

## **Beneficial Use Impairments Rational for Removing from the Impaired List**

**Name:**

(BUI #9)

Loss of Fish and Wildlife Habitat

**Reason for listed:**

Documented loss of habitat at Stryker Bay and Hog Island/ Newton Creek

**Comments:**

Continuing loss of physical habitat limits populations

**IJC Criteria:**

An impairment will be listed when fish and wildlife management goals have not been met as a result of loss of fish and wildlife habitat due to perturbation in the physical, chemical, or biological integrity of the waters, including wetlands.

***SLR RAP Rationale for Listing:***

- Fish and wildlife habitat in the AOC is threatened by development and by exotic vegetation. In addition, the contaminated sediments in the river and estuary and the high sedimentation rates in the AOC may contribute to the loss of habitat.

- Wetlands, shorelands, and near-shore areas have been filled or altered. Historically, an estimated 3000+ acres of marsh and open water in the lower estuary below the former Arrowhead Bridge have been filled. Most of the original shoreline has been altered to accommodate industrial and commercial purposes. Between 1981-1991, the net wetland loss in the St. Louis River watershed was 438 acres. The only large remaining wetland in the lower estuary is Allouez Bay (Stage I Report, pps. IV-66 to IV-72).

- Purple loosestrife, an exotic plant from Europe, has infested the estuary and has the potential to reduce fish and wildlife habitat. The plant crowds out native vegetation yet provides little or no food or habitat for waterfowl and other animals. The thick growths of loosestrife can choke off or eliminate access to fish spawning grounds (Stage I Report, pps. IV-22, IV-24, IV-69).

- Contaminated sediments at Stryker Bay (St. Louis River) and Newton Creek/Hog Island Inlet (Superior Bay) have impaired the benthic communities and thus the fish and wildlife communities at these sites. The degree and extent of fish and wildlife habitat loss or impairment at other regions of the AOC due to contaminated sediments is not known because the full extent and spatial distribution of contaminated sediments has not been fully determined (Stage I Report, pp. IV-67).

- High rates of sedimentation in the estuary with the ensuing turbidity and reduced light penetration limit macrophyte growth and may inhibit shoreland wetland communities thus limiting fish and wildlife habitat. However, the limited information on aquatic vegetation and wetland habitat is not sufficient to demonstrate degradation (Stage I Report, pp. IV-67).

**Proposed Restoration Goal: (INTERIM)**

Maintain, enhance, protect and restore native wildlife and fish habitat in accordance with the goals of the "Lower St. Louis River Habitat Plan".

*Goal for Large Riverine Reach:*

- Replicate the natural flow regime to the extent possible; this should benefit all of the estuarine aquatic habitats.
- Avoid any loss of area or degradation of this habitat type.
- Ensure that the native fish assemblage found in this habitat, including spawning walleye, lake sturgeon, longnose sucker, white sucker, and smallmouth bass, continues to utilize it. Darters and other riverine-obligate fish species should be present.
- Migratory raptors and waterfowl should use this habitat, particularly during spring migration.

*Goal for Upper Estuarine (Undredged) River Channel:*

- Replicate the natural flow of the river to the extent feasible and otherwise maintain current conditions.
- Channel morphology should reflect the natural hydrologic regime to the extent that it can be replicated.
- Avoid any loss of area or further degradation of this habitat type.
- Ensure continued high abundance of native mussels and other invertebrates.
- Ensure channel catfish, stonecat, burbot, juvenile lake sturgeon, and other native fish continue to utilize the habitat.

*Goal for Lower Estuarine (Dredged) Channel:*

- Implement continued improvements in water quality and replicate the natural hydrologic regime to the extent possible.
- Avoid any loss of this open water habitat.
- Avoid further degradation of this habitat.
- Ensure that native species continue to utilize this habitat at current or higher levels.

*Goal for Upper Estuary Flats:*

- Maintain and enhance the current condition.
- Determine where it is ecologically appropriate to increase the area of vegetated wetlands and implement re-establishment of appropriate vegetation where feasible.
- Patches of submergent and floating-leaved vegetation, including pondweeds, water lilies, wild celery, and wild rice, should be present in some areas; these areas should be intermingled with areas of open water, depending on water depth and clarity.
- Emergent vegetation, including bulrushes, cattails, and arrowhead, should be present in very shallow areas, generally closer to the shoreline. The location and size of patches of open water and wetland vegetation will vary over time due to variations in the hydrologic regime.
- Non-native plant species should not be present.
- Native fish and bird species should continue to utilize this habitat; breeding bird and spawning fish diversity should increase as habitat is improved.

