

New Hampshire Fish and Game Department Spatial Data Notes

DATA LAYER: WAP2025_Aquatic.gdb (RiversStreams and LakesPonds feature classes)
CONTENTS: stream classification; Important Fish Habitat in New Hampshire
SOURCE: National Hydrography Dataset (U.S. Geological Survey) 1:24,000
SOURCE SCALE: USGS; attributes by TNC (2008) and NH Fish and Game Dept. (2026)
STATUS: Updated with NH fish survey data collected through December 2025
LAST REVISION: April 2026

General Description of the Data

Larger citation: Northeastern Aquatic Habitat Classification (TNC) designed to consistently represent the expected natural aquatic habitat types across this region in a manner deemed appropriate and useful for conservation planning by the participating states. This product is not intended to override state classifications but complement state classifications and provide a means for looking at aquatic biodiversity patterns across the region.

TNC's map was used as the starting point for representing aquatic habitat types in New Hampshire, but the distribution of coldwater stream habitat needed to be refined. NH Department of Environmental Services provided an update to the state's coldwater rivers and streams classification using predictions based on a logistic regression model using latitude, longitude, and upstream drainage area. Coldwater determination was made where the probability of occurrence was $\geq 50\%$ (see NHDES publication R-WD-07-38), or where two (2) or more brook trout or slimy sculpin were observed (observations by NHFG and NHDES through spring 2024). This combination of predictive modelling and survey data provides our best attempt at representing the distribution map of coldwater river and stream habitat in New Hampshire without widespread temperature monitoring data. This map will continue to be refined and ground-truthed with future surveys conducted by NHFG and NHDES biologists.

The data set was revised in 2026 to update aquatic habitat of importance identified by the Inland Fisheries Division of the NH Fish and Game Department. Categories of importance include aquatic habitats or species of concern, habitat related to ongoing migratory fish restoration projects, and areas where the Department has invested resources into restoration or other ongoing conservation work. Species occurrence from fish surveys is updated annually. The intent of the layer is to increase awareness of the Inland Fisheries Division's conservation goals as well as to encourage restoration and conservation efforts in areas that will benefit sensitive species and aquatic habitats in New Hampshire.

Definitions of attributes added by NH Fish & Game

Field name	Description
NHDESMODEL	NH Dept. of Environmental Services 2016 Fish Assemblage Index of Biotic Integrity
NHTEMP	Fishery temperature class based on NHDES Model and species occurrences
TIDAL	Reach is tidal (Y or N)
EBT	P = wild brook trout present in stream reach during survey; N = not detected
SPPCONCERN	P = fish/mussel species of conservation concern present; N = not detected

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Spatial Data Notes: WAP2025_Aquatic

Field name	Description
ShadRestor	Y = Potential American shad spawning or juvenile rearing habitat
AnadFish	P = Anadromous fish present; N = not detected
NHFGinterest	Y = Rivers or streams with past, ongoing, or planned restoration/conservation work where NHFG has invested resources T = wild brook trout Tributaries to NHFG streams/rivers of interest
BridleShiner	P = Bridle shiner occupied habitat; N = not detected
ABL	P = American brook lamprey occupied habitat; N = not detected
SPRINGFED	Confirmed: Wild trout were present and habitat appears suitable, but more surveys are needed to determine if the population is viable over the long term. Potential: The stream has been reported to contain a wild trout population, but has yet to be surveyed.
RiverHerring	Y = River herring locations, including the migratory path downstream
Diad	Y = diadromous fish present, including the migratory path downstream
WAPSPECIES	List of species of conservation concern present in stream reach
COLD_CAT	<i>Coldwater Stream Habitat category</i>
WAP_CAT	<i>Wildlife Action Plan Fish Species category</i>
DIAD_CAT	<i>Diadromous Fish Restoration category</i>
DiadProject	Potential <i>Diadromous Fish Restoration Project Site</i>

Common Name	Scientific Name	Status (SWAP2025)
Alewife (sea run only)	<i>Alosa pseudoharengus</i>	SC, SGCN
American Brook Lamprey	<i>Lethenteron appendix</i>	SE, SGCN
American Eel	<i>Anguilla rostrata</i>	SC, SGCN
American Shad	<i>Alosa sapidissima</i>	SE, SGCN
Atlantic Sturgeon	<i>Acipenser oxyrinchus</i>	ST, SGCN
Banded Sunfish	<i>Enneacanthus obesus</i>	SGCN
Blueback Herring	<i>Alosa aestivalis</i>	SC, SGCN
Bridle Shiner	<i>Notropis bifrenatus</i>	SGCN
Brook Trout	<i>Salvelinus fontinalis</i>	SGCN
Lake Whitefish	<i>Coregonus clupeaformis</i>	SGCN
Rainbow Smelt (sea run only)	<i>Osmerus mordax</i>	SC, SGCN
Redfin Pickerel	<i>Esox americanus americanus</i>	SGCN
Round Whitefish	<i>Prosopium cylindraceum</i>	SGCN
Sea Lamprey	<i>Petromyzon marinus</i>	SC, SGCN
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	FE, SE, SGCN
Swamp Darter	<i>Etheostoma fusiforme</i>	SGCN
Brook Floater (mussel)	<i>Alasmidonta varicosa</i>	SGCN
Dwarf Wedgemussel	<i>Prolasmidonta heterodon</i>	SGCN
Eastern Pondmussel	<i>Ligumia nasuta</i>	SGCN

