The Nature Conservancy
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# Penobscot Habitat Blueprint



## GLOSSARY & METRIC DESCRIPTIONS

This glossary was developed to support the interpretation of the Penobscot Habitat Blueprint web map & tool

# Tiered Results (5% bins)



- Analysis results grouped into 20 bins where each bin has 5% of the barriers in the analysis area.
- These are the results that should be used for barrier assessments

# Sequential Rank

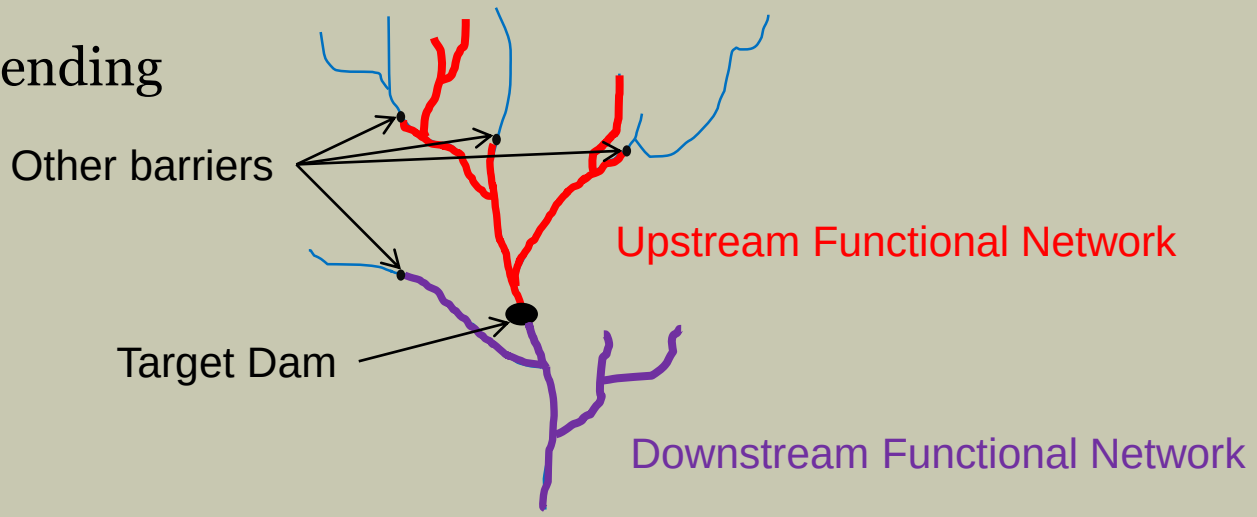


- The sequential list of barriers produced by the analysis.
- This list should be used with extreme caution:  the precision with which GIS can calculate metrics and rank barriers is not necessarily indicative of ecological differences
- The Tiered Results (5% bins) should be used to assess barriers for their potential ecological benefit

# Upstream Functional Network Length



- Category:  Network
- Length of the functional network upstream of a barrier.  The functional network is defined by those sections of river that a fish could theoretically access from any other point within that functional network.  Its terminal ends are barriers, headwaters, and/or the river mouth.
- Unit: meters
- Sort Order: Descending



# Downstream Barrier Count



- Category:  Network
- The number of barriers downstream of a given barrier
- Includes natural waterfalls, which are included in network generation
- Does not include barriers excluded from network generation
- Unit: #
- Sort Order: Ascending

# Absolute Gain



- Category:  Network
- This metric is the minimum of the two functional networks of a barrier. For example if the upstream functional network was 10 kilometers and downstream functional network was 5 kilometers, then the Absolute Gain will be 5 kilometers.
- Unit: meters
- Sort Order: Descending

# Number of Natural Barriers on Downstream Flowpath



- Category:  Network
- Count of natural barriers (e.g. waterfalls) on downstream flowpath of a barrier
- Unit: #
- Sort Order: Ascending

