9. Baptism-Brule

Baptism – Brule Regional Plan

This is one of twenty Regional Plans that support implementation of the Lake Superior Biodiversity Conservation Strategy (Strategy). The Strategy, prepared and overseen by the Lake Superior Partnership, contains information and 62 sub-strategies to provide guidance to restoring and protecting biodiversity (www.natureconservancy.ca/superiorbca).

Regional Plans are intended to be adaptive documents which support and respond to local conservation efforts and contribute to lakewide biodiversity goals. To contribute an update to this Regional Plan, please contact superiorplans@glnpo.net

The Baptism-Brule regional unit is located in the western portion of the Lake Superior basin and extends from the US-Canadian border of Pigeon River south to Silver Bay, Minnesota, and includes the Grand Portage Band of Lake Superior Chippewa Reservation. The watershed is extensively forested with rocky shores and cliffs and little coastal wetlands. Nearly 94% of the Baptism-Brule regional unit landmass is forested, and very little of the regional unit is in agriculture or developed (both account for less than 0.1%). Natural cover in the coastal zone is similarly high, with over 94% of the coastal zone in natural cover. Almost 89% of this regional unit is under public ownership. Several sites along the coast provide important habitat for Lake Sturgeon, Lake Trout, and Whitefish. Many cold water tributaries in this region sustain Brook Trout, and numerous large-unfragmented areas contain old-growth upland and lowland forest that host rare bird and plant species. The Baptism-Brule region, along with the Beaver-Lester unit, comprise 70% of Minnesota's natural nest sites for the Peregrine Falcon. Susie Island is a Minnesota Biological Survey Site of Statewide Biodiversity Significance and is ecologically significant with unique flora, arctic-alpine disjunct species, and nine rare plant species. This area also supports species of concern including Moose and Lynx. At least 179 species and communities of conservation concern have been documented in this regional unit, including Kiyi and Peregrine Falcon.[1,2]

[1] Data included here were provided by the Division of Ecological and Water Resources, Minnesota Department of Natural Resources (DNR), and were current as of December 3, 2014. These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area should not be construed to mean that no significant features are present.

[2] For a full list of the species and communities documented in the regional unit please see the corresponding regional unit chapter in Vol. 2 of the Lake Superior Biodiversity Conservation Assessment.

Report Card[3]		**Overall Grade: B**
Conservation Target	***Grade***	***Conservation Target Notes***
Nearshore	C	A number of important habitat areas are located along the shoreline in this region. The transport of sediments and pollutants to surfacewater from erosion and stormwater threaten these nearshore habitats.
Embayments & Inshore	C	Grand Portage Bay, Clark's Bay, Wauswaugoning Bay and Pigeon Bay are noted as Lake Superior embayments which are important for Lake Sturgeon.
Islands	A	Susie Island is a Minnesota Biological Survey Site of Statewide Biodiversity Significance and supports unique flora and arctic-alpine disjunct species.
Coastal Wetlands	B	This regional unit is highly forested and has few coastal wetlands.
Coastal Terrestrial	A+	Some local experts feel a grade of A may accurately reflect local conditions due to the combined effects of recent housing development fragmenting the forest, and the forest lacking much of its natural conifer component.
Tributaries & Watersheds	C	Many areas are described as having exceptional water quality, however, some streams and lakes are classified as impaired due to identified impairments, such as mercury in fish tissue.

