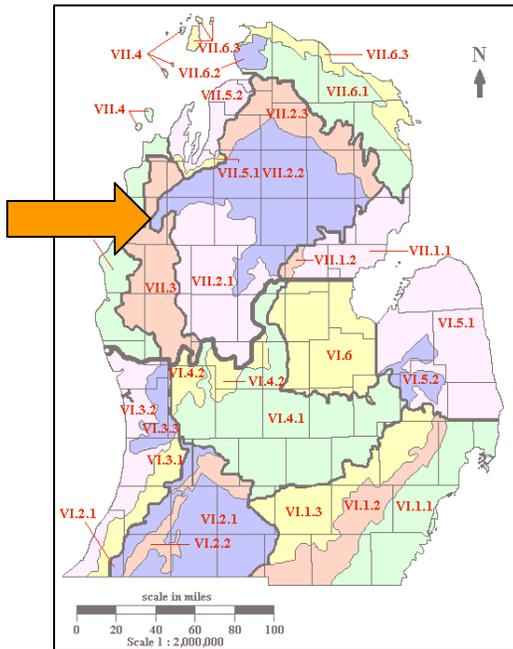
The last known timber cut in the area was in 1960.

The land on the opposite side of the river from the property is owned by the National Forest Service and they designate the river as a "Wild and Scenic River" which has restrictions with regards to the federal land. These restrictions include no camping within 200 feet of the river and vegetation must remain intact to prevent erosion.

(Sources: Manistee County Master Plan, 2008 pg 4-1 www.manisteecounty.com)



