

Conservation Planning Areas

Introduction

Within the study area defined for this project, there are 36 miles of Lake Huron shoreline, five named islands, sinkholes, karst geology, 11,000 acres of forestland, and 1,600 acres of non-forested wetlands. Ownership ranges from small waterfront residential lots to large acreage private hunting camps and public lands. To better define long term community needs and develop recommendations to better manage the high quality coastal resources, conservation planning areas have been defined. In addition, several issue areas have been defined and recommendations have been developed.

Priority Conservation Areas

At a committee workshop held on January 15, 2004, members identified the following priority planning areas.

- North Point
- Islands
- El Cajon Bay - wetlands and sinkhole
- Isaacson Bay - wetlands
- Coastal wetlands
- Shorelines and Beaches – cobble, alvar and sandy
- Inland lakes
- Norwegian Creek and Pollock Creek
- Many small creeks, intermittent drainages
- Karst areas with sinkholes, swallow holes and earth cracks.
- SW1/4 of SW1/4 of Section 10, T.31N.-R.9E.
- Section 15 of T.31N.-R.9E.
- State designated Environmental Areas
- Prospect Park – acquire the few privately owned lots.
- Thunder Bay Lighthouse and other historic structures and remains on the island
- Technical assistance and education effort for shoreline landowners, large tract landowners and hunting camps.

Conservation Planning Areas

The next step in this planning process is to identify conservation planning areas. Areas within the Misery Bay study area with common ecological features, such as riparian zones, islands and forestlands, and areas with similar ownership types and ownership patterns have been grouped and mapped. It is also recognized certain natural systems function across planning area boundaries and taking an ecosystem approach requires managing resources across resource areas and across political boundaries.

Conservation Planning Areas

Islands

Forestlands

Riparian - Shorelines and Beaches

Existing Small Lot Waterfront Residential

Next, based on committee input and resulting goals, recommendations and approaches to managing resources within these unique ecological zones have been developed. Voluntary conservation supported by landowner education and technical assistance programs, combined with community participation, regulations, conservation easements and fee simple purchase, form a comprehensive approach to an area-wide resource management and conservation program. Figure 6.1 depicts Conservation Planning Areas with the Misery Bay Initiative.

Existing Small Lot Waterfront Residential

There are four waterfront subdivisions in the study; three were platted in the 1950's with one platted in 1918. In the oldest subdivision, Prospect Park, most of the 33' x 99' lots transferred into private ownership, but roads were never built and the "swampy" lots were never developed. Today, all but a few lots have reverted into State ownership. Lots in the other developed subdivisions range in width from 100 to 180 feet. There are also metes and bounds small lots north of El Cajon Beach subdivision and at the western end of El Cajon Bay. Alpena Township has zoned smaller waterfront residential lots as Waterfront Residential, see Chapter 3. These smaller, more densely developed waterfront lots warrant different approaches to voluntary conservation, education and water quality BMP's. If homeowners choose not to bring the city to the shore, waterfront can occur without impacting water quality and wildlife habitat

Recommendations:

Education

- Sponsor local workshops at Alpena Community College which focus on protecting water quality, wetlands, threatened and endangered species, and wildlife habitat. Workshops should also have a field trip component.
- Distribute educational materials to waterfront homeowners. The first step will be to compile a mailing list of waterfront homeowners with the assistance of the Alpena Township Assessors Office. Where possible use existing brochures and educational materials. Information should include importance of greenbelts, use of native plants, benefits of fluctuating lake levels, and being a Great Lakes Steward.
- Develop educational programs for developers and real estate companies. Educational efforts should provide information on topics such as protecting water quality, wetlands, threatened and endangered species, and wildlife habitat. Workshops should also have a field trip component.

Technical Assistance

- Establish a program to develop "Lakescape" plans for homeowner. Plans would address enhancement of greenbelts, activities to improve wildlife habitat, protection of water quality, "water friendly" lawn maintenance, and protection of threatened and endangered species.
- Demonstration Projects – Identify and work with interested homeowners to complete projects for greenbelt re-establishment, wildlife habitat improvement, and erosion control. These demonstration projects could be funded with cost-sharing grants. With landowner permission, sites could be used for outdoor workshops.
- All lakescape plantings and erosion projects should use native vegetation and organic erosion control structures such as coir logs.