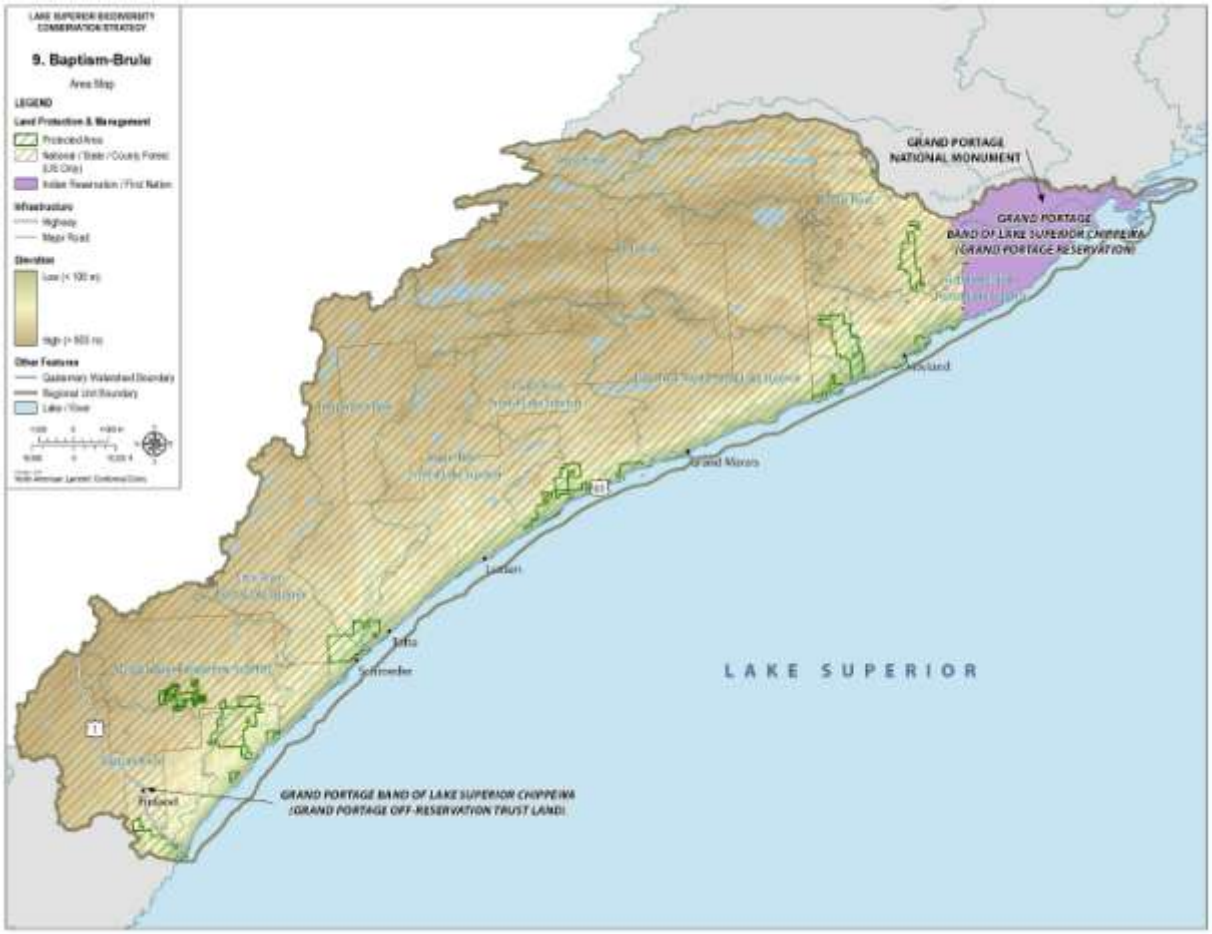
Conservation Opportunities

Threats in this region include impaired waterbodies, fish consumption advisories, forest fragmentation, aquatic fragmentation, invasive species, and mining. Many areas and waterbodies within this region have been designated as high quality and need protection.

The Pigeon River has been identified as one of 17 Lake Superior tributaries where there should be a focus on Lake Sturgeon rehabilitation; however, other embayments such as Grand Portage Bay, Clark's Bay, and Wauswaugoning Bay are also critical management areas. Grand Portage also has important habitat areas for Lake Whitefish, and successful restocking of Brook Trout has occurred. Some streams and lakes in the region are classified as impaired due to mercury levels in fish. Impairments are based on whether or not they exceed the water quality standards articulated in Chapter 7050 and Chapter 7052 of Minnesota Rules. In addition, temperature and biologically sustainable stream flows are of increasing concern. Although the region is heavily forested, fragmentation due to timber harvest, housing development, shoreline development, and invasive species, such as Gypsy Moth and Emerald Ash Borer, are emerging concerns.