A.8 NATURAL SYSTEMS AND NATURAL RESOURCES



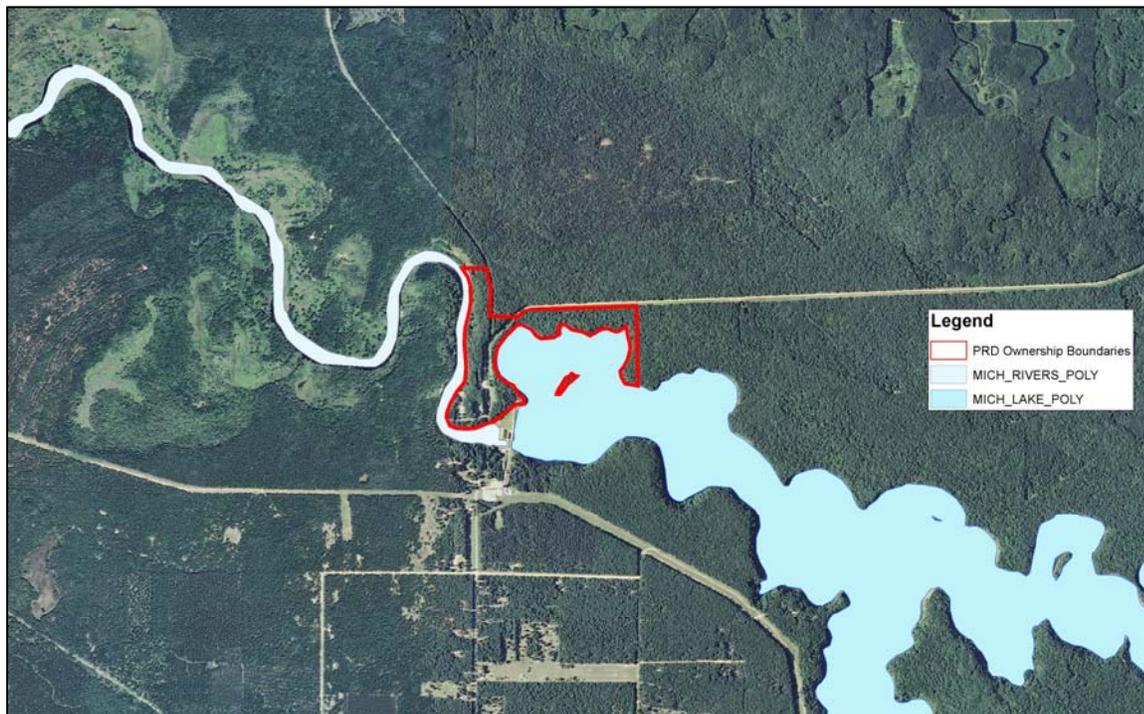
Eco-Regional Context

The Northern Lower Peninsula Eco-Region (Section VII) is characterized by outwash plain and sandy end moraines. Tippy Dam RA lies within subsection VII.3: Newaygo Outwash Plain. This area consists of several excessively well drained outwash plains and boasts intermediate climate between the highly lake-moderated Manistee subsection and the Inland High-Plains subsection. Elevations here range from 700 to 1,210 feet. (Source: *Regional Landscape Ecosystems of Michigan*, pg 142)

Water Resources

It is estimated that Manistee County has 276 miles of rivers and streams, along with 25 miles of Lake Michigan shoreline. The county boasts 9,600 acres of surface water, which includes 9 inland lakes. There are 5 major rivers in Manistee County, including the Manistee, the Little Manistee, the Pine River, the Betsie River and Bear Creek. Tippy Dam RA has ample access to water, as its entire Southern and Western borders lie along the Manistee River and Tippy Dam Pond.

(Sources: *Manistee County Master Plan, 2008 pg 4-1* www.manisteecounty.com; *Regional Landscape Ecosystems of Michigan*, pg 142)



Geology

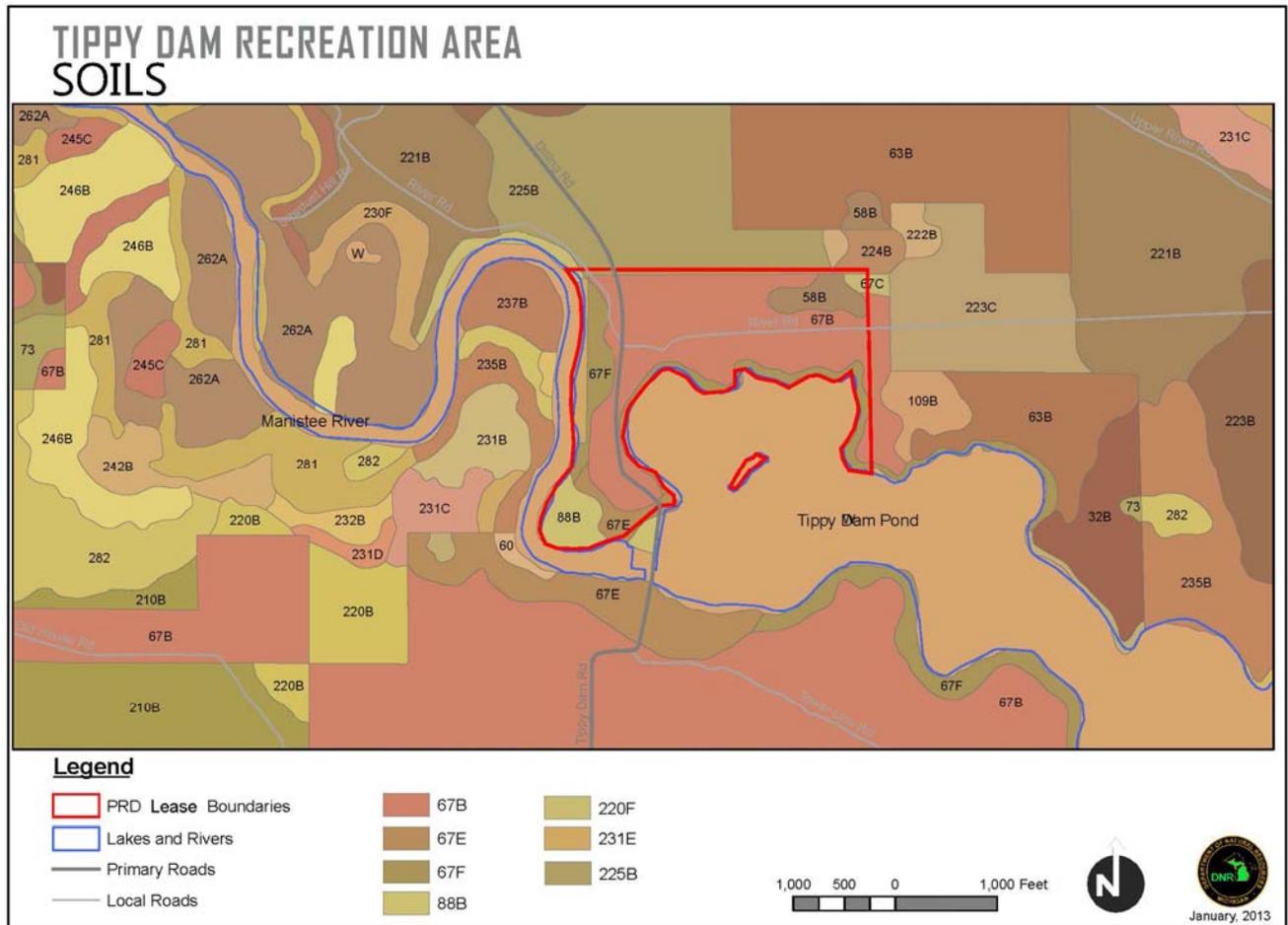
This subsection experiences no bedrock exposure, though glacial drift is 300-600 feet thick. Underlying bedrock is generally Paleozoic age of Pennsylvanian, Mississippian and Devonian sandstone, coal, shale and limestone. The area around Tippy Dam is glacial outwash sand, gravel and post-glacial alluvium.