Regulation

- Communities should consider strengthening greenbelt recommendations to greenbelt requirements that retain at least 50% of native vegetation along the lakeshore.

MISERY BAY INITIATIVE CONSERVATION PLANNING AREAS

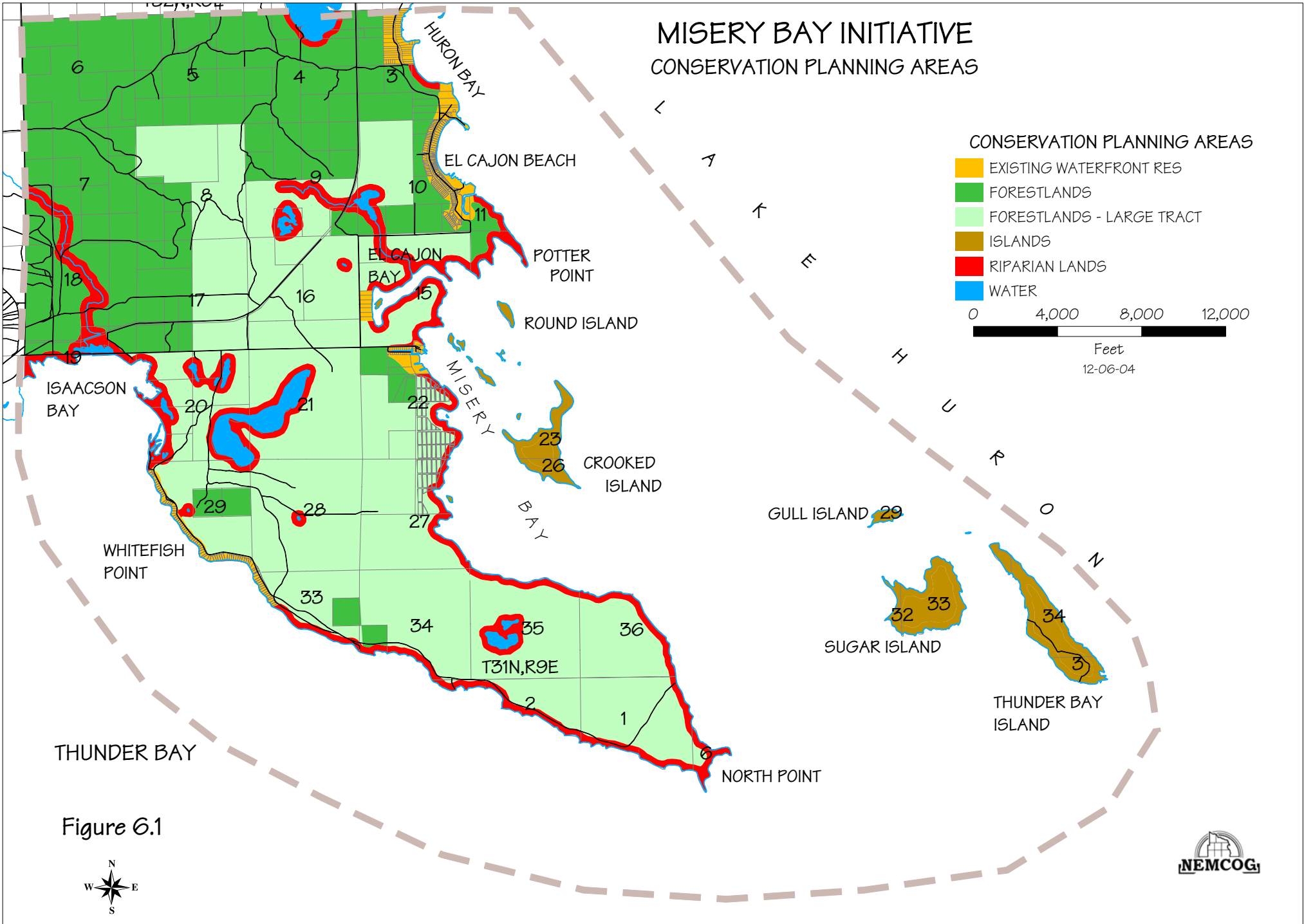


Figure 6.1

Forestlands

Clearly one of the key assets of this area is the large tracts of private forestlands. The large areas of uninterrupted forests provide important habitat for wildlife such as bear and bobcats. Current owners have shown a commitment to maintaining the natural resources on their lands. These properties have been managed for recreational use and timber production. Given the large acreages and relative inaccessibility, some areas may not see humans for years and others are visited only during deer hunting season. Increasing values and associated property taxes are becoming more of a burden on large tract landowners. While present landowners' priorities tend towards maintaining properties for recreational purposes, long term views vary from preservation to development potential of these forested lands.

