

# Guidelines for Delisting Habitat-Related Beneficial Use Impairments

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Unlike toxicity driven BUIs, it is difficult to establish universal goals or endpoints for the habitat-related BUIs—Degraded Fish and Wildlife Populations, Loss of Fish and Wildlife Habitat, Degradation of Benthos. There is a direct relationship between the landscape and the fish and wildlife populations that can be supported: the quantity and quality of available habitat determines the fish and wildlife population capacity of the AOC. While this relationship is easily understood, it begs the question, how much and what kind of habitat is enough?

Answering this question is the major challenge faced by AOCs with habitat-related BUIs. Each AOC has its own set of specific challenges that result from the location and history of the site. Most AOCs are “working landscapes” which have a significant degree of industrialization. Many sites contain features that are unique to the AOC and should be protected, such as the rapids within the St. Marys River or the river delta at the southern end of the St. Clair River. Other sites are important migration corridors, such as the two major migration pathways supported by the Detroit River.

Because of these site-specific features, it is difficult to develop universally applied goals for delisting habitat related BUIs. This is not a barrier to delisting the AOC, but it is something that needs to be considered in developing AOC goals and site-specific targets.

Further, while environmental protection and natural resource management agencies have an important role in managing public lands, land-use decisions are fundamentally under the authority of local municipalities and governments. State and Federal agencies can offer expertise and help communities ensure that rules and regulations are met, but the most significant decisions are in the hands of local communities. Capacity at the local level varies and the work of restoring sites within AOCs may require hiring additional staff or consultants.

Fortunately, the approach that each AOC needs to take to develop goals and site-specific targets can be consistent across all the AOCs. We are suggesting the following pathway to ensure that restoration is successful and results in a clearly articulated and defensible delisting process for the three habitat-related BUIs.

The following pathway to delisting is based on an ecological restoration approach and is comprised of five steps: vision and goals; inventory and assessment; project design; implementation; and monitoring and re-assessment. Opportunities may present themselves out of sequence.

The pathway should not hinder progress in these cases, but should provide a commonly understood road map. For example, a site that would provide good habitat might be available for acquisition by a public entity before the full project design is completed. The pathway, then, is a guide to use when pursuing restoration of an AOC and delisting the three BUIs.

**Step 1: Vision and goals: the mental picture of the AOC and the components needed to improve it.**

This first step in the pathway is complete when the local community:

1. Acknowledges competing interests and values regarding land use, standards of cleanup and natural resources, and works toward acceptable compromises;
2. Shares a vision of the present AOC and what it will look like post-restoration;
3. Articulates AOC habitat-related goals;
4. Understands what is involved to get the work done; and,
5. Is committed to doing the work and preventing future degradation.

**Step 2: Inventory and assessment: a listing of the plants, animals, and habitats currently in the AOC as well as the problems that are causing the impairments to them and what is needed for them to recover.**

The second step in the pathway is complete when:

1. Major ecological components in the AOC, as well as the causes of impairments to those components, are known and mapped;
2. Work that needs to be done to restore is broadly known and consistent with the vision and goals; and,
3. The environmental goals for the AOC are reasonable given the potential for restoration.

**Step 3: Project design: the detailed work plan to restore and manage all sites in the AOC.**

Step three in the pathway is complete when:

1. A work plan is in place for each site within an AOC to be restored and/or managed;
2. Site targets (habitat and species) support the environmental goals for the AOC.
3. The project timetable is reasonable; and,
4. There is a common understanding of how project progress will be tracked and communicated.

**Step 4: Implementation: initiating the work plan activities that will accomplish the goals and objectives leading to the fulfillment of the vision.**

The success of restoration activities may not be evident for years. Therefore, the fourth step in the pathway may be considered complete if:

1. Finances have been secured and work has been started at all sites according to the work plan developed in the project design step; and,
2. The indicators (track record) show that demonstrable progress toward reaching targets at each site is being made.

**Step 5: Monitoring and re-assessment: keeping track of each site over a long period of time.**

Step five is complete when:

1. Restoration is completed or well underway at all sites. Consistent monitoring shows that the restoration trajectory is on track to meet all site targets within the work plan timeframe;
2. The restoration trajectory also demonstrates that the restoration of site targets is leading to the achievement of AOC environmental goals.

3. Resources to complete the work, manage the sites, and monitor over the long term (20+ years) are assured; and,
4. Protections are in place to prevent future degradation from recurring.

AOCs were designated because they were problematic, major contributors to the degradation of the Lakes. Restoration of degraded fish and wildlife populations, habitats, and benthos will contribute positively to the health of the AOC and also to the greater ecosystem.

For example, today there are few mayflies in Saginaw Bay. Restoration of aquatic habitats and benthos in the bay will create a robust nursery area that would benefit the entire lake.

The following three principles underlie the pathway to delisting:

1. Delisting of habitat-related BUIs is likely to be dependent on the delisting of other BUIs. For example, in order to restore macroinvertebrates, it may be necessary to remediate contaminated sediments. The work plan timetable needs to take this into consideration.
2. An AOC that's ready for delisting will not only have restored sites, but will have a connection with its surrounding landscape. For example, the St. Marys River is a migratory corridor for fish and birds. Restoration of AOC habitats will help to maintain the continuity of those routes. In an urban setting such as the Buffalo River, restoration of sites will provide much needed and scarce habitat for many different species.
3. It is appropriate for delisting to occur prior to full ecological restoration as long as it can be demonstrated that the ecosystem is on a trajectory toward full recovery. For example, wetlands take a long time to recover. It is appropriate to consider delisting a restored wetland when water flows have been restored and major categories of emergent vegetation are in place, but prior to restoration of full biodiversity and ecosystem processes, which can take as long as decades.

The following are criteria for delisting the three BUIs:

- The restoration trajectory is moving measurably toward the environmental AOC goals.
- It is demonstrated that the restoration pathway has been followed, including monitoring and reporting systems in place to track and guide recovery.
- Target habitat quantities are sufficient to support desired fish, wildlife and benthos populations.
- The quality of habitat for desired species is physically, chemically, and biologically suitable.
- The desired fish, wildlife, and benthic communities are showing signs of sustainable recovery.
- The benthic macroinvertebrate community structure resembles control sites of comparable physical and chemical characteristics.
- Fish and wildlife are beginning to migrate freely in and through AOCs to utilize essential habitats.
- Land use plans and zoning laws are protecting habitats from future development, physical degradation and contamination.

Please refer to the document *Restoring Great Lakes Areas of Concern: Principles and Guidelines*, found on the GLNPO website at <http://www.epa.gov/glnpo/aoc/delist.html>, for more information about the process of delisting any BUI.