[3] Report Card grades are intended to denote relative (within Lake Superior basin) condition/health and stresses for each biodiversity target in the region based on available condition and stress indices. A more detailed explanation and expert comments on grades are available in the Lake Superior Biodiversity Conservation Assessment - Volume 2: Regional Unit Summaries.

Area Map



Conservation Actions

The Lake Superior community has a strong and ongoing history of taking action to restore and protect the lake's extraordinary biodiversity. Actions are occurring at all scales – from national, state, provincial, tribal, First Nations, Métis, and municipal programs, to lakewide initiatives and local projects by communities, businesses, and households. Some important habitats currently have a conservation designation with a corresponding management strategy. Active supervision of these areas is essential to sustaining biodiversity. The table below presents next steps for conserving and protecting biodiversity in this regional unit. Other existing plans relevant to conserving habitats and species in this region should continue to be implemented. A list of existing plans relevant to the next steps presented below is presented at the end of this document.

Regional Plan Next Steps

There is some variation among Regional Plans in how future actions from existing plans were incorporated into this document, based on advice from the implementers of those plans in the region. Similarly, implementation approaches vary greatly among regional units. The Lake Superior Partnership serves an important role in facilitating cooperation among agencies to support on-the-ground action. Priority implementation actions developed through the Partnership are identified in the Lake Superior LAMP, Lake Partnership committee work plans, and agency specific action plans.

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
Lakewide Strategy 1: **Restore and protect a system of representative, high quality habitats.**			
Common Actions For All Region Plans Maintain or enhance areas where large blocks of land with natural cover exist or could be expanded. Preserve sites that have high species diversity and/or critical habitat for fish or wildlife.		Multiple	1.1
Protect habitats of biological significance by designating them as Scientific and Natural Areas.	Use Minnesota Biological Survey (MBS) Ecological Evaluations recommendations to prompt legislative action to establish firm targets for Scientific and Natural Area designations.	Multiple	1.6
Protect the habitats of biological significance with special consideration of ephemeral and headwater wetlands.	Implement management to protect and prevent further degradation of wetlands.	Multiple	1.1
Increase people's awareness of and challenges to conserving critical aspects of Lake Superior's biodiversity, including the importance of biodiversity, threats, on-going restoration projects, and opportunities for improving biodiversity in their region.	Engage in novel approaches to increase awareness and protect biodiversity such as crowd source data collection, a people's charter to protect the Great Lakes, and grass roots programs to support for healthy landscapes.	Multiple	1.8
Protect the habitats of biological significance through implementation of ecological silviculture.	Restore missing species, increase patch sizes, improve stand diversity using silviculture, and account for amount of young forests per watershed in timber harvest plans.	Multiple	1.3
Protect the habitats of biological significance by	Prioritize natural areas and enter them into protective	Coastal Terrestrial	1.6

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
working with the cities and counties in the region to protect the tax forfeit lands.	status.		
Land management agencies develop a common forestry inventory for the Baptism-Brule region.	Standardize forestry inventory data amongst agencies in the region and have a central database to store data for public access.	Coastal Terrestrial	1.12
Gain a greater understanding of biodiversity as it relates to cultural tradition and identity.	Educate the public, legislators, and regulatory agencies about treaty rights in the 1854 Ceded Territory and reservations to ensure management decisions consider treaty rights and that natural resources are cultural resources.	Multiple	1.8
Restore habitats of biological significance with special consideration for wetland restoration in the Baptism-Brule region.	Develop tools that identify and prioritize wetland restoration and remediation.	Multiple	1.11
	Utilize the Lake Superior Framework for Assessment of Wetland Services report to focus restoration efforts in identified restorable wetland locations.	Tributaries & Watersheds	1.11
Increase people's awareness of environmentally sound best management practices in land use change and development throughout the basin.	Engage residents seeking development especially near-shore and on/close to water features.	Coastal Terrestrial	1.8
Foster a greater understanding of the connections between terrestrial land management and Lake Superior health.	Target outreach to the timber industry, loggers, and forest management agencies and explore opportunities for public engagement with forest management plan review.	Coastal Terrestrial	1.8
Lakewide Strategy 2: **Manage plants and animals in a manner that ensures diverse, healthy and self-sustaining populations.**			
Common Actions For All Region Plans Review lists of regional species of conservation concern and identify gaps in monitoring, planning, and related conservation actions.		Multiple	2.7
Achieve and maintain genetically diverse self-sustaining populations of Lake Trout that are similar to those found in the lake prior to 1940.	Conduct annual survey(s) to determine Lake Trout population status and trends.	Multiple	2.3

