



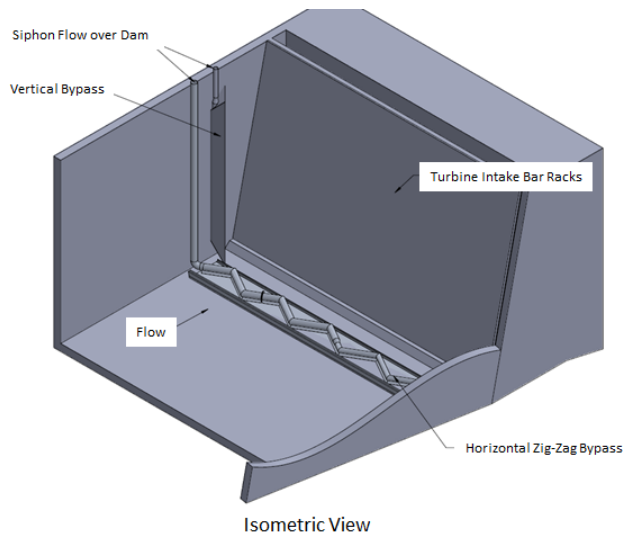
Fish Passage and fish monitoring technology

Dana McCoskey
WPTO-Norway Webinar
June 16, 2020

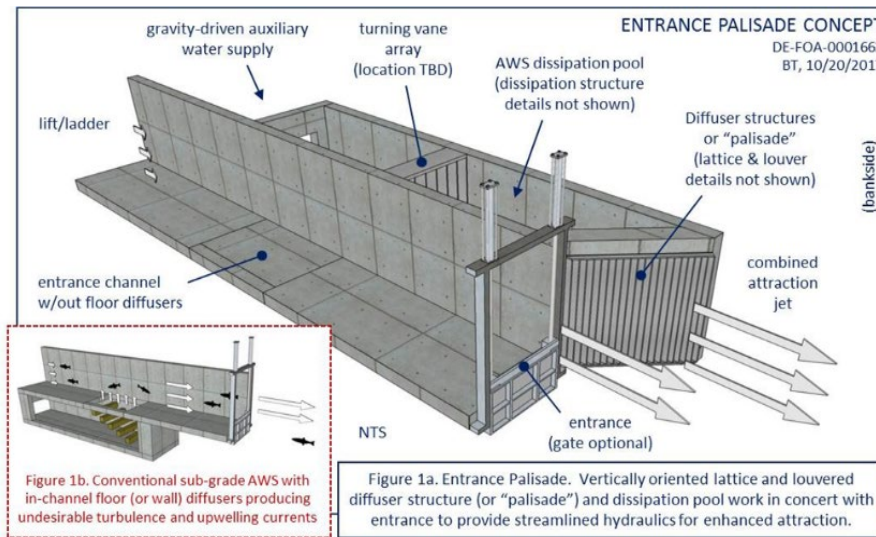
- Fish Passage Technologies
 - Innovative designs
 - Applications for automation/enumeration
 - Standard, modular systems
- Fish Monitoring Technologies
 - eDNA
 - Fish Tags
 - Other tools : HydroPASSAGE (Sensor Fish, HBET, BioPA)

2017 Competitive Funding for the Development of Innovative New Technologies:

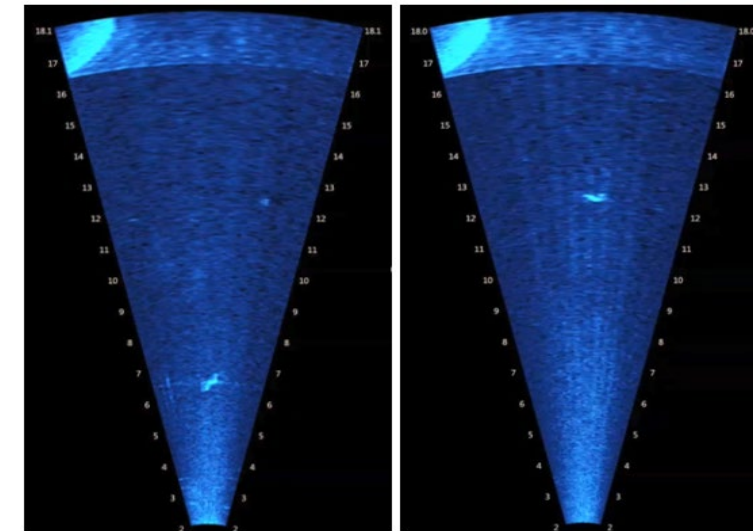
- Increase and verify performance of passage (safe, timely, effective) compared to best available tech
- Reduce costs:
 - Construction, operation, maintenance goals
 - Manufacturing - utilize standard, modular, scalable elements



