

Northeast Region Fish Passage Engineering

Capabilities and Services

The U.S. Fish and Wildlife Service's (Service) Northeast Region Fisheries program maintains a cadre of experienced civil and hydraulic engineers working in the field of fish passage. The role of the Fish Passage Engineering Division is to provide technical assistance in the planning, design, construction, and evaluation of fish passage facilities for migratory and riverine fish at hydroelectric projects, relic dams, culverts, and other stream barriers.

Services and Capabilities

Hydropower Licensing

- Consultation on the planning, design, construction, and operation of fish passage facilities
- Review of study plans, effectiveness studies and other licensing documents
- Inspections of fishways and other integrated generation structures

Engineering Design

- Conceptual design of fishways including Denil, steepass, pool-type ladders, fish lifts, fish guidance and exclusion systems, eelways, fish-friendly culverts, fish sampling systems, and nature-like fishways
- Development of fishway guidance and design criteria for consulting firms hired by dam owners
- Review fishway designs, operation and maintenance manuals

Site Evaluation

- Site evaluation with respect to the hydraulic/hydrologic/structural requirements for fish passage
- Engineering assessment of existing technical and nature-like fishways
- Evaluation of dam safety requirements

Hydrology and Hydraulics

- Hydrologic assessment of watersheds and statistical evaluation of stream flow, rainfall, runoff, flood events, and fish passage flows
- Evaluation of river mechanics, including erosion, sediment transport, and stability of rip-rap and in-stream boulders
- Hydraulic analyses of spillway capacities, weir flow, river flows, stream velocities, and pipe discharge

- River modeling using HEC-RAS and River2D to determine water surface profiles, flows, velocities, and habitat suitability
- Dam breach and dam removal analyses, including use of computational models
- Engineering review of CFD and physical model studies

Engineering Staff

Curt Orvis, P.E.

Chief, Fish Passage Engineering

A Service employee since 1992, Mr. Orvis has over 30 years of experience working in the fields of hydraulics and fish passage on projects at Federal Energy Regulatory Commission (FERC) and non-FERC barriers. His expertise includes structural fishways, nature-like fishways, dam removal, river and stream restoration, and watershed management. He has a B.S. in civil engineering from the University of Vermont and an M.S. from Colorado State University. Mr. Orvis is a licensed professional engineer in the state of Colorado.

Jesus Morales

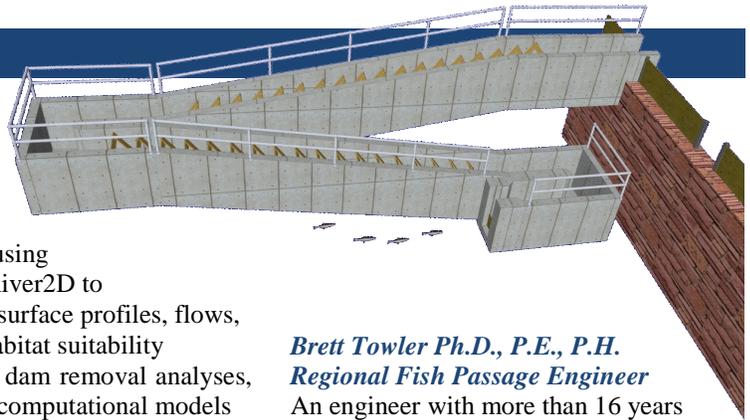
Regional Fish Passage Engineer

Mr. Morales joined the Northeast Region's Fisheries Program in 2012. He holds a B.S. in civil engineering from the University of Puerto Rico, and an M.S. in civil engineering from the University of Massachusetts Amherst with a letter of specialization in fish passage engineering. He specializes in relic dam removal and fish passage at hydropower facilities.

Bryan Sojkowski

Regional Fish Passage Engineer

Mr. Sojkowski has worked for the Service since 2011. He holds a B.S. in mechanical engineering from Western New England College, and an M.S. in civil engineering from the University of Massachusetts Amherst with a letter of specialization in fish passage engineering. Mr. Sojkowski specializes in Rosgen and Stream Simulation methodologies, culvert hydraulics, and fish passage at road crossings.



Brett Towler Ph.D., P.E., P.H.

Regional Fish Passage Engineer

An engineer with more than 16 years of experience, Dr. Towler specializes in hydropower, river hydraulics, and surface water hydrology. He holds a B.S. in civil engineering from the University of Massachusetts Amherst, and an M.S. and a Ph.D. in engineering from Montana State University Bozeman. Dr. Towler is a licensed professional engineer in the state of Maine, an AIH-certified hydrologist, and an adjunct faculty member at the University of Massachusetts Amherst.

Brian Waz, P.E.

Regional Fish Passage Engineer

A civil engineer with more than 17 years of experience, Mr. Waz specializes in engineering design, including all types of fishways, dam removal, bio-engineering, and river and stream restoration projects. He earned a B.S. in civil and environmental engineering from the University of Massachusetts Amherst and is a licensed professional engineer in the commonwealth of Massachusetts.

For additional information:

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