According to the MDNR pre-settlement maps, cedar swamps and spruce-fir-cedar forests dominated the Misery Bay landscape prior to logging and land clearing. Smaller stands of white pine-red pine and hemlock-white pine forests were present. Today, forest cover is very similar, except due to past harvesting and land clearing, aspen-birch and oak forest stands are more common. An examination of aerial photos from the early 1950's showed a landscape much different than today. Still recovering from extensive turn of the century timber harvesting, many areas had minimal or young growth. For example, sandy ridges east of North Point Shores were relatively open in the 1940's and 50's, and today these areas are covered with oak, aspen and pine forests. Though this study did not provide for an in depth analysis of logging practices, a review of aerial photos over the last three decades shows landowners are still actively harvesting timber. Clearcuts on state and private lands seem to be the common means of harvesting. Two common reasons for timber harvesting are generating income and manipulating wildlife habitat. The State of Michigan is in the process of designating parts of their ownership as old growth forests.

Studies have found coastal forests of spruce-fir-cedar and pine forests are important as spring time migratory stop over sites. Birds feed extensively on early hatching midges in the protected bays, gaining energy to continue their flight northward. Forests provided cover and protections for the small birds.

Recommendations:

Communication

- Host an annual meeting of the large tract landowners and local units of government.

Education

- Distribute educational materials to landowners. The first step will be to compile a mailing list of large tract landowners with the assistance of the Alpena Township Assessors Office. Where possible use existing brochures and educational materials. Information should include forest management, timber harvesting, wildlife, fisheries, threatened and endangered species, invasive species, tree planting, Best Management Practices (BMP's), and cost sharing programs.
- Hold forest and wildlife management workshops in the community. The landowner mailing list developed for the distribution of educational materials should be used to send a personal invitation to key landowners. The workshops should be advertised to draw in landowners from other areas.

- Organize a field tour to highlight environmentally sensitive sites, special plant communities, degraded sites and forest management and wildlife management activities.
- Select landowners to develop a demonstration project to promote proper forest management and/or habitat improvement.
- Continue efforts of local Adopt-A-Forest groups to protect public forests from trash dumping.

Landowner Assistance

- Establish a targeted landowner assistance program. There are a number of existing landowner assistance programs through the DNR, Conservation District, NRCS, Forest Stewardship, USFWS, and FLEP. This plan recommends working cooperatively with agencies to secure funding and to provide technical assistance to landowners. The approach is to first identify key landowners, next send a direct mailing to offer technical assistance and finally develop resource stewardship plans for interested landowners in the Misery Bay planning area.
- Along with development of resource stewardship plans, technical assistance should be provided to assist landowners in implementing their plan and where appropriate, applying for resource project cost-sharing money.
- Investigate the concept of landowner incentives and tax relief to encourage the retention of larger tracts of forest lands.

Conservation Easements/Acquisition

- Hold workshops to inform landowners of their options for retaining and protecting their ownership.
- Establish a program to preserve priority conservation areas through use of Conservation Easements, Purchase of Development Rights (PDR) and Fee Simple Purchase. Seek funding from public and private sources to support this effort.
- Identify landowners in priority areas and work towards developing right-of-first-refusal agreements on those lands.

Regulation

- There are a number of local, state and federal regulations “on the books” that protect the natural environment. However, for a number of reasons these are not always enforced. As a first step, it is recommended appropriate agencies actively and consistently enforce existing regulations.
- Local planning and zoning are the primary tools communities can use to encourage the use of lands in accordance with their character and adaptability, to limit the improper use of land, and to conserve natural resources and energy. Amending the zoning ordinance to promote lower density and streamlining the process for conservation cluster residential development will slow fragmentation of the forest resources. When designing conservation-based cluster developments, wetlands, critical wildlife habitat and mature forests should be set aside and protected in this portion of the Township.
- This plan recommends developing standards to minimize tree removal during construction of large scale residential developments.