Alden Research Lab



University of Massachusetts Amherst



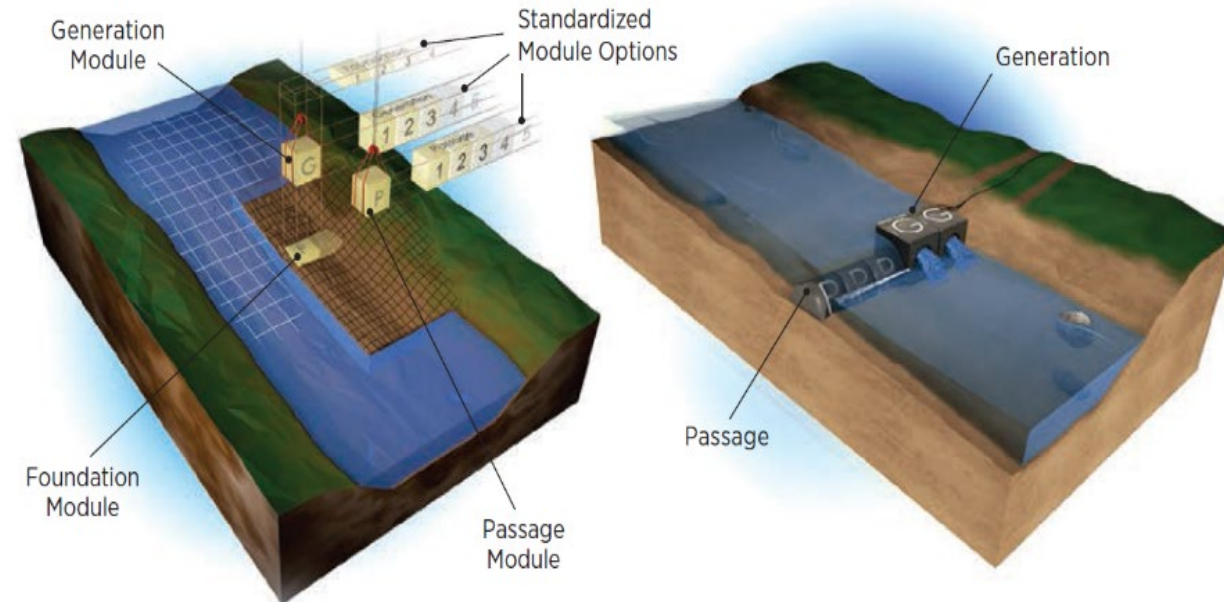
Electric Power Research Institute

Testing the Effects of Innovative Fish Passage Technologies

Advancing Innovative Methods and Technologies to Improve Fish Passage

2019 Competitive Funding for the Development of Standard Module Hydropower (SMH) Modules:

- Three projects recently awarded that focus on module development for integration into an SMH facility
 - Two passage modules & one generation module
- Utilize the Oak Ridge National Laboratory Design Envelop
- Reduce costs
 - Utilize advanced manufacturing



Develop a novel fish passage module for low head hydropower based on Archimedes screw principles.

Percheron Power, LLC

Develop a fish passage module that can be used to accommodate multiple species simultaneously.

Littoral Power Systems

Advance the design of a fish-friendly horizontal axial-flow low head generation module of a compact bulb.