Subsection VII.3 consists primarily of outwash plain, however some areas of sand lake plain are present. Portions of the outwash here are pitted by ice-block depressions, frost pockets which support dry prairie vegetation rather than forests. These depressions are seasonally or permanently flooded.

(Source: *Regional Landscape Ecosystems of Michigan*, pg 142).

Soils

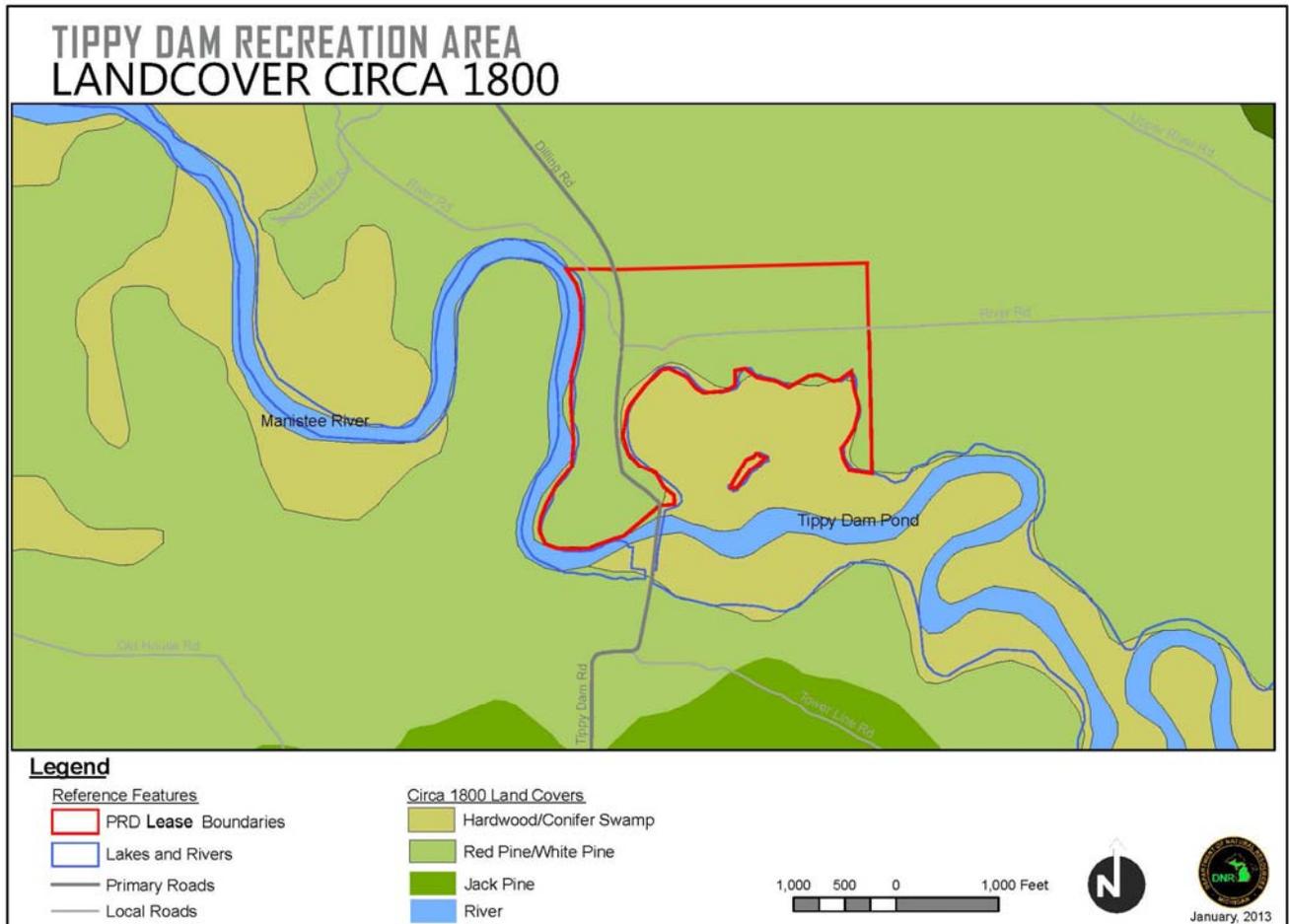
The soils in the area are sandy and are prone to fluvial erosion along the river bank. Heavy foot traffic along the banks of the Manistee River may also exacerbate erosion.



