



# Fish Passage 2016



International Conference on River Connectivity



Presented by  
Bioengineering Section of the American Fisheries Society  
and  
Environmental and Water Resources Institute of the  
American Society of Civil Engineers

University of Massachusetts  
Amherst

June 20-22, 2016



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Lian Guo, Graduate Student, Organismic & Evolutionary Biology Graduate Program, University of Massachusetts Amherst



## Fish Passage 2016 Featured Speakers

Horst Bleckmann



Horst Bleckmann is a German zoologist and neurobiologist with more than 160 scientific publications across diverse journals including both *Science* and *Nature*. Some of his most noted publications include research on the hydrodynamic stimuli of the lateral line in fish as well as measuring flow velocity and flow direction by spatial and temporal analysis of flow functions in nature. Since 1994, Dr. Horst Bleckmann has held a full professor position of zoology and comparative neurobiology at the Institute of Zoology at the Rheinische Friedrich-Wilhelms University of Bonn, Germany. He received his Ph.D. from the University of Gießen in 1979. Dr. Bleckmann has received many awards including the Karl Ritter von Frisch Medal of the German Zoological Society and the Prototype Nature Award of the Ministry of Science and Education in 2012.

Michael Love



Michael Love is a California civil engineer, and principal of Michael Love & Associates, Inc. in Arcata California since 1999. A graduate of Humboldt State University in Environmental Resources Engineering, he has extensive interdisciplinary experience in fisheries, fluvial geomorphology, fish passage, and hydraulics of riverine and estuarine systems. Love's work emphasizes applying geomorphic-based approaches to identify solutions. He has designed a wide variety of nature-like and technical fishways, and tide gates for fish passage and estuary enhancement. He was a lead investigator for NOAA Fisheries funded fish passage research from 1998 to 2003, which helped shape salmonid passage criteria for California. Love is the lead developer of the FishXing software and learning systems and authored many State and Federal publications on passage design, road crossings and assessments.

John Waldman



John Waldman is an aquatic conservation biologist with a singular passion for diadromous fish. Dr. Waldman joined the faculty of Queens College as a tenured professor of Biology in 2004. For the previous twenty years he was employed by the Hudson River Foundation for Science and Environmental Research. He received his Ph.D. in 1986 from the Joint Program in Evolutionary Biology between the American Museum of Natural History and the City University of New York. Dr. Waldman has authored more than 90 scientific articles, edited a number of scientific volumes, and written several popular books, including the award-winning *Heartbeats in the Muck: The History, Sea Life, and Environment of New York Harbor* and, most recently, *Running Silver: Restoring Atlantic Rivers and their Great Fish Migrations*.

Wendi Weber



Wendi Weber was appointed as Northeast Regional Director for the U.S. Fish and Wildlife Service in 2011. As regional director, Weber oversees Service activities in 13 states from Maine to Virginia, and the District of Columbia, leading more than 1,000 Service employees working in more than 130 field offices, and 72 refuges that encompass more than 500,000 acres across a diverse array of habitat types. Weber joined the USFWS in 1998, beginning her career in Washington, D.C. and serving as chief of endangered species in the Northwest Region and assistant regional director for ecological services in the Midwest Region, coming to the Northeast Region as deputy regional director in 2007. Prior to working for the USFWS, Weber worked for the states of Florida and Georgia as a field biologist. Originally from Rochester, New York, Weber has a bachelor's degree in zoology from the University of Rhode Island and a master's degree in fisheries from the University of Georgia.

# Fish Passage 2016 Detailed Conference Agenda

## Sunday, June 19, 2016

- 9:00 am to 5:00 pm    Short Courses  
                              Advanced Telemetry - Campus Center 804-08  
                              Dam Removal - Campus Center 803  
                              Stream Simulation - Campus Center 805-09
- 6:00 pm to 9:00 pm    Registration and Reception – Marriott Center