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
Maintain self-sustaining populations of Lake Whitefish within the range of abundance observed during 1990-99.	Conduct surveys to determine Lake Whitefish population status and trends.	Multiple	2.3
	Protect embayments and the nearshore areas which provide habitat for developing larvae and juveniles.	Multiple	2.3
	Protect nearshore areas used by adult Lake Whitefish for foraging and spawning.	Nearshore Zones and Reefs	2.3
	Restore where feasible documented river-spawning populations.	Tributaries & Watersheds	2.3
Restore and protect self-sustaining Lake Sturgeon populations in each tributary they historically used to spawn (i.e. minimum 1500 adults).	Identify and take the actions necessary to rehabilitate Lake Sturgeon in the Pigeon River.	Tributaries & Watersheds	2.3
Restore and protect self-sustaining Brook Trout populations in as many of the original, native habitats as is practical.	Identify priority Brook Trout habitats using FishVis (a regional decision support tool for identifying vulnerabilities of riverine habitat and fishes to climate change) and Ecological Limits of Hydrologic Alteration (ELOHA) tools.	Multiple	2.3
	Establish forested riparian areas for shade and long term wood recruitment.	Tributaries & Watersheds	2.3
Identify and protect Species at Risk within the Baptism-Brule region.	Investigate forestry management practices in the region and look for how current pine management may be affecting the Northern Blue Butterfly population.	Coastal Terrestrial	2.3
	Conduct biodiversity studies and develop species of local conservation interest (SLCI) rankings for all faunal groups.	Multiple	2.7
Gain a greater understanding of aquatic and terrestrial invertebrate groups.	Inventory all major groups of aquatic and terrestrial invertebrates, starting with species of concern, map their distribution, and develop conservation plans for each group.	Multiple	2.7
Prevent net loss of Wild Rice in the Baptism-Brule region.	Develop and implement a strategy to protect Wild Rice habitat in the Baptism-Brule watersheds from industrial impacts.	Multiple	2.3

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
	Have a standardized method for monitoring Wild Rice in the region. Consider using methods developed by the Region 5 Manoomin project and the 1854 Treaty Authority.	Multiple	2.7
Gain a greater understanding of Moose and why their populations are declining.	Conduct research on population movement, habitat, abundance, mortality rates, and vulnerability to climate change.	Coastal Terrestrial	2.7
Restore and protect self-sustaining Moose populations.	Ensure critical upland and wetland habitats, browse areas, and travel corridors for Moose are identified in forestry management plans, have consistent management amongst responsible agencies, and are protected.	Coastal Terrestrial	2.3
Increase people's awareness of land development policy that favors native and rare insect species.	Start planning at the county level in the region with the Planning and Community Development Departments.	Multiple	2.2
Restore and protect long-lived conifers as a component in forest native plant communities as opposed to conifer plantations.	Coordinate with land management agencies within the region (county, state, federal, tribal) and identify potential areas for protection and restoration.	Coastal Terrestrial	2.2
Lakewide Strategy 3: **Reduce the impact of existing aquatic invasive species and prevent the introduction of new ones.**			
Common Actions For All Region Plans Control high priority infestations of aquatic invasive species, including continued control of Sea Lamprey.		Multiple	3.2
Prevent the introduction and spread of aquatic invasive species in the Baptism-Brule region.	Educate people about best management practices to prevent the spread of aquatic invasive species using Stop Aquatic Hitchhikers!™, Habitattitude™ and other available materials.	Multiple	3.11
	Continue conducting ballast water inspections on at least 25% of all vessels, with emphasis on conducting inspections on vessels previously not inspected.	Multiple	3.8
	Develop a financially feasible and effective ballast water treatment system that utilizes a multi-treatment approach to prevent and reduce transport of viable organisms in ballast water and ballast sediments.	Multiple	3.8

