



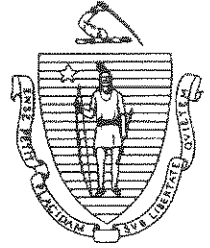
David E. Pierce, Ph.D.
Director

Commonwealth of Massachusetts

Division of Marine Fisheries

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Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Ronald Amidon
Commissioner

Mary-Lee King
Deputy Commissioner

March 30, 2018

Donald Bates
84 Squantos Path
Harwich, MA 02645

Dear Mr. Bates,

The Massachusetts Division of Marine Fisheries (MA DMF) has finalized the Operations and Maintenance Plan (O&M) for the Seymour Pond outlet fishway in Harwich. We appreciate the opportunity to work with you and the Town of Harwich Natural Resources Department to improve this site and develop the O&M. The Seymour Pond fishway was rebuilt in 2016 as part of a cooperative effort between MA DMF and the Town of Harwich. This work included removing sand from the canal connecting Seymour Pond to Hinckley's Pond with our Kuboto excavator. We returned in 2017 to reset the fishway and remove more sand from the canal.

The authority for MA DMF to prescribe O&Ms for sea-run fish in Massachusetts is derived from M.G.L. Chapter 130 §19. A Memorandum of Agreement is active between the Town of Harwich and MA DMF to provide local control of river herring runs (M.G.L. Chapter 130 §94). Through this process the Natural Resources Department has worked with you as property owner to maintain this important passageway for sea-run fish. The O&M will serve as a guidance document for present and future property owners, and Town staff assigned to manage the fishways. The O&M can be revisited at any time if site conditions change or if the experience gained from its application suggests improvements.

Please contact our Diadromous Fisheries Project leader, Brad Chase, at 508-990-2860 x118, if you have questions or need further information.

Sincerely,

David E. Pierce, Ph.D.
Director

Cc:

Heinz Proft, Town of Harwich, Natural Resources Department
Amy Usowski, Town of Harwich, Conservation Agent
Mike Armstrong Ph.D., Greg Skomal, Ph.D., Ed Clark, MA DMF



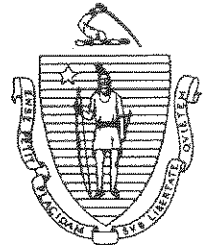
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FISHWAY OPERATIONS AND MAINTENANCE PLAN

Location: Seymour Pond Outlet, Harwich, Massachusetts

Latitude and Longitude: 41.7196° N and 70.0932° W

Property Owner: Donald Bates
84 Squantos Path
Harwich, MA 02645
508-430-2649

Town Contact: Town of Harwich
Natural Resources Department
715 Main Street
Harwichport, MA 02646
Heinz Proft, 508-430-7532

Watershed Information: Seymour Pond is a 181-acre natural kettle pond in the Towns of Brewster and Harwich with a maximum depth of 38 ft. Seymour Pond connects to Hinckley's Pond through an 820 ft man-made channel known as Cahoon's Canal that was dug in the 1850s for the purpose of creating a herring run into Seymour Pond. Water flow exits Hinckley's Pond to the Herring River which flows to the West Reservoir and then to tidal waters before meeting Nantucket Sound in West Harwich. Hinckley's Pond also connects to Long Pond allowing river herring to access the four water bodies which provide in total over 1,100 acres of spawning and nursery habitat. Three diadromous fish species, alewife, American eel, white perch, are known to access Seymour Pond during spring migrations.

Fishway Specifications: A wood flume with three stoplog board slots was installed to serve as both the Seymour Pond outlet and the fishway. The confluence of Cahoon's Canal with Hinckley's Pond is naturalized with no control structure. The Town of Harwich requested assistance from the Massachusetts Division of Marine Fisheries (MA DMF) in 2014 to replace the wood fishway at the Seymour Pond outlet and to reduce the sand shoaling occurring in the canal. Wind driven sand accumulation in the fishway and canal has been a long-standing problem. The replaced wood fishway was considered to be 15–20 years old and installed near the time of the last major effort to remove sand from the canal. Operating under a Negative Determination of Applicability granted by the Harwich Conservation Commission in October 2014 and M.G.L. Chapter 130 §19 authority, MA DMF, in cooperation with the Harwich Natural Resources Department, began removing sand from the fishway and canal in 2015, and returned with a mini-excavator to complete the canal maintenance and rebuild the fishway in 2016. The new fishway was built by MA DMF with non-CCA pressure treated wood at the dimensions of 7 ft L x 43 in W x 3 ft H with three stoplog slots to accommodate weir boards.