Riparian Zones - Shorelines and Beaches

Considering the study area is defined by one large peninsula and numerous islands, shorelines and beaches are a prominent feature of the landscape. There are approximately 43 miles of Great Lakes shoreline on the mainland and islands, most of which is in private ownership. Only 4.5 miles of the 43 miles of Lake Huron shoreline, as identified from Michigan Framework GIS shoreline file, have been converted to subdivisions and small tracts. No subdivisions have been platted around the several inland lakes. Natural features and undeveloped shoreline are common. Low dunes, inner dunal wetlands, rock and cobble beaches, alvar beaches, marshes, conifer forests abound.

During periods of low lake levels, width of the beach may extend several hundred feet out from the land, exposing large areas of calcareous sands, marl soils, and cobble/rock bottom lands. This dynamic land-water interface is an area under constant change.

Submerged for several years at a time, it provides critical fish, waterfowl and water bird habitat. Again the Great Lakes water levels recede and the bottom lands transition first to a wetland then to vegetated beach, at each stage providing critical wildlife habitat. As the cycle repeats itself, the vegetated bottomlands again are inundated with water. The "drowned" vegetation serves many purposes such as erosion control, waterfowl habitat, and fish spawning and feeding habitat. Shoreline and beach areas provide habitat for many threatened, endangered and special concern species like the Hines emerald dragonfly, Houghton's goldenrod, pitcher's thistle, black tern, piping plover, black crowned night-heron, osprey, and bald eagle.

Linear Distances of Waterfronts

Mainland Shoreline - 28.7 miles

Island Shorelines - 14.1 miles

Inland Lake Shorelines - 7.7 miles

Creeks - 3.8 miles

Recommendations:

Voluntary Conservation

- Support retention of natural vegetation along lakeshores and exposed bottomlands

Education

- Organize a riparian landowner workshop at Alpena Community College
- Promote a tread lightly policy to reduce ATV and ORV usage along shorelines and on beaches.
- Distribute educational materials to landowners. Where possible use existing brochures and educational materials. Information should include septic system maintenance, lakescaping, greenbelts, wildlife management, erosion control, water quality protection, threatened and endangered species, invasive species, and tree planting.

Landowner Assistance

- Working cooperatively with agencies to secure funding and to provide technical assistance to riparian landowners. The approach is to first identify key landowners, next send a direct mailing to offer technical assistance and finally develop resource stewardship plans for interested landowners in the Misery Bay planning area.
- Along with development of resource stewardship plans, technical assistance should be provided to assist landowners in implementing their plan and, where appropriate, applying for resource project cost-sharing money.

Conservation Easements/Acquisition

- Hold workshops to inform landowners of their options for retaining and protecting their ownership for landowners
- Establish a program to preserve priority conservation areas through use of Conservation Easements, Purchase of Development Rights (PDR) and Fee Simple Purchase. Seek funding from public and private sources to support this effort.
- Identify landowners in priority areas and develop right-of-first-refusal agreements on those lands.
- Conservation Easements of coastal wetlands, state designated Environmental Areas.

Regulation

- Communities should consider increasing waterfront setbacks to at least 50 feet from the ordinary high water mark.
- Communities should consider strengthening greenbelt recommendations to greenbelt requirements that retain at least 50% of native vegetation along the lakeshore.
- Communities should consider increasing minimum lots sizes in waterfront residential zoning districts.
- Communities should direct growth in sensitive waterfront areas towards cluster development whereby native vegetation is retained along water bodies and wetlands; wetlands are preserved and critical wildlife habitat is protected.
- Enforce existing regulations
- Campfires are a problem on Thunder Bay Island for several reasons. There is no direct means to fight wildfires on the island. As the forestlands continue to mature, there is a build-up of fuels. If a wildfire occurred, the two remaining structures would likely be damaged or destroyed. Lastly, historic artifacts and wood from shipwrecks has been burned in campfires, destroying this irreplaceable resource.

Islands

Depending upon one's definition of an island, there are between five and twelve islands in the Misery Bay Initiative area. The five largest and named islands are Thunder Bay Island (213 acres), Crooked Island (192 acres), Sugar Island (125 acres), Gull Island (15 acres) and Round Island (10 acres). Depending upon the water levels of Lake Huron, the size and shoreline configuration of the islands varies. For example, with low lake levels during the summer of 2003, a land bridge of rock and cobble beaches formed between Round Island and the mainland. Shoreline types include alvar or limestone bedrock beaches, cobble beaches, sandy beaches, wetlands and marshes. Shoreline vegetation still remains in a relatively natural state, providing critical habitat for flora and fauna.