# One or More of the Next Upstream Barriers is a Natural Barrier

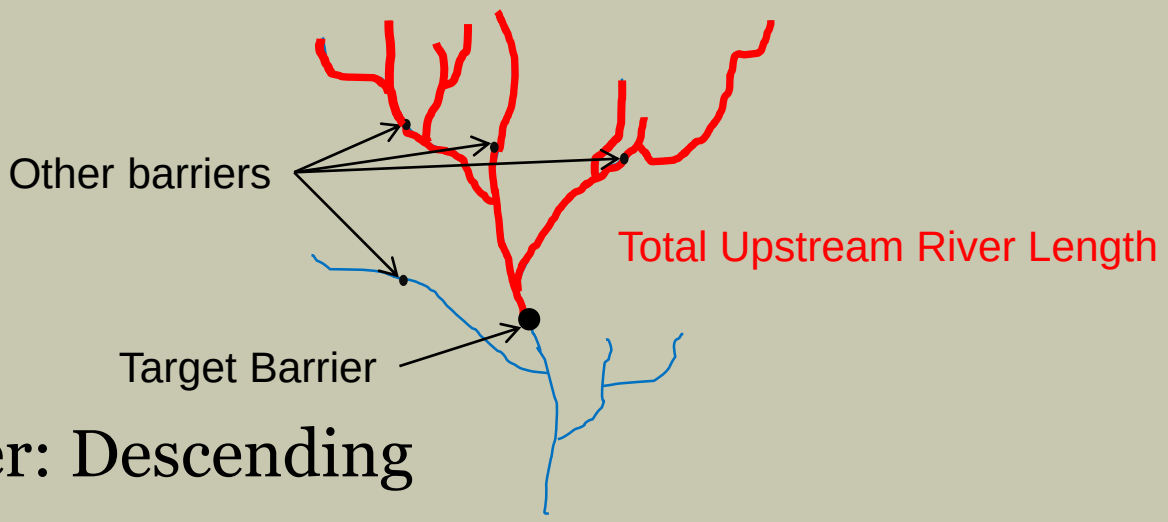


- Category:  Network
- Value is ‘Yes’ if one or more of the next upstream barriers is a natural barrier (e.g. waterfall)
- Unit: Boolean
- Sort Order: Ascending

# Total Upstream Network Length



- Category:  Network
- Total length of river network upstream of a given barrier, regardless of any upstream barriers.
- Unit: meters




- Sort Order: Descending

# River Size Class



- Category:  Size or System Type
- River size class based on NE Aquatic Habitat Classification.

1a: Headwaters (<3.861 sq.mi.)

1b: Creeks (>= 3.861<38.61 sq.mi.)

2:  Small River (>=38.61<200 sq. mi.)

3a: Medium Tributary Rivers (>=200<1000 sq.mi.)

3b: Medium Mainstem Rivers (>=1000<3861 sq.

4:  Large Rivers (>=3861 < 9653 sq.mi.)

5:  Great Rivers (>=9653 sq.mi.)

*(measure = upstream drainage area)*

# # miles of brook trout habitat in US network (medium, high, very high)



- Category:  Brook Trout
- Length of brook trout habitat in the Upstream Functional Network that is of medium, high, or very high priority for brook trout
- Data source: Stream reaches classified by Maine Inland Fish & Wildlife, July 2015
- Unit: Miles
- Sort Order: Descending

# # miles of brook trout habitat in US + DS networks (medium, high, very high)



- Category:  Brook Trout
- Length of brook trout habitat in the combined Upstream Functional Network + Downstream Functional Network that is of medium, high, or very high priority for brook trout
- Data source: Stream reaches classified by Maine Inland Fish & Wildlife, July 2015
- Unit: Miles
- Sort Order: Descending

# Medium, High, or Very High brook trout habitat upstream OR downstream of barrier



- Category:  Brook Trout
- Presence of ¼ mile or more of medium, high, or very high priority brook trout habitat in either the Upstream Functional Network or Downstream Functional Network
- Data source: Stream reaches classified by Maine Inland Fish  & Wildlife, July 2015
- Unit: Boolean
- Sort Order: Descending

# High or Very High quality brook trout habitat upstream OR downstream of barrier



- Category:  Brook Trout
- Presence of ¼ mile or more of high, or very high priority brook trout habitat in either the Upstream Functional Network or Downstream Functional Network
- Data source: Stream reaches classified by Maine Inland Fish  & Wildlife, July 2015
- Unit: Boolean
- Sort Order: Descending