## Monday, June 20, 2016

- 7:30 am to 8:45 am    Continental Breakfast, poster set-up, registration (throughout day) - 1st Floor Concourse
- 8:45 am to 9:00 am    Opening remarks - Campus Center Auditorium
- 9:00 am to 10:00 am   Keynote Address: Horst Bleckmann - Campus Center Auditorium
- 10:00 am to 10:30 am   Break and access to posters and sponsor booths - 1st Floor Concourse
- 10:30 am to 10:45 am   Featured speaker: Wendi Weber - Campus Center Auditorium
- 10:45 am to 11:45 am   Plenary Panel - Lessons across scale, small to large project perspectives and challenges for the future - Campus Center Auditorium  
                              Moderator Laura Wildman (Princeton Hydro), Panelists: Amy Singler (American Rivers and The Nature Conservancy), Steve Rainey (Steve Rainey Fish Passage Engineering), Lisiane Hahn (Neotropical Environmental Consulting Company), Laura Rose Day (Penobscot River Restoration Trust)
- 11:45 am to 1:00 pm   Lunch via buffet (provided) - Amherst Room and Marriott Center  
                              Poster set-up and access to posters and sponsor booths - 1st Floor Concourse

1:00 pm to 2:30 pm    Cross-cutting sessions

### *The Penobscot River Restoration - Campus Center Auditorium*

- 1:00    Aponte Clarke\*, G. and L. R. Day. Penobscot River Restoration Trust.  
          Looking After the Leap: Reflections on the Penobscot River Restoration Project
- 1:15    McLean\*, J. <sup>1</sup>, G. Aponte-Clark<sup>2</sup>, and L. Rose-Day<sup>2</sup>. <sup>1</sup>Wright-Pierce; <sup>2</sup>Penobscot River Restoration Trust.  
          Removal of the Veazie Dam – Improving Habitat Access for Sea-run Fish, Uncovering History, and Unharnessing the Penobscot River
- 1:30    Martin\*, K. <sup>1</sup>, and K. Maloney<sup>2</sup>. <sup>1</sup>Kleinschmidt; <sup>2</sup>Brookfield - Black Bear Hydro Partners.  
          Fish Passage Enhancements on the Lower Penobscot River
- 1:45    Burke\*, M.<sup>1</sup>, L. Stiles<sup>2</sup>, G. Aponte Clarke<sup>3</sup>, B. Kulik<sup>2</sup>, and S. Fuller<sup>4</sup>. <sup>1</sup>Inter-Fluve, Inc.; <sup>2</sup>Kleinschmidt Associates; <sup>3</sup>Penobscot River Restoration Trust; <sup>4</sup>SumCo Eco-Contracting.  
          Aspects of Design and Construction of the Howland Fish Bypass Channel, Piscataquis River, Maine
- 2:00    Payne Wynne, M.<sup>1</sup>, G. Aponte Clarke<sup>2</sup>, R. Saunders<sup>3</sup>, T. Sheehan<sup>3</sup>, M. Collins<sup>3</sup>, and J. Royte<sup>1</sup>. <sup>1</sup>The Nature Conservancy; <sup>2</sup>Penobscot River Restoration Trust; <sup>3</sup>NOAA Fisheries Service.  
          Monitoring the Penobscot River Restoration Project: baseline data to inform ecosystem response
- 2:15    Question period/panel

### *Landscape Approaches - Campus Center 163C*

- 1:00    Martin\*, E. <sup>1</sup>, J. Levine<sup>1</sup>, S. Jackson<sup>2</sup>. <sup>1</sup>The Nature Conservancy; <sup>2</sup>University of Massachusetts Amherst  
          Prioritizing Barriers
- 1:15    Jackson\*, S. <sup>1</sup>, K. McGarigal<sup>1</sup>, B. Compton<sup>1</sup>, and B. Letcher<sup>1,2</sup>. <sup>1</sup>University of Massachusetts Amherst; <sup>2</sup>U.S. Geological Survey.  
          Critical Linkages: A Landscape-based Modeling Approach for Evaluating the Restoration Potential of Dam Removal and Culvert Replacement Projects
- 1:30    Hoenke, K. Southeast Aquatic Resources Partnership.  
          The Southeast Aquatic Connectivity Program: A Landscape Approach to Connecting Rivers in the Southeast
- 1:45    Ecret\*, J. U.S. Fish and Wildlife Service.  
          A Three Component Mitigation Approach for Fish Passage in St. Lawrence River Tributaries