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
	Support partnerships between public and academic organizations to research ballast treatment systems.	Multiple	3.8
Lakewide Strategy 4: **Adapt to climate change**.			
Common Actions For All Region Plans Incorporate climate change model projections and adaptive management measures into natural resource management plans.		Multiple	4.1
Gain a greater understanding of habitat and species vulnerabilities and management options due to climate change in the Baptism-Brule region.	Conduct a climate change vulnerability assessment for the region to identify threats to biodiversity and to inform adaptive management.	Multiple	4.13
Gain a greater understanding of how climate change will affect native and non-native species in the Baptism-Brule region.	Support adaptation research that maintains landscape ecological function.	Multiple	4.13
Gain a greater understanding of habitat and species climate change vulnerabilities and management options in the inshore and nearshore.	Develop fine scale modeling of current and wave action that allow us to predict and better understand potential effects of climate change on water quality.	Multiple	4.12
	Identify areas of the nearshore, coastal zone, and estuary that are vulnerable to eutrophication.	Multiple	4.13
	Utilize existing forest ecosystem climate change vulnerability report recommendations in project planning.	Tributaries & Watersheds	4.1
Gain a greater understanding of herptile habitat, species vulnerabilities, and management options due to climate change.	Conduct a vulnerability assessment for the Mink Frog, Wood Frog, Pickerel Frog, Spotted, Red-backed and Blue-spotted Salamanders, and Northern Ringneck Snake.	Tributaries & Watersheds	4.13
	Identify and determine management options for projected range expansions of herptile species.	Multiple	4.1
Decrease the number and volume of combined sewer overflows and wastewater treatment facility overflows.	Evaluate the storm water capacity of wastewater treatment facilities with respect to potential increases in flood events associated with climate change.	Coastal Terrestrial	4.2
Mitigate the contribution of greenhouse gases to the environment.	Work with industry to evaluate and identify ways to reduce carbon footprint in everyday operations.	Tributaries & Watersheds	4.7

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
Implement adaptation actions to account for changes in variability and/or frequency in air and water temperatures, water levels, storm events, droughts, etc.	Replace inadequate road and stream crossings in vulnerable watersheds; ensure they can sustain at least a 100-year flow event.	Tributaries & Watersheds	4.2
	Identify and manage travel corridors to allow for species shifts, with emphasis on connecting large blocks of natural habitat.	Multiple	4.2
Develop and implement a long term climate change monitoring strategy.	Identify and monitor priority stream gauge stations to track how discharge and temperature could be changing with respect to climate change.	Multiple	4.11
	Identify and monitor priority watersheds to measure nutrient and sediment loading.	Multiple	4.11
Lakewide Strategy 5: **Reduce the negative impacts of dams and barriers by increasing connectivity and natural hydrology between the lake and tributaries.**			
Common Actions For All Region Plans Address barriers to fish passage created by dams, hydroelectric generation, or misplaced or wrong sized culverts. Maintain flows and water levels on managed streams, rivers and lakes that emulate natural conditions (i.e., magnitude, duration, timing, and pattern).		Tributaries & Watersheds	5.2
Lakewide Strategy 6: **Address other existing and emerging threats that may impact important habitat or native plant and animal communities.**			
Prevent the invasion and spread of the invasive Emerald Ash Borer (EAB) in the Baptism-Brule region.	Follow USDA and MN Dept. of Agriculture protocols and perform early detection monitoring for EAB in high risk areas throughout the regional unit such as travel corridors and camping areas.	Coastal Terrestrial	6.7
	Conduct research to find a suitable tree species to fill the ecological niche of Ash trees.	Coastal Terrestrial	6.5