67B	Plainfield sand	0-6% slopes
67E	Plainfield sand	12-35% slopes
67F	Plainfield sand	35-70% slopes
88B	Udipsamments	Nearly level and undulating
220F	Typical Udipisamments	Very Steep
225B	Typical Udipsamments	Nearly level and undulating

Land Cover

Prior to European settlement, the land of Tippy Dam Recreation Area was covered by red pine, jack pine, oak and white pine forest. This community type is characteristic of sandy, wet sites along flood plains adjacent to water. This map shows the Manistee River prior to the installation of the Tippy Dam in 1918. The image also shows wetland complexes that are found along the Manistee River in depressed areas as well as other nearby cover types.



Rare Plants and Animals

The following threatened, endangered, and special concern species and high quality natural communities are recorded as occurring in the Michigan Natural Features Inventory (MNFI)

Accipiter gentilis	Northern goshawk	Special Concern
Acipenser fulvescens	Lake sturgeon	Threatened
Ammodramus savannarum	Grasshopper sparrow	Special Concern
Buteo lineatus	Red-shouldered hawk	Threatened
Cirsium hillii	Hill's thistle	Special Concern
Emergent Marsh		
Gavia immer	Common loon	Threatened
Glyptemys insculpta	Wood turtle	Special Concern
Haliaeetus leucocephalus	Bald eagle	Special Concern
* Myotis sodalis	Indiana bat	Endangered (state and federal)
* Pipistrellus subflavus	Eastern pipistrelle	Special Concern
Northern Wet Meadow	Wet Meadow, Upper Midwest Type	
Pandion haliaetus	Osprey	Special Concern
Rich Conifer Swamp		

* = of particular importance to Tippy Dam Recreation Area

Tippy Dam is of particular importance to bat species, which use the cavernous spillways within the dam as a hibernaculum. Dr. Kurta, a professor at Eastern Michigan University, has been monitoring the bats at Tippy Dam for the past 18 years. According to his reports, the dam hosts approximately 24,000 bats represented by at least 4 species. The Tippy Dam hibernaculum is of particular importance, not only because it is the largest hibernaculum in the Lower Peninsula, but also because it provides habitat for the Indiana bat and the eastern pipistrelle. This site represents the northern most occurrence of the Indiana bat, which is a federally listed endangered species. Since 2001 the hibernaculum has been the winter hibernating location of at least 1 female Indiana bat.