*Goal for Sheltered Bays:*

- Maintain and protect sheltered bays that are in good condition.
- Improve all other sheltered bays to bring them into good condition.
- Non-native plant species should not be present.
- Patches of submergent and floating-leaved vegetation, including pondweeds, water lilies, wild celery, and wild rice, should be present in some areas; these areas should be intermingled with areas of open water, depending on water depth and clarity.
- Emergent vegetation, including bulrushes, cattails, and arrowhead, should be present in very shallow areas, generally closer to the shoreline. The location and size of patches of open water and wetland vegetation will vary over time due to variations in the hydrologic regime.
- Wet meadows and shrub swamps should be present in some areas around the perimeter of sheltered bays.
- The hydrologic regime of contributing watersheds, along with sediment deposition and transportation should be within the natural range of variation.
- The diversity of native fish, birds, and other species utilizing this habitat should continue to be high.

*Goal for Clay-Influenced River Mouths:*

- Bring the tributaries' hydrologic regime, erosion, and sediment inputs within a range closer to that of presettlement conditions. This should improve the extent and diversity of wetland vegetation, thereby increasing the abundance of fish and wildlife supported by this habitat.
- Emergent, floating-leaved, and submergent native plants should be present in areas where water depth can naturally support these types of wetland vegetation.

*Goal for Industrially-Influenced Bays:*

- At a minimum, avoid the loss of any open water of these bays.
- Restore industrially-influenced bays to habitat similar to the sheltered bays (in good condition) whenever possible. This includes ensuring a diversity of native emergent, floating-leaved, and submergent vegetation, as well as increased diversity of native fish and bird species utilizing this habitat type.
- Remediate contaminated sediments.

*Goal for Industrial Slips:*

- Since shipping is an important industry in the Twin Ports area, the minimum goal is to avoid the loss of any open water or wetland components of these habitats (due to filling or other activities).
- In addition, some abandoned slips could be identified for restoring the aquatic habitat to a fair to good condition.
- Ensure that native species continue to utilize this habitat at current or higher levels. Remediate contaminated sediments.

*Goal for Lower Estuary (Industrial Harbor) Flats:*

- Avoid the loss or further degradation of any of this aquatic habitat.
- If practical, restore some portion of the flats to an appropriate vegetated condition.
- As with the dredged channel, slips, and industrially-influenced bays, restoring this entire area to a good ecological condition requires a significant financial investment, and the importance of commercial shipping may weigh against this.
- Ensure that native species continue to utilize this habitat at current or higher levels.

*Goal for Clay-Influenced Bay:*

- The relatively good quality of this habitat should be maintained and enhanced.
- Reduce turbidity to its natural range of variation; restore the natural hydrologic regime of the tributaries feeding this bay.
- Ensure the continued diversity of native aquatic plants; non-native plant species should not be present.
- Enhance the diversity of native fish and bird species utilizing this habitat.

*Goal for Clay-Influenced Tributaries:*

- The hydrology and related sediment loads within the respective watersheds should be managed to more closely resemble presettlement conditions.
- Ensure that native species continue to utilize this habitat at current or higher levels. Restore in-stream habitat where degraded.

*Goal for Bedrock-Influenced Tributaries:*

- The hydrology and related sediment loads within the respective watersheds should be managed to more closely resemble presettlement conditions.
- Ensure that native species continue to utilize this habitat at current or higher levels. Restore in-stream habitat where degraded.

*Goal for Great Lakes Coastal Wetland Complex:*

- The conservation goals for the aquatic habitats in the previous section referenced protection, enhancement, or restoration of the wetland vegetation that makes up the Great Lakes coastal wetland complexes.
- Existing wetland complexes in the sheltered bays, the upper estuary flats, the clay-influenced bay (Allouez Bay), and clay-influenced river mouths should be maintained and enhanced.
- In some sheltered bays, and perhaps parts of the upper estuary flats, they may need some enhancement and/or restoration.
- Where feasible, restoration of some of the components of these wetland complexes (e.g., submergent marsh, emergent marsh) is recommended for the industrially-impacted habitats.