- 2:00 Mahan\*, L.<sup>1</sup>, and R. Taylor<sup>2</sup>. <sup>1</sup>NOAA Restoration Center; <sup>2</sup>Ross Taylor and Associates.  
Watershed-level physical and biological response to dam removal in Glenbrook Gulch, a small coastal stream in Mendocino County California
- 2:15 Clingerman\*, J.<sup>1</sup>, J. T. Petty<sup>2</sup>, F. Boettner<sup>1</sup>, F. Orr<sup>3</sup>, and M. Strager<sup>2</sup>. <sup>1</sup>Downstream Strategies; <sup>2</sup>West Virginia University; <sup>3</sup>Critigen.  
A Multi-Scale Web-Based Fish Habitat Decision Support Tool
- 2:30 pm to 3:00 pm Break and access to posters and sponsor booths - 1st Floor Concourse
- 3:00 pm to 4:15 pm Concurrent sessions
- Penobscot Restoration Continued - Campus Center Auditorium*
- 3:00 Martin\*, E., J. Royte, and J. Bell. The Nature Conservatory.  
Penobscot Habitat Blueprint Barrier Prioritization
- 3:15 McCaw\*, D. Penobscot Indian Nation.  
Stream Connectivity Projects on Tribal Lands
- 3:30 Burrows\*, J. Atlantic Salmon Federation.  
Reconnecting the Penobscot River with its Tributaries
- 3:45 Penobscot and beyond, an open discussion
- Landscape Approaches Continued - Campus Center 163C*
- 3:00 Barber\*, J.<sup>1</sup>, P. Hrodey<sup>2</sup>, and K. Mann<sup>1</sup>. <sup>1</sup>U.S. Fish and Wildlife Service; <sup>2</sup>Great Lakes Fishery Commission.  
Balancing connectivity with sea lamprey control
- 3:15 Ratcliff\*, D.<sup>1</sup>, J. O'Hanley<sup>2</sup>, and L. DeBruyckere<sup>3</sup>. <sup>1</sup>U.S. Fish and Wildlife Service; <sup>2</sup>Kent Business School, University of Kent; <sup>3</sup>California Fish Passage Forum.  
FISHPass: A Decision Support Tool for Optimizing Barrier Mitigation
- 3:30 Wright\*, J.<sup>1</sup>, A. Abbott<sup>1</sup>, and J. O'Hanley<sup>2</sup>. <sup>1</sup>U.S. Fish and Wildlife Service; <sup>2</sup>University of Kent.  
What can we learn from 17,000 structures?
- 3:45 Jordan\*, M.<sup>1</sup>, and R. Gubernick<sup>2</sup>. <sup>1</sup>Jordan Environmental Engineering; <sup>2</sup>U.S. Forest Service, Region 9, Duluth, MN.  
Spreadsheets for Stream Simulation Design  
\*Note that there will be a demo of the stream simulation spreadsheet during the break.
- Dam removal I - Campus Center 168C*
- 3:00 Collins\*, M.<sup>1</sup> D. D. Tullos<sup>2</sup>, J. R. Bellmore<sup>3</sup>, J. A. Bountry<sup>4</sup>, P. J. Connolly<sup>4</sup>, P. B. Shafroth<sup>5</sup>, and A. C. Wilcox<sup>6</sup>. <sup>1</sup>NOAA; <sup>2</sup>Oregon State University; <sup>3</sup>USDA Forest Service; <sup>4</sup>Bureau of Reclamation; <sup>5</sup>USGS; <sup>6</sup>University of Montana  
Synthesis of common management concerns associated with dam removal
- 3:15 Nislow\*, K.<sup>1</sup>, F. J. Magilligan<sup>2</sup>, B. Kynard<sup>3</sup>, A. Hackman<sup>4</sup>, and P. Damkot<sup>3</sup>. <sup>1</sup>USDA Forest Service; <sup>2</sup>Dartmouth College; <sup>3</sup>University of Massachusetts Amherst; <sup>4</sup>Massachusetts Department of Environmental Conservation.  
Geomorphic and ecological adjustments following dam removal
- 3:30 Macdonald\*, G.<sup>1</sup>, M. Chelminski<sup>2</sup>, and L. Wildman<sup>3</sup>. <sup>1</sup>Save the Sound; <sup>2</sup>Stantec; <sup>3</sup>Princeton Hydro.  
Listen to the River: Flexibility and Resiliency in Dam Removal Project Management, Design and Construction
- 3:45 Woodworth\*, P. Princeton Hydro.  
Comparing sediment contamination, regulatory responses, and sediment management approaches among dam removal projects in the northeastern US.
- Pushing and Pulling- getting fish to go where you want I- Campus Center 174-76*
- 3:00 Amaral\*, S.<sup>1</sup>, A. Popper<sup>2</sup>, M. Birmann<sup>3</sup>, J. Caumartin<sup>4</sup>, T. Pratt<sup>5</sup>, and P. Jacobson<sup>6</sup>. <sup>1</sup>Alden Research Laboratory, Inc., Holden, MA; <sup>2</sup>University of Maryland (retired); <sup>3</sup>Scientific Solutions, Inc.; <sup>4</sup>Hydro-Québec; <sup>5</sup>Fisheries and Oceans Canada; <sup>6</sup>Electric Power Research Institute.  
Can vibration or electromagnetic fields guide downstream migrating silver eels?
- 3:15 Zielinski\*, D. and P. Sorensen. University of Minnesota.  
Acoustically guided avoidance responses in three invasive carp species
- 3:30 Shupe, K., Heiner, B. and J. Wagner. U.S. Bureau of Reclamation.  
Fish Screening and Passage at the St. Mary Diversion Dam near Babb, MT
- 3:45 Peters\*, A. Pacific Netting Products.  
Technical Developments in Fish Exclusion, Guidance, Barrier and Collection Systems