Islands remain under single ownership of either individuals, corporations, organizations and public. Thunder Bay Island (U.S. Government) and Gull Island (Michigan Nature Association) are afforded a high level of resource protection. Gull Island is a rookery. All of the islands remain in a relatively undeveloped state, with one cabin on Crooked Island and a Lighthouse on Thunder Bay Island. The islands played an important role in Alpena's history. Thunder Bay Island was the site of the first permanent settlement in Alpena County. The fishing village eventually moved to Sugar Island and then to the mainland. A lighthouse and life saving station were located on Thunder Bay Island for many decades. Today, no evidence of the fishing villages can be found. The lighthouse and fog horn building remain on Thunder Bay Island. The

Thunder Bay Island Lighthouse Preservation Society is working to restore the two remaining buildings.

Recommendations:

Education

- Distribute educational materials to landowners. Where possible, use existing brochures and educational materials. Information should include wildlife, fisheries, threatened and endangered species, invasive species, tree planting, Best Management Practices (BMP's), and cost sharing programs.

Landowner Assistance

- Work with island owners to develop resource management plans.

Conservation Easements/Acquisition

- The islands have been identified as priority conservation areas. Efforts should focus on long term preservation. It is recommended communication be established and meet with landowners to discuss conservation easements, acquisition, and right-of-first-refusal arrangements for these priority conservation areas.

Planning and Zoning

- The islands are all within the conservation zoning district in Alpena Township's zoning ordinance. Conservation zoning district is intended to designate large tracts of land for recreational and resource conservation purposes. This is supported by the Township's future land use plan, updated in 2004. This category includes lands identified as having unique or fragile environmental characteristics and is intended to be protected from potential development. This plan recommends the islands remain in the conservation zoning district and conservation future land use area.

Cultural and Historic Resources

- Continue efforts to locate, document, and inventory the historic and archeological sites on the islands.

Special Issue Areas

Wetlands

Wetlands areas are commonly referred to as swamps, marshes and bogs. According to the land cover update of Alpena Township's master plan, 10 percent of the Misery Bay study area is considered non-forested wetlands and 43 percent of the area is considered lowland forests. It is important to note vegetation maps were compiled from aerial photos and existing data sources such as MIRIS land cover maps, soils surveys and DNR cover type maps. Time and budget constraints along with inaccessibility did not allow extensive field visits and on-site wetlands delineation under Army Corps of Engineer criteria. The information is the best available data for the study. The non-forested wetland category includes lowland brush (tag alder and willow), wet meadows, aquatic vegetation, fens, bogs and marshes. Two extensive coastal wetland complexes are state designated Environmental Areas. Lowland forests include areas supporting lowland hardwoods and conifers, such as northern white cedar, black spruce, balsam fir, elm, red maple, ash and aspen species.

Networks of wetlands receive surface water and subsurface water discharge, creating the streams and creeks which in turn flow into area lakes or directly into Lake Huron. These interconnected resources exemplify how activities distant from major water bodies can still have an impact on the water quality.

Recommendations:

- Alpena Township includes State Environmental Areas in their Conservation Future Land Category. This category includes lands identified as having unique or fragile environmental characteristics and are intended to be protected from potential development. This plan recommends the Environmental Areas along with the islands remain in the conservation future land use area.
- Monitor for invasive species in wetlands. Where possible reduce or eliminate invasive species.
- Landowner education and technical assistance for wetlands would be covered by programs recommended for the conservation planning areas.
- Communities should direct more intensive development away from wetland areas with low density zoning districts and conservation open space design residential developments.
- Coastal wetlands, transitional waterfront wetlands, and inland herbaceous wetlands are considered the high priority conservation areas.
- A minimum 50 feet natural vegetation buffer should be maintained around all wetlands. Foot trails used for recreation would be acceptable in this buffer area. Other types of development such as roads, parking lots, buildings, septic systems, stormwater detention facilities and lawns are not considered acceptable uses within the wetlands or associated buffer areas.