*Goal for Baymouth Bar Communities (Beaches, Beachgrass dunes, Dune shrublands, Interdunal wetlands, Dune pine forests):*

- Improve the current health of the plant communities.
- Ensure that the diversity of native species expected in each plant community type is present.
- Non-native plant species should not be present.
- Ornamental species and species native to the U.S. that would not normally occur in these plant communities should be eliminated (e.g., Scot's pine (*Pinus sylvestris*), spotted knapweed).
- Increase the extent of the dune pine forest and juniper-lichen shrubland to the maximum acreage that is feasible, while limiting them to the portion of the dunes where they would naturally occur.
- Restore interdunal wetlands in appropriate low areas; species that are naturally found in this community may include bluejoint (*Calamagrostis canadensis*), various sedges (*Carex* spp.), twig-rush (*Cladium mariscoides*), spikerush (*Eleocharis* spp.), and others.
- Maintain the beachgrass dune plant community.
- If it becomes feasible, restore the natural movement of sand in this ecosystem, both on land and in water.
- If the natural fire regime can be estimated, and prescribed fires become feasible, implement a prescribed burn program.

*Goal for Upland Forest Communities (White pine-red pine forest, Northern conifer-hardwoods forest / Northern hardwoods forest, Spruce-fir boreal forest):*

- Maintain or enhance all existing high quality remnants, and restore much of the remaining forested area to the composition and structure that would be expected if its ecological processes were operating within their natural range of variation.
- Detailed recommendations are estimates of the expected natural range of variability developed by Frelich (1999) for northeastern Minnesota forest ecosystems.
- Further assessments are needed to determine the range of spatial patterns of the patches of the different successional stages.

*Goal for Other Inland Plant Communities (Eroding clay bluffs, Clay seeps, Conifer swamps, Hardwood swamps, Shrub swamps, Inland marshes, Wet meadows, Fens, Cliffs and rock outcrops):*

- Although small and less visible than other conservation targets, these communities should be managed to maintain and/or improve their condition.
- The appropriate assemblage of native plant species should be present; refer to NatureServe's *International Classification of Ecological Communities: Terrestrial Vegetation* (2001) for descriptions of species composition.
- Ecosystem processes, including hydrology and fire, should be functioning within their natural range of variation.

*Goal for Wild Rice:*

- Restore healthy populations of wild rice to appropriate wetland habitats in the estuary.

### **Proposed Restoration Milestones: (INTERIM)**

By 2010 fish and wildlife habitat in the AOC is not threatened by further intensive land conversion or invasion of undesirable exotic species. In addition, the contaminated sediments in the river and estuary and the high sedimentation rates in the AOC are not further contributing to the loss or degradation of habitat. By 2020 the recovery of this beneficial use within the AOC can be demonstrated by trends of generally increasing extent and quality of aquatic and terrestrial habitats. To achieve these milestones the following steps must be taken:

- Complete protection of all possible existing aquatic, wetland, shoreland and near-shore areas through ownership, easement, designation, or voluntary agreement for the areas Fond du Lac dam to Stryker Bay and Allouez Bay by 2010 to prevent additional habitat from being converted, or degraded. Additional habitat conversion, or degradation would further impair the ability and likelihood of recovery of beneficial uses 2 & 9 within the AOC.
- Complete protection of strategic upland and watershed lands within the AOC through ownership, easement, designation, or voluntary agreement by 2010 to protect existing priority AOC habitats and to prevent, or reduce, watershed stressor inputs into the St. Louis River and estuary.
- Complete remediation of contaminated sediments at Stryker Bay (St. Louis River) and Newton Creek/Hog Island Inlet (Superior Bay) by 2008 and complete habitat restoration at these sites by 2010.
- Long term management plans and operational agreements are in place to monitor, manage, and mimic the biophysical processes that naturally create, maintain, and transform fish and wildlife habitats within the lower St. Louis River and Estuary by 2015 (including, but not limited to: hydrology, fine and coarse sediment, fire, water quality).
- Reduce occurrence of purple loosestrife by 75% by mechanical, chemical and biological means within the lower St. Louis River and estuary by 2020 (using 2002 as the baseline). Prevent the invasion of Eurasian water milfoil into the St. Louis River.
- Initiate large-scale restoration and enhancement projects for existing and historic habitat types listed within the "St. Louis River Habitat Plan" by 2006.

### ***Rationale for Removing from the List:***

No rationale for removing from the list at this time.