



United States Department of the Interior

FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589



November 12, 2015

MEMORANDUM

To: Susquehanna River Coordinator, Maryland Fishery Resources Office, Annapolis, MD
Attention: Sheila Eyler, Fish and Wildlife Biologist

From: Jesus Morales, Hydraulic Engineer, Fish Passage Engineering

Subject: Inspection of fishways at the Safe Harbor Hydroelectric Project (FERC #1025)

A seasonal inspection of the fish passage facilities at the Safe Harbor Hydroelectric Project (Project) was performed at 9:00 am on Thursday, 05/07/2015. The Project is owned and operated by the Safe Harbor Water Power Corporation. The USFWS (Service) review team was led by Sheila Eyler. Consultants to the owner Normandeau Associates, Inc. (NA) and personnel from the Maryland Department of Natural Resources and from the Pennsylvania Fish and Boat Commission were also present.

This site review included the catwalk located in front of the power house, and a tour through the fishway. The operators performed a lift cycle while the Service personnel were on site. On the day of the inspection two entrance gates were open: gate-A (farthest away from the power house building) attracts fish into the fishway by discharging water into the downstream direction, parallel to the river flow; and gate-C (closest to the power house building) attracts fish by discharging water perpendicular to the river flow, into the backside of the catwalk. The power house units discharge flow through a series of draft tubes that pushes the boil and turbulence away from the power house building, into the area downstream from the catwalk. Safe Harbor Water Power Corporation typically operates their fishway from the beginning of April until early June. River flow was close to 54,000 cubic feet per second on the day of the inspection.

Significant items are highlighted below:

Entrance gates:

- Horizontal steel bars continue to be present at the openings of entrance gates A and C. USFWS Fish Passage Engineers have previously requested these bars to be removed in order ensure safe passage to all migratory fish entering the lift. The location of the bars causes them to protrude into the flow path of the fish. The Service preference is that fish not be exposed to protrusions, sharp edges, and other objects in the flow path that could cause injury. As noted by the Project managers, removing these bars would compromise the structural stability of the gates. Able to identify a large number of other fish passage facilities with gates that don't have horizontal bars in the flow path of the fish, the Service once again requests that the licensee removes or relocates



these bars above and outside of the water column. Figure 1 in the Appendix shows the steel bar at gate C.

Exit channel:

- Debris issue – A significant amount of debris was observed at the waterway upstream from the exit channel, surrounding the trash rack that is intended to keep debris from entering the fishway. In an attempt to address this problem, the Licensee has installed air pumps to push the debris away from the trash rack. Even though the pumps seem to achieve their purpose of clearing the area immediately upstream from the exit channel, the Service recommends monitoring/testing the fish behavior through this specific location in order to determine whether or not the hydraulics from the air pumps are having an adverse impact on fish passage. The amount of debris material was enough to be considered a potential cause of delay and possible source of injury for migrating fish trying to exit the lift.

Additional observations made during this review:

- Service personnel were not able to measure head differential between the water surface elevation (WSE) inside the fishway and the WSE at the tailwater. The Service respectfully requests that easily accessible staff gages be installed at both upstream and downstream locations from the entrance gates.

Thank you for the opportunity to participate in this review. We look forward to supporting your efforts to restore the Susquehanna River ecosystem. For questions please contact Jesus Morales at 413-253-8206.

Appendix



Figure 1: Gate C steel bar crossing through the water column, right at the path that fish would use to move into the fishway