Regulatory Authority: The owner of the fishway is responsible for repairing, operating, and maintaining fish passage facilities as prescribed in M.G.L. Chapter 130 §19. M.G.L. Chapter 130 §19 also provides the authority for the Director of MA DMF to determine all matters associated with the operations and maintenance of a fishway. A Memorandum of Agreement is active between the Town of Harwich and MA DMF to provide local control of river herring runs (M.G.L. Chapter 130 §94). The owner of the fishway and land around the fishway is Mr. Donald Bates. The Town of Harwich Natural Resources Department has maintained this site in cooperation with Mr. Bates for over 20 years.

Water Withdrawal Permissions: None.

Water Discharge Data: None.

Fishway Operation

- 1.) Water flow from Seymour Pond shall be allowed to exit the fishway annually during the upstream river herring migration from March 15 to June 30 and during the juvenile downstream migration of July 1 to November 15 annually. The standard setup for both periods will be 6" boards at each board slot to reduce sand entrainment. These operations will also assist the passage of American eel that enter the brook as juvenile glass eels during the spring period and exit the brook as adult silver eels during the fall period. A relative staff gauge will be provided at the fishway by MA DMF to allow monitoring of pond levels to aid future site management.
- 2.) During the **spring migration period** board placement in the three stoplog slots will depend on the canal water depth and Seymour Pond water surface elevation. For most conditions, a 4" board will be added to the exit weir (10" total height). Low water level conditions in the canal or pond may necessitate board adjustments to allow a 3–6 inch drop in water surface elevation from exit weir to entrance weir.
- 3.) During the **juvenile emigration period**, lower outflow will be sufficient to allow juvenile river herring to move downstream than needed during spring. Two to four inches of water depth over the 10" height at the exit weir board will be the target during this period. The Town of Harwich Natural Resources Department will retain flexibility during this period to: (a) lower or raise this height to release juvenile herring as needed; or (b) during summers of lower than average precipitation and groundwater storage to hold water in Seymour Pond and not release water until the fall to avoid the potential of stranding juvenile herring in the canal.
- 4.) After the juvenile emigration is complete, a 6" board shall be added to the standard 6" board at the exit weir (12" total height) to reduce winter sand entrainment into the fishway and canal. Fall and winter storm forecasts of >2 inches of rain to the area should prompt a site visit to inspect present water levels and a decision to remove the second 6" board to prevent the pond level from washing over the outlet flume.

Fishway Maintenance

- 1.) The Town of Harwich has agreed to work cooperatively with the property owner to annually maintain the fishway. The fishway shall be inspected to adjust weir boards and remove debris beginning on March 1 and continuing weekly for the spring migration period, and monthly or as needed for the juvenile emigration period. One visit each spring should be devoted to sand removal from within the fishway.
- 2.) Town staff should inspect Cahoon's Canal for debris and sand shoaling at the start of each migration period and remove passage obstructions. The fishway, Punkhorn Road culvert, and Hinckley's Pond outlet are three areas that will need periodic attention.
- 3.) The canal will require periodic efforts to remove large amounts of sand with an excavator or other equipment. The need of this work should be assessed every five years with documentation kept on the five-year conditions and the date and scale of in-stream work. Canal maintenance was last done by MA DMF during October 2016 (two days) and October 2017 (half day) with a Kubota excavator US5S2.

Monitoring & Reporting: The Town of Harwich is encouraged to maintain annual records that document major events related to the river herring run and fishway O&M that may assist future efforts to manage fish passage in the Herring River watershed. If a significant problem occurs that could influence successful fish passage, the Town of Harwich is encouraged to contact MA DMF staff (Brad Chase, 508-990-2860 x118, brad.chase@state.ma.us).

Prepared: December 15, 2017

By: Bradford C. Chase, MA DMF

Approved:



David E. Pierce, Ph.D., Director