Natel Energy

Fish Passage Modules

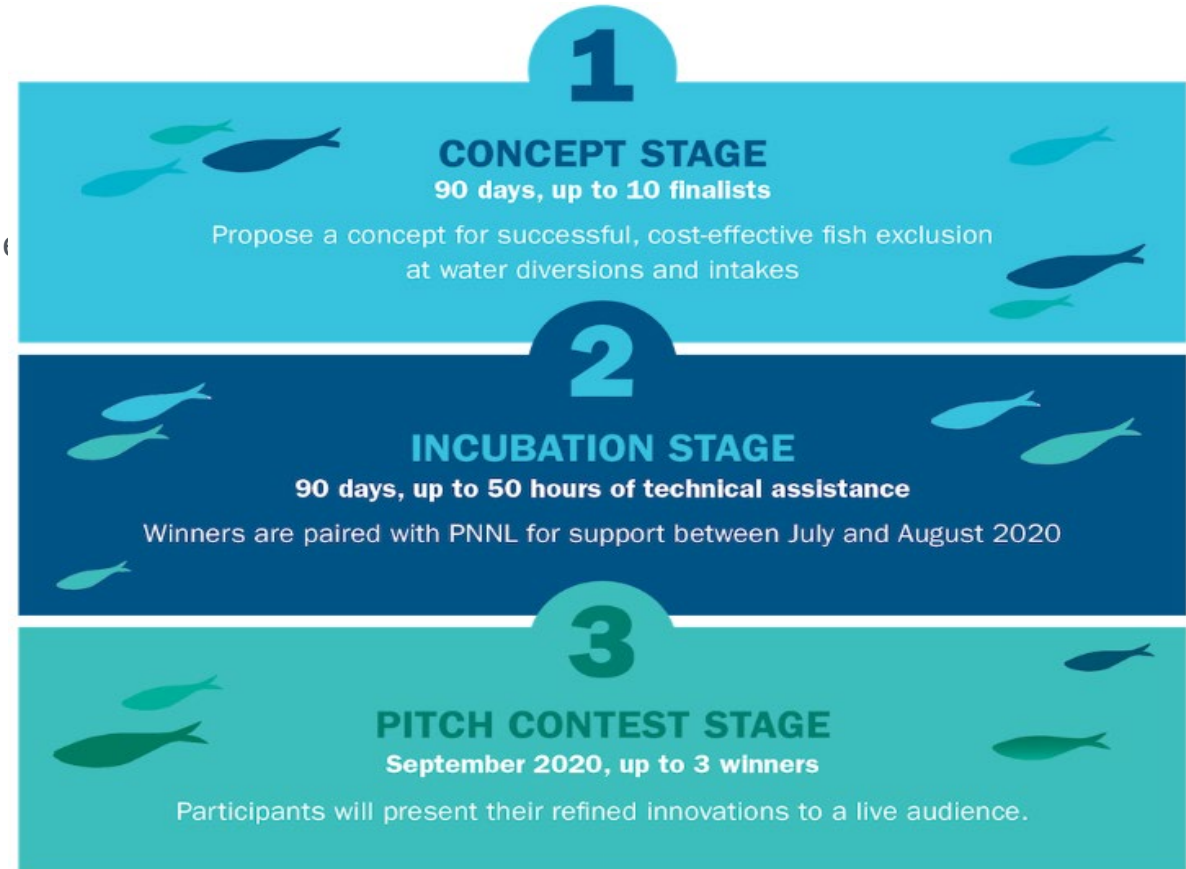
Generation Module

Fish Passage – Support for design, testing, and demos

- Identify and advance innovative technologies for fish exclusion for water diversions and intakes
- Partnership with the US Department of Reclamation and WPTO
 - Support from Pacific Northwest National Lab and the National Renewable Energy Lab.
- Funding to advance radically new ideas and ready to commercialize improvements to existing technologies
- Phased competition is crowd sourcing innovation and drawing ideas from other industries and the general public



<https://www.herox.com/FishProtection>



What can DOE can bring to the table

- New technologies
 - Innovative up- and down-stream fishways
 - AI/ Machine learning applications
 - Development of novel and advanced monitoring technologies, Instruments and other tools
 - Lab and field demonstrations
- Basic and applied science
- Convening, facilitation, and partnerships with US industry, agencies, institutions

Exchange of knowledge and transfer of experiences between researchers from **Norway and USA** emerges as a great **opportunity for improving scientific knowledge** on fish passage and monitoring technology