(Source: www.tullahomanews.com)

Due to the presence of this bat and the restrictions associated with it, maintenance of the spillways and trees is limited to the period between May 1 and October 1. Protection of this hibernaculum is very important as it is currently free of the cold temperature fungus known to be symptomatic of white-nose syndrome. White-nose syndrome has caused mass mortality among bat species and is known to spread quickly among bats within an infected hibernaculum. Although much is still not known about the condition, it seems to be exacerbated by the presence of humans, hence the necessity for restriction on human entrance into the spillways. Similarly, there are timber harvest restrictions placed on the surrounding area because bat species raise their young under loose tree bark of dead trees during the summer months.

Conservation Concerns:

The potential roosting, feeding and hibernaculum around Tippy Dam should be considered during planning. These areas can be highly sensitive during certain periods of the year. Special consideration should be taken when approaching timber harvests and changes that could affect feed insect populations.

A.9 HISTORIC AND CULTURAL RESOURCES

According to Archeological reports, there are archeological sites located within the Tippy Dam Recreation Area boundaries. However the site offers little potential for specific interpretive opportunities. There is a need for further surveying work to locate areas in need of protection. Any development efforts at Tippy Dam Recreation Area should consider historic resources and be properly surveyed before construction to avoid disturbance.

A.10 EDUCATIONAL AND INTERPRETATION

Alternate energy

- The Tippy Dam is Consumer Energy's second-largest hydroelectric dam and can generate up to 20,000kW.

Invasive species

- Invasive species identification and control techniques of both aquatic and terrestrial species

Lamprey control

- In 2010 the U.S. Fisheries and Wildlife Service constructed a permanent attractant water trap (AWT) to control sea lampreys in the Big Manistee River and its connecting waters. The boardwalk leading to the trap is open to fish from, except for the 1-2 hour period each day when lampreys are removed from the trap. The trap is operational mid-April through mid-June.

Fishing Classes

- DNR staff lead classes on effective fishing techniques below the Tippy Dam

Hibernacula

- The unique design of the Tippy Dam creates chambers within the structure that are accommodating to bats. An estimated population of 24,000 bats made up by at least 4 species hibernate in the chambers.
- Most northern occurrence of the endangered Indiana Bat.

Volunteer Programs

- Volunteers are welcome to participate in an annual program to promote ethical fishing practices during the fall salmon runs. The program trains citizen volunteers to reduce illegal fishing practices by monitoring fishing activities along the Manistee River and reporting salmon being taken using illegal methods or gear.

A.11 RECREATION RESOURCES

Fishing

- Ample fishing opportunities are provided by both the bordering Manistee River and the Tippy Dam Pond.
- Just below the Tippy Dam hosts some of the best trout, steelhead, and salmon fishing in Michigan.
- The Tippy Dam Pond offers fishing opportunities for pike, bass, walleye, trout, and pan fish.
- Facilities include an accessible fishing deck and a fish cleaning station.

Hiking

- Tippy Dam RA has a 2.13 mile loop trail available for hiking, cross-country skiing and snow-shoeing.
- Although not directly connected to the Tippy Dam RA, the North Country Trail and the Manistee River Trail is located approximately 1.5 miles north.

Birding

- A popular spot for birding is located down river from the dam along the Manistee River.

Geocaching

Camping

- 38 sites for camping are provided in a rustic setting.
- Camping fee is currently \$12 per night.

Cabin

- The campground includes a camper cabin with views overlooking Tippy Dam Pond. The cabin has limited electrical supply supported a solar energy collection system.

Boat Launch

- Two hard surfaced type 2 launch ramps are located in the recreation area. One is on located on the Tippy Dam pond and the other is on the Manistee River.

Paddling

- Located on the Big Manistee River, the Tippy Dam Recreation Area offers access for canoeing and kayaking and tubing. The adjacent Tippy Dam Pond offers recreational opportunities to paddlers as well.

Cross-Country Skiing

Snowmobiling

- Snowmobiling is permitted at the Tippy Dam RA on road rights-of-way only.

