



WHAT BIOLOGICAL IMPACTS WERE COMPARED?

Project Partners



When considering each of the alternatives, biological impacts were compared to determine whether the actions associated with this project will adversely affect the federally endangered snuffbox mussel and Michigan listed threatened, endangered, and special concern (TES) species.



NO ACTION ALTERNATIVE

- Aquatic habitat for fish and mussels would not be improved.
- Additional fish passage would not be provided because movement within the project area is limited by the four, low-head beautification dams.
- Project area would not be affected by construction.
- Protection against sea lamprey, an invasive species, will remain in place.

REMOVAL OF FOUR LOW-HEAD DAMS WITHOUT SUBSTRATE IMPROVEMENTS

- Mussels would not be relocated from these areas before construction due to safety considerations near the four, low-head beautification dams.
- Aquatic habitat diversity and suitability for native fish and mussel species would not be restored.
- Aquatic habitat available at low flow would be reduced resulting in less area available for mussels, potentially decreasing the number of mussels in the area.
- Maximum flow speed and diversity of flow speeds in the Grand River will increase, while flow depth will be similar to existing conditions. These changes are expected to decrease the amount of suitable habitat for mussels.
- Protection against sea lamprey, an invasive species, will remain in place.

REMOVAL OF FOUR LOW-HEAD DAMS WITH SUBSTRATE IMPROVEMENTS

- Restores aquatic habitat diversity and suitability for native fish and mussel species by removing four, low-head beautification dams.
- Materials would be placed to create riffles, boulder fields and deeper pools for fish and mussel habitat.
- Although available habitat area will be slightly reduced, the project is designed to improve habitat value for fish and mussels in addition to providing recreational value.
- Although recolonization by mussels may require five to ten years, more mussels should be able to inhabit the area than under existing conditions.
- Flow speed will decrease and flow depths will increase resulting in an estimated 266% increase in mussel habitat over existing conditions.
- Fish passage around bed features such as riffles has been incorporated into the design at the channel margins.
- Protection against sea lamprey, an invasive species, will remain in place.



THREATENED AND ENDANGERED SPECIES EVALUATED FOR PROJECT EFFECTS			
GROUPING	COMMON NAME	FEDERALLY ENDANGERED SPECIES	MICHIGAN THREATENED & ENDANGERED SPECIES
Fish	Lake sturgeon		X
Fish	River redbhorse		X
Mussel	Snuffbox	X	X
Mussel	Slippershell		X
Mussel	Purple wartyback		X
Mussel	Black sandshell		X
Mussel	Lilliput		X
Mussel	Round pigtoe		X
Mussel	Pink heelsplitter		X
Mussel	Deertoe		X
Mussel	Ellipse		X
Mussel	Elktoe		X
Mussel	Creek heelsplitter		X
Mussel	Fluted shell		X
Mussel	Paper pondshell		X