4:00 pm to 4:30 pm Break and access to posters and sponsor booths - 1st Floor Concourse

4:30 pm to 5:30 pm Concurrent sessions

*Featured International Case Studies - Campus Center Auditorium*

4:30 Coe\*, T. <sup>1</sup>, P. Kibel<sup>1</sup>, G. Morier-Genoud<sup>2</sup>, M. Raeder<sup>3</sup>, and P. Kemp<sup>4</sup>. <sup>1</sup>Fishtek Consulting; <sup>2</sup>Poyry;  
<sup>3</sup>Xayaburi Power Company Limited; <sup>4</sup>Southampton University.

The swimming ability of wild-caught Mekong fish species and implications for fish pass design in SE Asia

4:45 Hahn\*, L. <sup>1</sup>, H. Marques<sup>1</sup>, J. Kilpp<sup>1</sup>, M. Granai<sup>1</sup>, A. Cardoso<sup>1</sup>, A. Marçal<sup>2</sup>, L. Nunes<sup>1</sup>, and L. Machado<sup>1</sup>.

<sup>1</sup>Neotropical Environmental Consulting Company; <sup>2</sup>Ecofish Research.

Fish passage across a large dam in the Amazon basin: the case of the Belo Monte Megadam, in northern Brazil

5:00 Santos\*, J. M. <sup>1</sup>, P. Branco<sup>1</sup>, S. Amaral<sup>1</sup>, A. Silva<sup>2</sup>, C. Katopodis<sup>3</sup>, T. Ferreira<sup>1</sup>, A. Pinheiro<sup>4</sup>, and T. Viseu<sup>5</sup>.

<sup>1</sup>Instituto Superior de Agronomia, Universidade de Lisboa; <sup>2</sup>Norwegian Institute for Nature Research; <sup>3</sup>Katopodis Ecohydraulics Ltd.; <sup>4</sup>Instituto Superior Técnico, Universidade de Lisboa; <sup>5</sup>Laboratório Nacional de Engenharia Civil.

The FISHMOVE project - Development of mitigation measures for small instream obstacles to fish migration in Portuguese streams

*Landscape Approaches Continued - Campus Center 163C*

4:30 Zweifel, J. <sup>1</sup>, S. Chan<sup>2</sup>, R. Lackey<sup>2</sup>, and T. Jarvis<sup>2</sup>. <sup>1</sup>Washington Department of Fish and Wildlife, <sup>2</sup>Oregon State University.

A landscape-scale watershed assessment method to support fish passage restoration strategies in Puget Sound, Washington State: A case study for the Fish Barrier Removal Board

4:45 Duncan\*, W., J. Henning, J. Hogrefe, D. Ratcliff, W. Rice, and S. Wells. U.S. Fish and Wildlife Service.

Landscape Approaches to Aquatic Connectivity Improvement: A review and panel discussion of fish passage prioritization tools and watershed scale biological outcomes

*Dam removal II - Campus Center 168C*

4:30 Murphy\*, M. H. <sup>1</sup>, and L. Wildman<sup>2</sup>. <sup>1</sup>Integrated Aquatic Sciences, LLC; <sup>2</sup>Princeton Hydro.

Use of unmanned aerial vehicles for monitoring habitat restoration and dam removals

4:45 Arruda\*, S. D.<sup>1</sup>, N. Wiberg<sup>1</sup>, S. Harold<sup>2</sup> and S. Comings<sup>2</sup>. <sup>1</sup>Fuss & O'Neill, Inc.; <sup>2</sup>The Nature Conservancy.

