Animal Enhancement Activity – ANM28 - Aquatic Organism Passage Barrier Removal

Enhancement Description
Removal of barriers to the passage of aquatic organisms to provide or improve migration conditions.

Land Use Applicability
Cropland, pastureland, rangeland, forestland.

Benefits
Removing passage barriers can improve aquatic organism populations, open new habitat to species with limited ranges, and improve river and riparian conditions vital to wildlife and humans. Passage barriers limit aquatic organisms to small reaches of streams and rivers, negatively affecting population size, abundance, growth rate, and genetic diversity. Impairment of these population factors often leads to species becoming endangered or threatened. In addition, barriers like undersized culverts and dams often disrupt the cycling of watershed materials like large wood, sediment, and dissolved nutrients that are vital to downstream ecosystems both instream and along floodplains.

Criteria

For the purposes of this enhancement, the following features/structures will be defined as barriers eligible for removal or modification:

- Dams (*e.g.*, mill, low-head, roller, irrigation, hydropower, and/or storage) in the channel of a named waterway.
- Siphon, pipeline, sewerage, or utility crossings that act as dams or broad-crested weirs.
- Culverts where the barrel:
  - is perched (elevated) above the outlet pool's water surface.
  - width or span is less than the bankfull channel width upstream of the road crossing.
  - slope is greater than the channel slope.
- Low water crossings where streamflow is fast and shallow (less than six inches) across a smooth or uniform surface at least half as wide (from upstream to downstream) as the bankfull channel width. For example, a 12-foot wide hardened vehicle ford that crosses a stream with a bankfull width of 20 feet is likely a passage barrier under some flow conditions.
- All non self-regulating tide and/or flood gates (e.g. iron or steel "flap" style gates).
- Stream reaches that seasonally run dry because of surface diversion or pumping.

Barrier removal can be accomplished in a number of different ways, however all methods used must meet one of the following two criteria for successful implementation of this enhancement:

1. Complete removal of the structure or feature and return of the affected cross section or reach to pre-barrier conditions to the fullest extent possible. For dewatered stream reaches, this means restoring flow to the maximum extent practicable during the season of the year when dewatering occurs.

2. Replacement or modification of the barrier to provide satisfactory passage conditions for species of regional concern or as defined by NRCS Conservation Practice Standard 396, Fish Passage. When species of concern are not known, designing and building passage modifications to mimic prevailing stream geometry and geomorphology will provide satisfactory passage for native aquatic organisms.

Documentation Requirements

The following information will be collected and associated with each parcel considered for this enhancement:

1. Map showing the affected stream reach, location, and type of each barrier identified.
2. Photos of each barrier taken from the following vantage points:
    a. Downstream of the barrier looking upstream
    b. Upstream of the barrier looking downstream
    c. Within the barrier (if possible)
3. Data on barrier (where applicable, singularly or in combination)
    a. Width, span, or diameter
    b. Length
    c. Slope
    d. Depth
    e. Height
    f. Perch height (for culverts)
4. Post-removal or modification photos taken from the following vantage points:
    a. Downstream of the barrier looking upstream
    b. Upstream of the barrier looking downstream
    c. Within the barrier (if possible)
5. Brief written description of the actions implemented to remove or modify barriers to improve passage, including project milestones and timelines, any species considered or targeted for passage, alternatives contemplated but not used, and any monitoring or evaluation plans.

Michigan Supplement

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Criteria

1. In Michigan, this enhancement applies only to Culverts where the barrel is configured as follows:
   - perched (elevated) above the water surface outlet pool;
   - width or span is less than the bank-full channel width upstream of the road crossing;
   - slope is greater than the channel slope.

2. This enhancement must meet the Fish Passage (396) conservation practice standard.