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
Prevent the introduction and spread of the invasive Gypsy Moth in the Baptism-Brule region.	Follow USDA and MN Dept. of Agriculture protocols to Survey for new Gypsy Moth infestations in high risk areas (e.g. travel corridors) and monitor current infestations to inform future management decisions (e.g. Gypsy Moth quarantines).	Coastal Terrestrial	6.7
Prevent the introduction and spread of invasive species in the Baptism-Brule region.	Standardize invasive species inventory and monitoring techniques across agencies and geography so data is compatible and develop a central hub or web page.	Multiple	6.8
	Build concern and understanding of the connections between invasive species management and Lake Superior health and work with private landowners to educate, manage, and restore invasive species sites.	Multiple	6.7
Conduct construction and industrial operations using best practices and with regard to important habitat and species in the Baptism-Brule region.	Identify areas downstream of industrial operations that are not meeting water quality standards and work with regulatory agencies to ensure that contaminated source water is captured and treated before discharging.	Multiple	6.1
	Ensure Cumulative Impacts Assessments are conducted during regulatory review of proposed projects using methods established under the National Environmental Policy Act (NEPA). Assessments need to include impacts to natural and cultural resources from other past, present, and reasonably foreseeable projects in the Baptism-Brule region.	Multiple	6.1
	Ensure environmental review of existing and proposed mining, gas/oil pipelines, and other industrial projects adequately identify natural and cultural resources in areas of potential effect and identify alternatives that help avoid those impacts.	Multiple	6.1
Identify and evaluate the threat of oil spills on biodiversity.	Apply the Environmental Sensitivity Index Shoreline Atlas to biodiversity.	Multiple	6.2

Regional Objective	Next Step	Conservation Target	Primary Lakewide Strategy[i]
Protect the habitats of biological significance with special consideration of land use impacts on water quality of lakes and tributaries.	Identify critical/vulnerable water resources and promote the use of environmentally sound best management practices to protect these resources.	Multiple	6.6
	Improve understanding of the potential effects of pharmaceuticals and personal care products (e.g. microplastics) on biodiversity.	Multiple	6.9
Identify, evaluate, and manage threats to biodiversity from agricultural chemical and biological controls.	Assess impacts associated with agricultural chemicals (e.g. phosphorus loading) and biological controls (e.g. non-native ladybugs) and develop strategies to address those impacts.	Multiple	6.6

Regional Plan Development

Regional Plans are informed by a technical assessment, including maps of: 1. Coastal and Watershed Features; 2. Condition, and; 3. Important Habitat Sites. This information is available at: www.natureconservancy.ca/superiorbca .

The public and stakeholders who are connected to these areas provided input to the Next Steps in each Regional Plan. Oversight was provided by a Steering Committee from the Lake Superior Partnership. All input was considered and incorporated whenever possible and when relevant to a lakewide biodiversity conservation targets and threats. To contribute an update to this Regional Plan, please contact superiorplans@glnpo.net.

Existing Plans

Other existing plans relevant to conserving habitats and species in this region include but are not limited to:

- Global Climate Change: Reviews, Recommendations, and Management Plans for the Grand Portage Band of Lake Superior Chippewa (in review)
- Great Lakes Fishery Commission - Fish-community objectives and Lake Trout restoration, Brook Trout rehabilitation and Lake Sturgeon rehabilitation plans for Lake Superior
- Minnesota Department of Natural Resources state plans - Fisheries Management Plan for the Minnesota Waters of Lake Superior, Management Plan for Invasive Species, Moose Research and Management Plan, Biological Survey Ecological Evaluations, State Wildlife Action Plan, Subsection Forest Resource Management plans, Individual Stream Management plans, Climate Change and Renewable Energy: Management Foundations

- Minnesota Pollution Control Agency - Minnesota Watershed Restoration and Protection Strategies

[i] To access the full Biodiversity Conservation Strategy, other Regional Plans and supporting technical information and maps, please visit the project website: www.natureconservancy.ca/superiorbca.