# Very High quality brook trout habitat upstream OR downstream of barrier

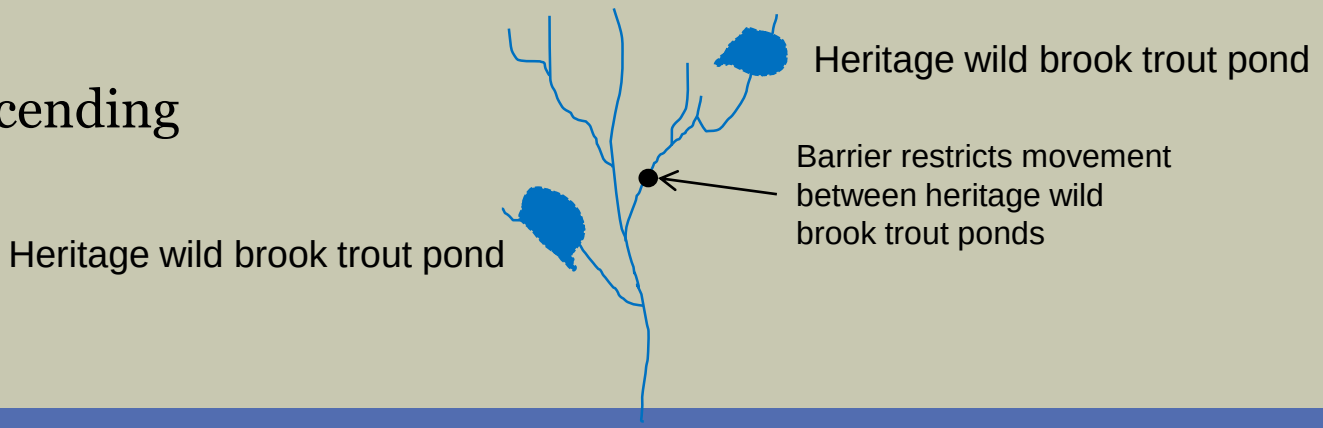


- Category:  Brook Trout
- Presence of ¼ mile or more of very high priority brook trout habitat in either the Upstream Functional Network or Downstream Functional Network
- Data source: Stream reaches classified by Maine Inland Fish  & Wildlife, July 2015
- Unit: Boolean
- Sort Order: Descending

# Heritage Fish Pond Barrier



- Category: Brook Trout
- Barrier separate two functional network that both include heritage wild brook trout ponds.
- Data Source: Maine Inland Fish & Wildlife
- Unit: Boolean
- Sort Order: Descending



# EBTJV Wild Brook Trout Patch



- Category: Brook Trout
- Barrier is within an Eastern Brook Trout Joint Venture (EBTJV) wild brook trout patch
- Unit: Boolean
- Sort Order: Descending

# Smelt spawning sites rank in upstream functional network



- Category: Sea Run Fish
- Value of smelt spawning sites priorities located upstream of barrier. Data from Maine DMR (Aug 2015) where priority classes were assigned the numerical values in the following table:

| Priority Class | Value |
|---|---|
| Very High | 4 |
| High | 3 |
| Not Ranked | 2.5 |
| Unknown | 2.5 |
| Medium | 2 |
| Low | 1 |
| None Documented | 0 |

- If more than one spawning site is located above the barrier, the maximum value is assigned to the barrier
- Unit: Categorical
- Sort Order: Descending

# Barrier to Sea Run Brook Trout

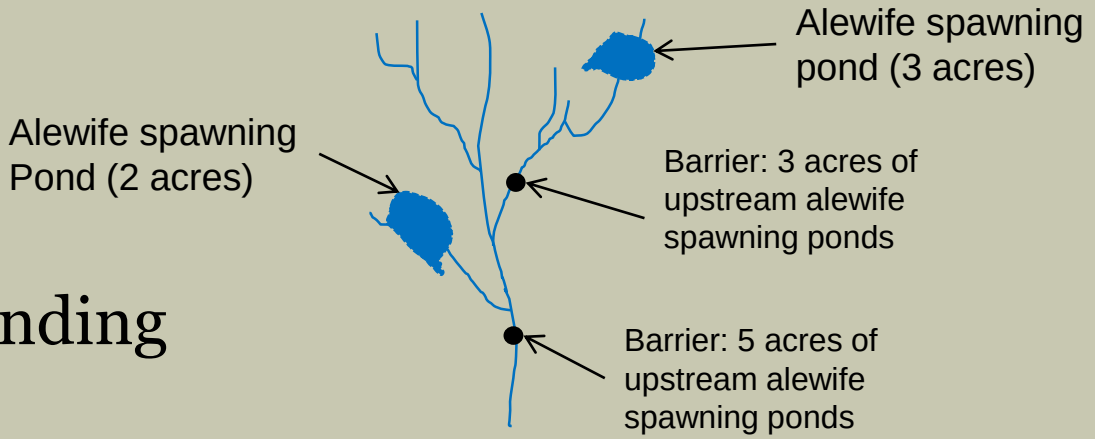


- Category: Sea Run Fish
- Barrier potentially blocks sea-run brook trout migrations because it falls on reaches mapped for current or historical sea run brook trout use. Data from 'Distribution of Diadromous Fish in Maine' compiled by USFWS Gulf of Maine (Houston, Lary, Chadbourne, & Charry). March, 2007
- Unit: Boolean
- Sort Order: Descending

# Upstream acres of alewife ponds



- Category: Sea Run Fish
- The summed acreage of documented alewife spawning ponds upstream of the barrier. This metric evaluates potential upstream alewife spawning habitat, thus it ignoring any upstream barriers. Data Source: Maine DMR
- Unit: Acres
- Sort Order: Descending



