

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

**Name:**

(BUI #2)

Degraded Fish & Wildlife Population

**Reason for listed:**

Impact of ruffe (exotic fish species)

**Comments:**

None

**IJC Criteria:** An impairment will be listed when fish and wildlife management programs have identified degraded fish or wildlife populations due to a cause within the watershed. In addition, this use will be considered impaired when toxicity (as defined by relevant, field-validated, bioassays with appropriate quality assurance/quality controls) of sediment-associated contaminants at a site is significantly higher than controls.

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

1) Fish Populations

Since 1979, fish populations have been recovering due to formation of the Western Lake Superior Sanitary District (WLSSD) and construction of the WLSSD wastewater treatment plant which resulted in improvements in water quality. However, fish populations are still adversely affected by alterations and loss of physical habitat, proliferation of exotic species, and possibly by exposure to toxic substances.

- Operation of the Fond du Lac dam has adversely affected walleye spawning success. Stranding and mortality of spawning adults and eggs has been observed under erratic flow conditions. Specific flow requirements for the St. Louis River species of interest are not adequately defined (Stage I Report, pps. IV-18 to IV-19).

- Lake sturgeon populations in the St. Louis River have plummeted since the 1800's when the fish were commercially harvested. The population reduction may be due to bad water quality in the past, overharvesting, or dam construction. At the present, there are no spawning lake sturgeon in the river (Stage I Report, PP. IV-19).

- The population of ruffe, an exotic fish first found at Minnesota Point in July 1987, now surpasses populations of native fish. In July 1990, ruffe was the second most abundant species found in U.S. Fish and Wildlife Service trawls of the St. Louis estuary. In 1991, ruffe was the most abundant species in the trawls (Stage I Report, pps. IV-20 to IV-21).

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

- In 1991 and 1992, Envirovet trawls in the Duluth-Superior harbor turned up fish with significant pathological alterations (Stage I Report, pp. IV-26).

- A number of fish sampled on Crawford Creek (tributary to the Nemadji River) in 1985 had spinal deformities and possibly tumors (Stage I Report, pp. IV-26).

2) Wildlife Populations

Little population data is available for wildlife with the exception of colonial nesting birds, herons, and gulls. Populations of the common tern and the piping plover (threatened and endangered species) have declined, the heron population has been declining, and gulls and mallards have experienced die-offs in the recent past. These problems are due to alteration or loss of physical habitat and possibly toxic contamination.

- The piping plover, a federally endangered species, has not nested in the estuary since 1985 due to loss of suitable breeding habitat. Human development of historical nesting sites, natural succession of vegetation, rapid increases in competing colonial species, and human disturbance have all contributed to the demise of the piping plover in the AOC (Stage I Report, pp. IV-23).
- The population of great blue herons at the rookery near Billings Park on the Wisconsin shore has been declining in recent years. This decline is likely due to human disturbance from housing developments on the shore (Stage I Report, pp. IV-24).
- The common tern has had low reproductive success in the St. Louis River estuary since the mid-1970's. Factors such as lack of suitable rearing and nesting habitat, chemical contamination, human disturbance, predation, inclement weather, and competition with ring-billed gulls for breeding habitat may be responsible for their decline (Stage I Report, pp. IV-23).
- Over the last 10 years, die-offs of immature ring-billed gulls and adult mallards have been noted in the harbor. Investigations by Minnesota DNR and the U.S. Fish Service found no conclusive reasons for the die-offs (Stage I Report, pp. IV-24).
- Common tern chicks with cross-bills have been found at Interstate Island (Stage I Report, pps. IV-27 to IV-28).
- Bald eagles around Lake Superior exhibit lower reproductive success than those nesting inland (Stage I Report, pps. IV-24 to IV-25, IV-28).
- A pilot study with wing-clipped mallards showed that ducks on Erie Pier accumulated PCBs in the 2.5 month period of the study. Therefore, resident bird populations may be accumulating unhealthy levels of contaminants at this facility.

**Proposed Restoration Goal: (INTERIM)**

Restore, maintain, protect, and enhance native wildlife and fish populations in accordance with the goals of the "Lower St. Louis River Habitat Plan." In addition, this use will be considered restored when no toxicity (as defined by relevant, field-validated, bioassays with appropriate quality assurance/quality controls) of sediment-associated contaminants at a site is significantly higher than at a reference site.

*Goal for Native Fish Assemblage:*

- Maintain and enhance healthy, reproducing populations of native fish species.

*Goal for Lake Sturgeon:*

- Reestablish a healthy, reproducing local lake sturgeon population.

*Goal for Native Mussel Assemblage:*

- Ensure healthy populations of all native mussels.

*Goal for Breeding Bird Assemblage:*

- Ensure breeding birds continue to nest in the Lower St. Louis River area at current or higher numbers.

*Goal for Migratory Bird Assemblage:*

- Ensure the Lower St. Louis River continues to attract and support the enormous diversity and numbers of migrating birds.

*Goal for Piping Plover:*

- Reestablish a breeding population of piping plover in the estuary.

*Goal for Common Tern:*

- The breeding population in the Lower St. Louis River should, at a minimum, be maintained at its current level.

- Recommendations from the U.S. FWS species assessment will be used to update and refine this conservation goal.

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

#### 1) Fish

- No fish populations still adversely affected by alterations and loss of physical habitat, proliferation of exotic species, and possibly by exposure to toxic substances.
- Permitted releases at the Fond du Lac dam will not cause stranding and mortality of spawning adults and eggs.
- Lake sturgeon spawning in the river.
- The ruffe is not the most abundant species in the trawls.
- Reduce by 75% of the 2002 best available information of population level of purple loosestrife within estuary.
- No fish with significant pathological alterations.
- None of fish sampled on Crawford Creek (tributary to the Nemadji River) with spinal deformities and possibly tumors.

#### 2) Wildlife Populations

- Populations of the common tern and the piping plover (threatened and endangered species), great blue heron population, and gulls and mallards are not declining due to alteration or loss of physical habitat and toxic contamination.
- A breeding population of piping plover is reestablished in the estuary.
- Manage public lands in the AOC to ensure that appropriate habitat exists for at least one Great Blue Heron rookery.
- The breeding population of common terns in the Lower St. Louis River should be maintained at its current level.
- Recommendations from the U.S. FWS common tern assessment will be used to update and refine this conservation goal.
- Ring-billed gulls and mallards are nesting in the estuary at current or higher numbers.
- No occurrences of common tern chicks with cross-bills are found at Interstate Island.
- Resident bird populations are not accumulating unhealthy levels of contaminants at the Erie Pier CDF.

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

No rationale for removing from the list at this time.