Supplementary Information
Indicator I: Aquatic Connectivity
State of Casco Bay 6th Edition

References

Casco Bay Estuary Partnership. 2015. State of the Bay Report. Portland, Maine.
https://www.cascobayestuary.org/wp-content/uploads/2014/06/2015-SOTB-Report-final-3-16-16.pdf

Further Reading

Maine's Diadromous Species Restoration Research Network (DSRRN) is a network coordinated by the University of Maine System to advance science around the recovery of diadromous fish species. The DSRRN web site provides access to a variety of science-based resources: https://umaine.edu/mitchellcenter/diadromous-species-restoration-research-network/.

The Maine Stream Connectivity Working Group is a forum, networking and coordinating group that informs, leverages, and enhances the work of on-the-ground restoration practitioners and planners in Maine. Additional information about the group is available at: https://www.maine.gov/dmr/science-research/searun/programs/streamconnectivity.html.

CBEP, with U.S. Fish and Wildlife Service's Gulf of Maine Coastal Program office and volunteers from Trout Unlimited, commissioned a watershed-wide assessment of road/stream crossings in 2009-2010 to identify barriers to aquatic organism passage. This partnership produced a series of municipal map packages that illustrated potential and severe barriers, along with a flood vulnerability analysis. A compendium of these maps, the Casco Bay Watershed Fish Barriers Atlas, was produced in 2012 and is online at: https://www.cascobayestuary.org/wp-content/uploads/2014/08/2012_fish_barrier_atlas_final.pdf.

The Maine Stream Habitat Viewer was created to enhance statewide restoration and conservation efforts and provides a starting point for towns, private landowners and others to learn more about stream habitats across the state. The Viewer includes road/stream crossing data for the Casco Bay Watershed collected in 2009-10. The Viewer is located at: https://webapps2.cgis-solutions.com/MaineStreamViewer/.

The Nature Conservancy in Maine created a Maine Statewide Aquatic Barrier Prioritization tool that enables various means of analyzing stream barriers where restoration could benefit different fish species. Online at: https://maps.coastalresilience.org/maine/#.

The North Atlantic Aquatic Connectivity Collaborative (NAACC) established The Stream Connectivity Portal at https://streamcontinuity.org as a way to network various collaboratives

working on connectivity restoration initiatives, as well as highlight tools throughout the Northeast.

Methods and Data Sources

Stream Barrier and Sea-Run Fish Habitat Data

We used stream barrier and fish habitat data, GIS shape files, and summary analysis provided to CBEP in 2015 by Alex Abbott, contractor working with the U.S. Fish and Wildlife Service, Gulf of Maine Coastal Program. CBEP prepared the map illustration in ArcMap, and the pie graph in Excel. The summary table of sea-run fish habitat was provided to CBEP by Abbott in 2015.

U.S. Fish and Wildlife Service, Gulf of Maine Coastal Program. 2015. State of the Bay 2015 Datasets.

River Herring Returns

We obtained data on anadromous fish returns to the Presumpscot River and its tributaries from Dr. Gail Wippelhauser at Maine Department of Marine Resources and Dr. Karen Wilson at the University of Southern Maine. Dr. Wippelhauser provided data on river herring returns at both Highland Lake and Cumberland Mills Dam, and Dr. Wilson shared data on alewife returns to Highland Lake. We merged the data sets in Excel and graphed the composite data set. Since the count data and return estimates overlapped at Highland Lake, we deferred to Dr. Wilson's data if there was any difference given that they were the primary source for recent counts.

Wilson, K. 2020. Highland Lake Alewife Return Totals up to 2019. Via email, March 18, 2020.

Wippelhauser, G. 2020. Anadromous fish data – Casco Bay runs. Via email, March 23, 2020.