# Aquifer OR coarse sediments in U/S or D/S functional networks or both



- Category: Geology
- Aquifers[1] OR coarse sediments[2] are found in upstream functional network OR downstream functional network OR both. This metric evaluates the potential for cold water habitats within a barrier's respective networks.
- Unit: Boolean
- Sort Order: Descending

[1] Maine Geological Survey, Department of Agriculture, Conservation and Forestry, 93 State House Station, Augusta, ME 04333-0093
[2] Extracted from The Nature Conservancy Eastern Division's Ecological Land Units

# Calcareous / moderately calcareous geology in U/S or D/S networks or both



- Category: Geology
- Calcareous or moderately calcareous[1] geology is found in upstream functional network OR downstream functional network OR both. This metric evaluates the acid buffering capacity within a barrier's respective networks.
- Unit: Boolean
- Sort Order: Descending

[1] Extracted from The Nature Conservancy Eastern Division's Ecological Land Units

# Barrier is in a Salmon Critical Habitat HUC10



- Category: Salmon
- Barrier is located within a designated Atlantic Salmon Critical Habitat 10-Digit Hydrologic Unit. Data Source: U.S. Department of Agriculture, Natural Resources Conservation Service. Critical Habitat data from NOAA's National Marine Fisheries Service (NMFS)
- Unit: Boolean
- Sort Order: Descending

# DMR Salmon Priority (Tier 1, 2, 3) from HUC12



- Category: Salmon
- Barrier is assigned the Priority Tier from the 12-Digit Hydrologic Unit that it is within. Priority Tiers designated by Maine's Department of Marine Resources (DMR).
- Unit: Categorical (Numerical values assigned from Tiers: Tier 1 = 1; Tier 2 = 2; Tier 3= 3
- Sort Order: Ascending

# Summed salmon habitat units in US Functional network



- Category: Salmon
- The summed value of Atlantic Salmon habitat units in a barrier's Upstream Functional Network. Salmon habitat units obtained from a GIS-based habitat model that predicts the amount of accessible Atlantic salmon rearing habitat throughout the Gulf of Maine Atlantic Salmon DPS[1]
- Units: Habitat units (sq. meters/100)
- Sort Order: Descending

[1]Jed Wright and Alex Abbott, U.S. Fish and Wildlife Service, Gulf of Maine Coastal Program; Tara Trinko Lake, NOAA Fisheries Service, Maine Field Station; John Sweka, U.S. Fish and Wildlife Service, Northeast Fishery Center

# Summed salmon parr productivity in US Functional network



- Category: Salmon
- The summed Atlantic Salmon parr productivity in a barrier's Upstream Functional Network. Salmon parr productivity obtained from a GIS-based habitat model that predicts the amount of accessible Atlantic salmon rearing habitat throughout the Gulf of Maine Atlantic Salmon DPS[1]
- Units: # (Predicted parr production based on habitat units and predicted parr density)
- Sort Order: Descending

[1]Jed Wright and Alex Abbott, U.S. Fish and Wildlife Service, Gulf of Maine Coastal Program; Tara Trinko Lake, NOAA Fisheries Service, Maine Field Station; John Sweka, U.S. Fish and Wildlife Service, Northeast Fishery Center

# Species of Management Concern on one side of a barrier and not the other



- Category: Invasives
- Species of management concern are found on one side of a barrier and not the other. Species evaluated include Black Crappie, Largemouth Bass, Muskelunge, Northern Pike, Smallmouth Bass, and Walleye.
- Data Source: Compiled from Maine Department of Inland Fisheries and Wildlife records and communications by William Hancock in 2012 for Merry Gallagher, Reseach Fisheries Biologist, MDIF&W
- Unit: Boolean
- Sort Order: Ascending

# Species of Management Concern on one side of a barrier and not the other - Confirmed only



- Category: Invasives
- Species of management concern are confirmed to be found on one side of a barrier and not the other. Species evaluated include Black Crappie, Largemouth Bass, Muskelunge, Northern Pike, Smallmouth Bass, and Walleye.
- Data Source: Compiled from Maine Department of Inland Fisheries and Wildlife records and communications by William Hancock in 2012 for Merry Gallagher, Research Fisheries Biologist, MDIF&W
- Unit: Boolean
- Sort Order: Ascending

# # of Species of Management Concern that are blocked - Confirmed only



- Category: Invasives
- # of species of management concern are confirmed to be found on one side of a barrier and not the other. Species evaluated include Black Crappie, Largemouth Bass, Muskelunge, Northern Pike, Smallmouth Bass, and Walleye.
- Data Source: Compiled from Maine Department of Inland Fisheries and Wildlife records and communications by William Hancock in 2012 for Merry Gallagher, Research Fisheries Biologist, MDIF&W
- Unit: #
- Sort Order: Ascending