Inland Lakes and Streams

There are seven inland lakes in the Misery Bay Initiative area. Elbow Lake, Grass Lake and Conway Lake are the three largest lakes while other small lakes are not named. Pollock Creek empties one of the unnamed lakes, emptying into El Cajon Bay. Norwegian Creek, a Type I trout stream flows through the northwest part of the study area and empties into Isaacson Bay. Streams and lakes provide scenic values and recreational opportunities for residents and visitors. The water resources provide critical habitat components for a wide range of fish, amphibians, insects, plant, herpetillian and wildlife species. Inland lakes tend to be shallow with considerable emergent vegetation. Fluctuating water levels are common and tend to coincide with low levels of the Great Lakes. Due to several factors such as lake morphology, wetland perimeters and landowners' interests, the lakeshores are currently in an undeveloped state. There is no public access to the several inland lakes.

Recommendations:

- A minimum 50 feet natural vegetation buffer should be maintained around all wetlands. Foot trails used for recreation would be acceptable in this buffer area. Other types of development such as roads, parking lots, buildings, septic systems, stormwater detention facilities and lawns are not considered acceptable uses within the wetlands or associated buffer areas.
- Complete an inventory of erosion sites along creeks and lakeshores. Secure funding to repair any erosion sites.

- Complete a road stream crossing inventory to identify fish passage, erosion or hydraulics problems. Secure funding to repair road stream crossings.

Public and Semi-Public Lands

There are several tracts of land within the study area owned by the State of Michigan. Public lands can be found in Sections 9, 10, 15, 16, 22 and 27 of T.31N.-R.9E. Critical properties include lands along the north shore of El Cajon Bay and most of Prospect Park Subdivision. This subdivision was platted along coastal lands of sections 22 and 27. Extensive terrestrial and near shore wetlands combined with a lack basic of infrastructure such as roads, water and sewer greatly diminished the ability to develop lots. As a result, much of the land has reverted to the State.

Gull Island is owned by the Michigan Nature Association. Thunder Bay Island, the largest and eastern most island in the study area is owned by the Federal Government. Alpena Township, with assistance from the Nature Conservancy, has acquired 132 acres of land that borders El Cajon Bay and Misery Bay, including nearly two miles of pristine, undeveloped shoreline. Funds for the purchase of the property were provided by Department of Environmental Quality Michigan Coastal Management Program, Michigan Natural Resources Trust Fund and The Nature Conservancy. The property is called the Alpena Township Nature Preserve.

Recommendations:

Recreation

- Develop hiking and interpretative trails on public lands adjacent to El Cajon Bay and lands to the west and north.
- Seek funding to develop a plan for the newly acquired Alpena Township Nature Preserve on El Cajon Bay.
- Establish public water access to Misery Bay. It is important to balance access and resource protection. Lands adjacent to the bay are environmentally sensitive; emergent wetlands and fens are common; shoals and large rocks are irregularly distributed in the bay; and recurring low lake levels result in extensive areas of bottom lands and temporal wetlands. All of these factors greatly limit usage of larger boats. The situation is more amendable to foot access and portage for canoes and kayaks.
- Maintain existing public ownership and, where feasible, expand by purchasing lands in priority conservation areas.
- Enforce existing rules and laws to eliminate unlawful ORV usage and dumping of trash. Local officials, police departments, conservation officers and neighborhoods group work together to establish a community watch program.
- Manage for multiple uses, including timber production, wildlife, old growth/bio-diversity stewardship, recreation, and habitat protection. All resource management activity should use Best Management Practices (BMP's) to protect water quality.

Karst Geology

Bedrock is near the surface on the islands and in the northern part of the study area. Northern white cedar thrives on these shallow calcareous soils over limestone bedrock and is the common forest species on wet and dry sites. Limestone bedrock/karst geology greatly influences the surface drainage in the study area by impeding water percolation into the ground in some locations and by rapidly draining water through bedrock cracks at other sites. The bedrock cracks at the surface are called swallow holes. Large volumes of water can drain into

these swallow holes entering the limestone bedrock aquifers of cracks and porous stone. Karst geology features are prominent in and around El Cajon Bay. Earth cracks are common around the bedrock rim of the bay. A large sink hole in the bay is the outlet of an underground stream. Water discharge from the outlet empties into Lake Huron, and, due to the constant flow and warmer temperature of water, the sinkhole never freezes over.