Nearby Resources

Hunting

- The adjacent Huron/Manistee National Forest provides opportunities for hunting deer and other game

Trails

- The Big 'M' Trail, located off M-55 between Cadillac and Wellston offers a groomed trail for mountain biking and cross-country skiing
- The North Country Trail is located 1.5 miles north of the Tippy Dam Campground. This trail is a national scenic trail spans from North Dakota to New York and offers more than 1,500 miles of hiking trails in Michigan.

Manistee River and Tippy Dam Pond Fishing

The Manistee River is Michigan's most heavily fished rivers, making it one of the state's most important sports fisheries. The area below the Tippy Dam is of particular interest to anglers as it offers year-round fishing opportunities including runs of steelhead in the spring, trout in the summer, salmon and late steelhead in the fall, as well as steelhead and salmon in the winter. By far the most popular time for the site is from late September to mid-October when thousands of anglers flock to the site to take part in the fall salmon run. It is not uncommon to see hundreds of anglers fishing along the banks within the first couple of miles below the dam throughout this time, with fishing occurring at all times of day and night. According to a 2003 report, annual creel surveys conducted by the MDNR from 1999 to 2003 estimated that the Manistee River generates approximately 528,766 to 645,223 angler hours annually, most of which occurs in the area immediately below Tippy Dam. The influx of recreation tourism to the area is extremely important to local economies. According to this report the area below the Tippy Dam generates an annual \$2.5 million for sport fishing expenditures, some of which is circulated through local establishments.

The fish populations in this area are due to a combination of the physical nature of the Manistee River as well as fisheries management. The cold water and gravely substrate below the riffling river create an ideal environment for salmonid breeding. The 25 miles of river stretching from Tippy Dam to Manistee Lake can be divided in two major sections; the area immediately below Tippy Dam and the river below High Bridge (4.8 miles from the dam). The area immediately below the Tippy Dam is characterized by low temperature and is able to support cold/cool water communities of salmonids including brown trout, steelhead, juvenile coho salmon, and juvenile chinook salmon. Due to a lack of cold water tributaries, the area below High Bridge is characterized by warmer water temperature, able to support cool/warm water communities. Common species in this portion of the river include black crappie, blackside darter, bluegill, bowfin, burbot, common carp, largemouth bass, and northern pike.

Although fish surveys have indicated that salmonid populations are naturally reproducing in the Manistee River, the MDNR regularly stocks the river with salmonid to enrich the sport fishery. Salmon as a game fish began soon after the introduction of coho salmon. Coho were initially introduced as an attempt by the MDNR to control alewives, however, due to the wildly popular sporting of the species, the Department continued to stock it and other salmonids. The Manistee River also supports a remnant stock of Lake Sturgeon

The backwaters created by Tippy Dam, known as Tippy Dam Pond, also offer opportunities for sport fishing and other forms of water-based recreation. Tippy Dam Pond has a surface area of approximately 1,540 acres and hosts three public boat launches: one at Red Bridge on Coates Highway (administered by the USFS), one on the Pine River arm of the impoundment (administered by Norman Twp.), and one beside the dam at the Tippy Dam RA.

The area surrounding the pond is largely undeveloped due to the majority of the surrounding land being owned and managed by the USFS as the Manistee National Forest. Much of the remaining land is under management by Consumers Energy Company. The undeveloped lakeshore creates an opportunity for fishing and water recreation in a pristine atmosphere that is uncharacteristic of this region of the state.

Fish stocking in Tippy Dam Pond began in 1929 and continued until 1938. Stocking was reinstated in 1984 by the MDNR and since then, channel catfish and walleye have been fairly regularly stocked. The pond offers some unique opportunities for anglers as the pond hosts a considerable amount of channel catfish, walleye, and black crappie. The most popular game fish in Tippy Dam Pond are walleye, while other important game fish include smallmouth bass, northern pike, rainbow trout, brown trout, and largemouth bass. Pan fish species include black crappie, bluegill, pumpkinseed sunfish, rock bass, and yellow perch. Fish populations are regularly monitored in the pond with fish surveys conducted by the MDNR, Consumers Energy and the Little River Band of Ottawa Indians. The MDNR plans to continue management and stocking of species in the Tippy Dam Pond.