Freshwater Mussel SGCN species not mapped in this dataset:

- Alewife Floater (*Anadonta implicata*)
- Eastern Pearlshell (*Margaritifera margaritifera*)
- Triangle Floater (*Alasmidonta undulata*)

Method for identifying water bodies as Important Fish Habitat:

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Category	Description	Mapping	Intent/Justification
Coldwater Stream Habitat	Spring fed, isolated, brook trout streams known to be vulnerable.	Highlight reach.	Protect brook trout streams that have high potential for extirpation.
Coldwater Stream Habitat	Coldwater streams with known wild EBT populations (survey record).	Highlight reach.	Broad scale prioritization of conservation work on known coldwater stream habitat.
Coldwater Stream Habitat	Predicted coldwater stream with no survey record (NHDES 2016 fish assemblage IBI model)	Highlight reach	Create awareness of potential coldwater stream habitat.
NHFGD vested interest	Rivers or streams with past, ongoing, or planned restoration/conservation work (i.e. Nash Stream, Beebe River, Warner River, Ammonoosuc River, Dead Diamond River, Swift Diamond River, Indian Stream, McQuesten Brook, Emerald Acres crossing, Thompson Brook).	Highlight reach, and tributaries with wild brook trout present.	Protect sites where NHFG has invested resources in restoration or conservation projects.
WAP T&E species	Presence of State-listed Threatened & Endangered fish species.	Highlight occupied habitat.	Protect/create awareness of important habitat for T&E species.
WAP fish & mussel species of concern	Presence of fish and mussel species of conservation concern.	Highlight reach.	Encourage protection or restoration of habitat that supports SOC to help prevent declines.
Diadromous Fish Restoration	River or stream reaches important for river herring restoration.	Highlight migratory path and spawning habitat.	Emphasize areas where herring passage is important to achieving restoration goals.
Diadromous Fish Restoration	Designated as American shad spawning habitat in the Connecticut and Merrimack River shad management plans.	Highlight reach.	Increase awareness of restoration plan for American shad.

2025 NH State Wildlife Action Plan (SWAP) – Aquatic habitat condition assessment

Field name	Description
PermanentID	National Hydrography Data permanent ID for stream reach
SOrder	Stream Order (assigned in NH GRANIT hydrography data)
NHFGID	Unique ID for each stream reach after being split at barriers (SADES no AOP; Dams)
MILES	Length of original stream reach
SWAPHeadwater	Y = headwater stream, I = intermittent headwater stream
ACTIVEDAM	Y = active dam present
ORIG_FID	Original feature ID in the NHD hydrography flowline data
ORIG_SEQ	sequence of the original stream reach after split by barriers
Functional_Miles	Functional stream miles (length of stream reach between barriers)
Number_Barriers	number of barriers on original stream reach (where barrier = SADES stream crossings and active dams; <u>excluding</u> bridges and surveyed crossings in the AOP category "Fully Passable" and the Geomorphic category "Fully Compatible")
BarriersPerMile	barriers per mile of original stream reach
HUC8	hydrologic unit code
HUC8Name	HUC-8 watershed name
DEVAG_PCT	Percent Developed and Agriculture (NLCD 2023 land cover)
IMPERV_PCT	Percent Impervious (2021 NOAA C-CAP)
US_Accum	Upstream Accumulated Length
AC_BUF250	Area of the 250-meter buffer of the stream reach
AC_NATURAL	Acres of natural land cover in the 250-meter buffer
AC_IMPERV	Acres of Impervious surface in the 250-meter buffer
RivID_1	RivEx unique ID for the river network
Fnode_1	RivEx network from node
Tnode_1	RivEx network to node
US_PCT_NATURAL	Upstream percent natural
US_PCT_DEVAG	Upstream percent developed or agriculture
US_PCT_IMPERV	Upstream percent impervious
LINEAR_CON	Proportion of Upstream accumulated length (miles) of stream reaches with no barriers
US_BARRIERS	Upstream Average density of barriers per stream mile
WS_INTEGRITY	Upstream total "High Quality" divided by Upstream total not high quality
US_MILES	Upstream functional miles
DS_BARRIERS	Count of barriers downstream
CONS_PCT	Percent conserved in the immediate 250m buffer of the reach
US_CONSPCT	Accumulated percent conserved in the 250m buffer upstream
ARM Region	NHDES numeric ID for the ARM Region
ARM Name	NHDES name of ARM region
HighQualityOct2025	Y = original assessment identified high quality stream reach met 3 conditions: 1.) low (<10%?) impacts from development and agriculture, 2.) no active dams and upstream dam water storage less than 10% of mean annual flow, and 3.) low impervious surfaces (less than 2%)
LeftBuf100mNatural	Percent natural land cover in 100-meter buffer of 250-meter min. stream reach length
RightBuf100mNatural	Percent natural land cover in 100-meter buffer of 250-meter min. stream reach length
TopRanked	Y = top-ranked stream reach (final rank used in 2025 State Wildlife Action Plan)