

Aquatic Habitats

Aquatic habitats are those found in rivers, streams, lakes, and ponds. These places are a vital subset of the Surface Waters and Riparian Areas network, but they still depend on the successful functioning of the entire aquatic network.

Ecological Functions

Aquatic habitats are essential for many species, including fish, amphibians, reptiles, invertebrates, and plants. Particular lakes and ponds, and segments of rivers and streams, make exceptional contributions



to Vermont's biological diversity because of their unique physical characteristics arising from geology or topography, because they are good examples of aquatic habitats, or because they have concentrations of rare species and/or important species assemblages.

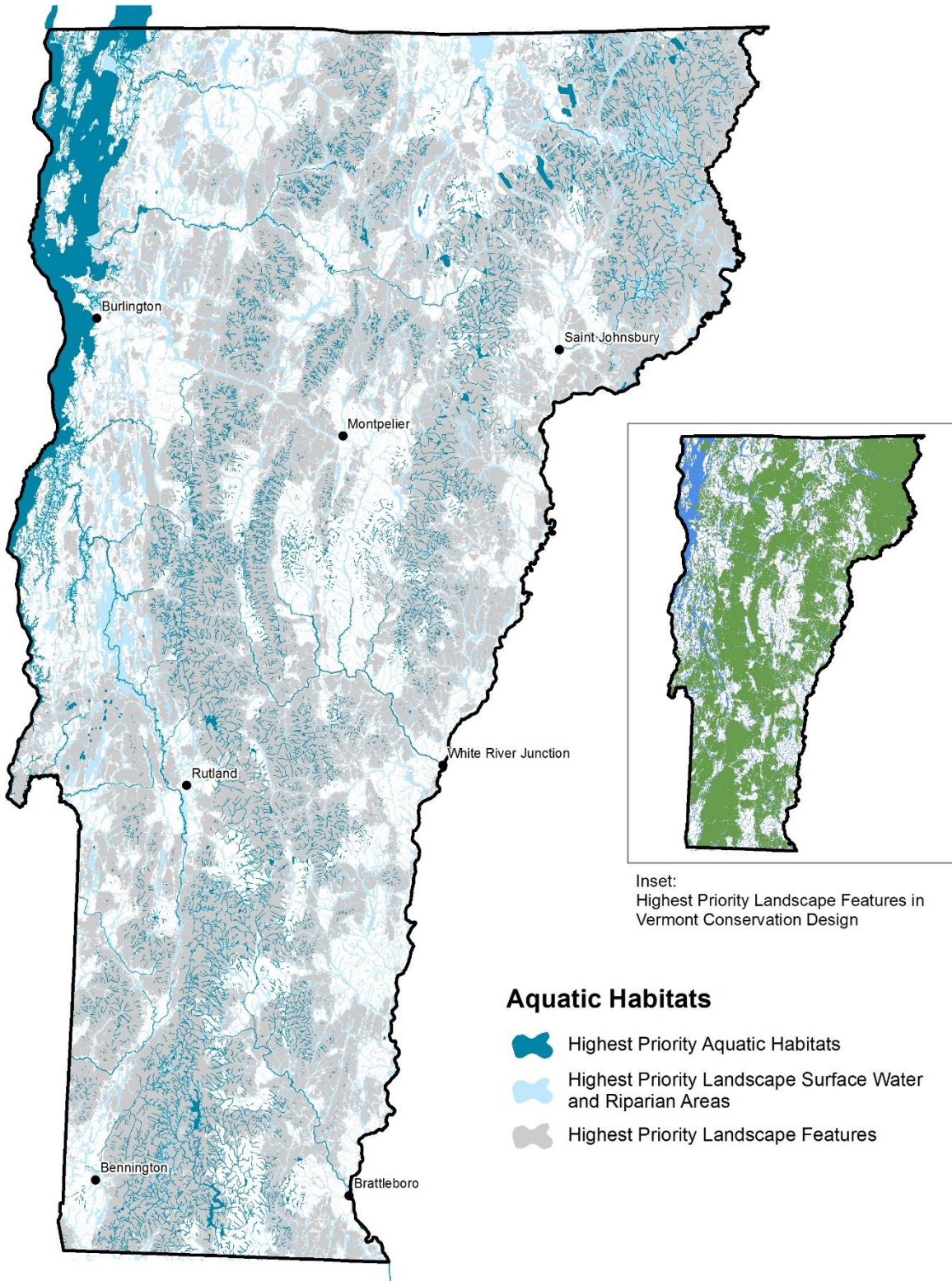
Highest Priority Features and Guidelines for Maintaining Ecological Function

Vermont Conservation Design identifies a set of aquatic habitats that are highest priority for maintaining ecological function. These are lakes and ponds, and segments of rivers and streams with known concentrations of rare species, exceptional species diversity, or which are examples of high-quality habitat. Collectively these features are representative of physical aquatic conditions. The river and stream segments include the full range of stream sizes, gradients, and temperature conditions in Vermont as identified by Anderson et al. (2013). Lakes and ponds include full representation of trophic status, depth, and alkalinity, which are generally the main factors that shape biological communities in lakes (Wetzel 2001). These highest priority aquatic habitats must be part of a fully functioning network of surface waters and riparian areas. Although areas with exceptional biological contributions can be identified, they cannot function independently.

An aquatic system's ecological integrity depends on the condition of the watershed in which it occurs, but it is critically tied to the condition of the adjacent riparian area. River channel equilibriums need to be maintained or restored. Artificial barriers to aquatic organism movement (culverts, dams, etc.) should be removed or mitigated. Natural vegetation should be maintained or restored along shorelines, and should have adequate width to maintain water quality, stabilize shorelines, and provide shade and the recruitment of downed wood and other natural organic matter. Runoff and erosion should be minimized along developed shorelines. Underwater habitat and vegetation should be maintained or restored to provide suitable conditions for foraging, shelter, and reproduction of aquatic organisms. The spread of aquatic invasive species and pathogens should be prevented and controlled where possible.

For more information on aquatic habitats, see the following sections in the Part 2 Vermont Conservation Design Technical Report:

- Important Aquatic Habitats and Species Assemblages – Rivers and Streams
- Important Aquatic Habitats and Species Assemblages – Lakes and Ponds
- Representative Lakes and Ponds



Map 8. Highest Priority Aquatic Habitats (dark blue). These features are a subset of the landscape-scale Surface Waters and Riparian Areas (light blue). Aquatic habitats depend on the ecological functioning of the entire aquatic network.