A.12 AREAS OF CONFLICT

Illegal fishing

- Illegal fish harvesting practices such as snagging are prevalent during heavily fished periods of the year
- Volunteer groups aid in the prevention and identification of illegal practices at the recreation area
- May be a need for increased enforcement, especially during the heavily used period in the fall

Boat and shore angler disputes

- Due to the high volume of anglers and campers, during certain times of the year disputes among visitors to the site increase

Littering

- Littering is a major concern for park staff during periods of heavy visitation, as a considerable amount of time is spent by park staff collecting litter

National forest campers using Tippy Dam Recreation Area facilities

A.13 PARK USE STATISTICS AND ECONOMIC IMPACTS

PARK USE

Tippy Dam RA's prime fishing opportunities help to account for the large number of visitors, which are estimated to be around 58,000 per year. The season variations in use are also driven primarily by the fishing seasons. Approximately 88% of visits were associated with day use, compared to 12% with camping.

Tippy Dam Recreation Area and its camp site are open year round. The majority of the facility is ploughed throughout the winter months. Park use is strongly related to fishing activity, with fall being the busiest season at this park. Day use numbers from September to November account for between 30 and 40% of the annual day-use visitors. Camping also remains high during these months, with numbers dropping off sharply in December through March. Spring is another busy day-use season at Tippy Dam with the spring steelhead season drawing in large numbers of visitors. Camping numbers remain steady, increasing in July and August when families are more likely to stay at the park.

ECONOMIC IMPACTS

Michigan State University (Dr. Dan Stynes) developed an economic analysis model known as "MGM2". This model is an update of the MGM model developed by Dr. Ken Hornback for the National Park System in 1995. The purpose of the updated MGM2 model is to estimate the impact of park visitor spending on the local economy. These economic impacts are reflected in terms of sales, income, employment, and value added.

This analysis tool, like others, relies on three primary factors in the common equation:

Economic Impact of Tourism Spending = Number of Tourists (x) Average Spending per Visitor (x) Multiplier (to estimate extended effects of direct spending).

For our purposes of conducting a very basic review of impacts, we have utilized the "MGM2-Short Form" version of the program, which simplifies the extent of analysis required for input, and utilizes more generalized multipliers for spending outputs. For the non-economist, this provides an excellent tool for establishing a baseline assessment of the economic impacts of our parks.

Economic impacts of Tippy Dam RA to the local community are significant. Manistee County is a medium density county relative to its metropolitan neighbors. The area around Tippy Dam RA is characterized as rural. The county's ample access to Lake Michigan draws in visitors from outside the county, providing an opportunity for the recreation area and the surrounding areas to absorb 'new' money.

Following are the relative economic impacts (based on 2012 data) of Tippy Dam RA to the economy of Manistee County:

DIRECT ECONOMIC EFFECTS TO THE COMMUNITY

- Direct spending attributable to Tippy Dam RA visitors totaled \$878,860 of which \$564,560 came from Day-Use, and \$134,450 from Camping.
- Jobs totaled 27, with 21 related to Day-Use activity and 6 to Camping. (Note...jobs are not full-time equivalent. They include part-time and seasonal positions.)
- Personal Income total is \$289,890 with \$233,020 associated with Day-Use of the park and \$65,870 associated with Camping.
- Value added (total income plus business taxes) totaled \$451,240. Day-Use accounted for \$351,800 and Camping accounted for \$77,440.

TOTAL ECONOMIC EFFECTS TO THE COMMUNITY

This reflects 'Direct Effects' plus the 'Secondary Effects' of visitor spending on the local economy. Secondary Effects (sometimes called 'Multiplier Effects') capture economic activity that results from the re-circulation of money spent by the park visitors in the community.

- Total spending = \$1,161,860 (32% over direct spending)
- Jobs = 32 (16% over direct job impacts)
- Personal Income = \$393,160 (35% over direct spending)
- Value added = \$625,640 (39% over direct value added)

NOTE: For the purpose of updating economic values, the Consumer Price Index (CPI) was used to adjust values over time. Through the following link, [<http://www.bls.gov/home.htm>] a CPI Inflation Calculator is located under Data Tools, Calculators.