



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Mid-Atlantic Fish and Wildlife Conservation Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

November 27, 2019

Andrea Danucalov
FERC License Compliance Manager
Exelon Generation
2569 Shures Landing Road
Darlington, MD 21034

RE: 2019 Inspection of Conowingo Fish Passage Facilities

Ms. Danucalov,

Attached is the report of the U.S. Fish and Wildlife Service's (Service) inspection of the fish passage facility at Conowingo Dam. During our upcoming meeting in December, the Service would like to discuss feasibility of implementing the suggested modifications to East Fish Lift Crowder Screen operation and moving the attraction flow spray bar in the Eel Collection Facility.

Please contact me if you have any questions or need further clarification of these items.

Sincerely,

Sheila Eyler
Project Leader
Mid-Atlantic Fish & Wildlife Conservation Office
U.S. Fish and Wildlife Service



United States Department of the Interior



FISH AND WILDLIFE SERVICE

300 Westgate Center Drive
Hadley, MA 01035-9589

November 25, 2019

MEMORANDUM

To: Susquehanna River Coordinator, Mid-Atlantic Fish & Wildlife Conservation Office

From: Jesus Morales, Hydraulic Engineer, Fish Passage Engineering

Subject: Inspection of Fishways at Conowingo Hydroelectric Project (FERC #405) on May 23, 2019

A seasonal inspection of the fish passage facilities at the Conowingo Hydroelectric Project (Project) was performed at 9:00 am on Thursday, 05/23/2019. The Project is owned and operated by the Exelon Corporation (Licensee). The USFWS (Service) review team was led by Sheila Eyler, and included Jesus Morales, Jessica Pica, John Wiley and Jessica Goretzke. Consultants from Normandeau Associates, and personnel from the Pennsylvania Fish & Boat Commission, the Susquehanna River Basin Commission and the Maryland Department of Natural Resources were also present during the visit. On the day of the site inspection the Susquehanna River flow was approximately 68,000 cfs, as measured by the Marietta USGS water gage.

Persistent fish passage issues have been previously identified by the Service over a series of annual fish passage inspection reports. During this year's site inspection the Service was able to identify a few additional issues that had not been previously reported. These newly identified salient passage issues appear to center on the following:

East Fish Lift (EFL) Crowding Operation:

- Screen position during fishing mode - A fish exclusion screen on the downstream boundary of the hopper, designed to keep fish inside the hopper while this one is hoisted up, it's being intentionally operated in a way to keep fish from entering the area over the hopper, even during periods of "fishing mode" (Figure 1). Normally, during the fishing mode operation of a fish lift, the fish crowding mechanisms should be attempting to accumulate as many fish as possible within its holding pool/hopper area. Excluding fish from entering the area over the hopper essentially reduces the holding pool estimated capacity and could potentially become a bottleneck for the overall biological capacity of the EFL. The Service requests further discussion about the strategic choice to operate this screen in this manner.

**EXCLUSION SCREEN
IN A DOWN POSITION**

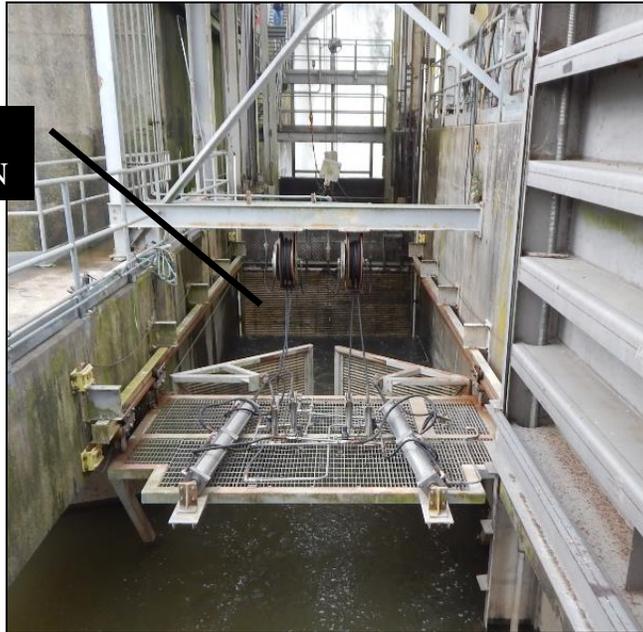


Figure 1 - Exclusion screen in down position during fishing mode

Eel Pass Attraction Flow:

- Attraction flow enters the eel pass vertically - Service personnel noticed that the existing eel pass, located on the western river bank in the tailrace, currently introduces its attraction flow through a gravity-fed water line that discharges flow vertically above the apex of the eel ramp, near its exit (Figure 2). Traditional eel passes are typically designed to provide attraction flow through a pump-fed system, and introduce the attraction flow horizontally at the exit of the eel ramp, somewhere upstream of the apex (Figure 3). The goal of this recommended configuration is to hone into the migrating eels' motivation to move in an upstream direction, specifically at the moment when they'd be required to overcome the apex of the eel ramp. The Service believes that a closer look at eel behavior near and around the apex of the Conowingo's eel pass is warranted. Any eel reluctance or failure to move over the apex should be noted, and a different attraction flow system could be considered.



Figure 2 - Eel pass attraction flow entering the eel ramp vertically

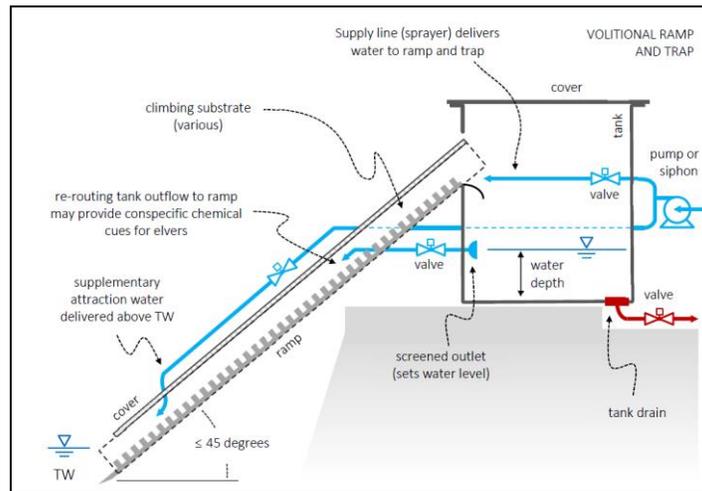


Figure 3 – Conventional arrangement of an eel pass and trap assembly

An agreement to address many other Conowingo’s fish passage issues was achieved and submitted to FERC on June 7, 2016. As part of the Phase-1 fish passage requirements agreed to in the settlement agreement, the Service is actively collaborating with Exelon and their consultants on finding solutions to previously identified salient issues.

Thank you for the opportunity to participate in this review. For questions please contact Jesus at 413-253-8206.