Development on the shallow soils typically requires mounded septic systems. Water wells must be drilled into the bedrock sometimes several hundred feet to reach adequate quantity and quality of water. Instead of drilling costly bedrock water wells some homeowners in North Point Shores get their potable water from Thunder Bay. Pipes are run deep into the lake and water is treated in the home before consumption.

The Bays

The area is defined by its peninsulas and bays. Named bays include El Cajon Bay, Isaacson Bay, Huron Bay, Thunder Bay, Roberts Cove and Misery Bay. The 1913 Prospect Park Plat identified other small bays such as Little Thunder Bay (Wequeton Sauminikee) and Ojibway Bay though those names are long forgotten. The bays have always played an important role in the history of human occupation. They were important fishing grounds for native people and early settlers. Today, the waters provide ample sport fishing opportunities. The bays have always provided critical fish habitat for feeding and spawning. Additionally, the waters and adjacent wetlands provide habitat for a wide variety of plants and animals. During cyclic low water periods, historically every 10 to 15 years, extensive areas of sand, mud, cobble stones and bedrock are exposed. Emergent wetlands vegetation expands out into the exposed bottomlands while woody plants such as northern white cedar and balsam poplar will expand outward from the forests edge onto dryer sites. When water levels again rise, the newly established vegetation is drowned and dies back. However, in the process these temporal wetlands provide habitat for land and water animals.

The following information is from a brochure called "Be a Great Lakes Steward!" prepared by Tip of the Mitt Watershed Council and funded by a grant from the Great Lakes Fisheries Trust. Property owners can undertake a wide variety of activities on Great Lakes bottomlands without any permits or oversight from the Corps or DEQ, including:

- Hand shoveling or manually raking dead fish, zebra mussel shells, trash, and dead vegetation (Note: wheel barrows and mechanized vehicles can be used to move these materials to uplands for disposal.)
- Manually burying debris such as dead fish and dead vegetation
- Building sand castles.
- Hand shoveling and raking wind blown sand from home sites
- Limited hand-pulling of plants (does not authorize the taking of threatened and endangered species, or work crews clearing large areas)
- Building bonfires
- Camping
- Beaching boats and seasonally storing ice shanties

In order to mechanically level sand, mechanically groom the top four inches (or more), construct a path by moving sand or gravel, or remove vegetation in Great Lakes bottomlands, landowners will need a permit from the Army Corps of Engineers (Corps) and possibly a permit or director's letter of approval from the Michigan Department of Environmental Quality (DEQ).

Activities along Great Lakes and Lake St. Clair	State Law Administered by Michigan Department of Environmental Quality	Federal Law Administered by U.S. Army Corps of Engineers
Leveling of Sand (predominantly free of vegetation)	No permit required*	Requires regional permit*** (less than two cubic yards per lineal foot of frontage)
Mechanical Grooming (top four inches of soil in areas where plant roots won't be disturbed)	No permit required*	Requires Nationwide Permits 18 & 19 (minor dredge and fill up to 25 cubic yards)***
Mowing (to not less than two inches in height, not disturbing roots, and up to 100 feet wide or width of frontage, whichever is less)	No permit required*	Not regulated
Path Construction (walkway, not more than six feet wide at base, from upland directly to shore across swales with standing water)	No permit required*	Requires Nationwide Permit 14***
Removal of Vegetation Meeting Specified Criteria in Pilot** Areas	Requires director's letter of approval*	Requires individual permit with public notice
Removal of Vegetation Outside Pilot Areas	Requires permit	Requires individual permit with public notice
Spraying Herbicides on Exposed Bottomlands	Requires permit****	Not regulated by Corps

* Permit required in areas regulated under Part 323, Shorelands Protection and Management (Environmental Areas); Part 353 Sand Dunes Protection and Management (Critical Dune Areas); and Part 365, Endangered Species Protection (Threatened and Endangered Species).

** Pilot areas are located in Saginaw and Grand Traverse Bays. Please check the DEQ website listed on the next page for pilot area boundaries.

*** See Corps website for descriptions of regional and nationwide permits. Activities that exceed general permit thresholds may require individual permit review.

**** Permit required for spraying of herbicides over any open water (including pools above the ordinary high water mark) and over exposed bottomlands (P.A. 368 or 1978—Aquatic Nuisance Control).