No longer caught up in that old race – successful velocity barrier elimination for anadromous fish

5:00 Hollingsworth-Segedy\*, L.<sup>1</sup>, and B. Beran<sup>2</sup>. <sup>1</sup>American Rivers; <sup>2</sup>Beran Environmental Services.

Large Wood Debris and Dam Removal, Part 1: Elevating Practice Through Complementary Techniques

5:15 Beran\*, B.<sup>1</sup>, and L. Hollingsworth-Segedy<sup>2</sup>. <sup>1</sup>Beran Environmental Services. <sup>2</sup>American Rivers.

Large wood debris and dam removal, part 2: refining river restoration practice through field experience

*Pushing and Pulling- getting fish to go where you want II - Campus Center 174-76*

4:30 Christensen\*, P. R2 Resource Consultants.

North Fork Floating Surface Collector Design, Operation, and Results

4:45 Gurshin, C.<sup>1</sup>, M. P. Balge\*<sup>1</sup>, M. M. Taylor<sup>1</sup>, and B. E. Benz<sup>2</sup>. <sup>1</sup>Normandeau Associates, Inc.; <sup>2</sup>New York Power Authority.

Temporal and Spatial Distributions of Out-migrating Juvenile Blueback Herring in the Presence of an Ultrasonic Fish Guidance System at a Hydroelectric Project

5:00 Scott\*, S. S. Scott & Associates LLC.

Survey of two Behavioral Fish Guidance Systems designed to improve safe downstream passage of anadromous salmonids

5:15 Deligan\*, T. and J. McKnight. Whooshh Innovations, LLC.

Advances in Fish Passage Technology – How to Move Migratory Species Safer, Farther, Faster

6:00 pm to 8:00 pm Evening Reception off campus - Hangar Pub (light refreshments provided)

## Tuesday, June 21, 2016

- 7:30 am to 8:45 am Continental Breakfast - 1st Floor Concourse  
8:45 am to 9:00 am Opening remarks - Campus Center Auditorium  
9:00 am to 10:00 am Keynote Address: John Waldman - Campus Center Auditorium  
10:00 am to 10:30 am Break and access to posters and sponsor booths – 1st Floor Concourse  
10:30 am to 11:30 am Keynote Address: Michael Love - Campus Center Auditorium  
11:30 am to 11:45 am **Presentation of Distinguished Project Award** - Campus Center Auditorium  
Tribute for Dr. John (Jack) Orsborn, professor emeritus at Washington State University - Campus Center Auditorium  
11:45 am to 1:00 pm Lunch via Meal Card (provided) at Blue Wall (campus center) and access to posters and sponsor booths - 1st Floor Concourse

1:00 pm to 2:30 pm Concurrent sessions

### *Case Studies II – Campus Center Auditorium*

- 1:15 Khan\*, F. US Army Corps of Engineers - Portland District.  
Challenges of Downstream Fish Passage at High Head Dams  
1:30 Straughan\*, E. Straughan Environmental, Inc.  
Design and Construction of a Riffle Grade Control to Restore Fish Passage  
1:45 de Bruijne\*, W. <sup>1,2</sup>. <sup>1</sup>LINKit Consult; <sup>2</sup>Wanningen water consult.  
The fish migration project at the Gabčíkovo Dam, Slovakia  
2:00 Chelminski\*, M., and R. MacEwan. Stantec Consulting Services Inc.  
Amethyst Brook Restoration Project: Co-Evolution of a Project and a River with Two Dam Removals  
2:15 Jones\*, A.<sup>1</sup>, L. A. Deegan<sup>2,3</sup>, C. B. Cooper<sup>2</sup>, M. D. Scherer<sup>2</sup>, L. C. Turner<sup>2</sup>, and C. Neill<sup>2,3</sup>. <sup>1</sup>Woods Hole Oceanographic Institution; <sup>2</sup>Coonamessett River Trust, Falmouth; <sup>3</sup>Marine Biological Laboratory.  
Citizen science on the move: detailing the spawning migration of alewife and blueback herring in a coastal Massachusetts watershed

### *Fish Passage Studies I – Campus Center 163C*

- 1:00 Gregory\*, J., E. Washburn, and J. Hateley. Environment Agency UK.  
Producing European guidance for assessing the efficiency and related metrics of fish passage solutions  
1:15 Muir\*, A.<sup>1</sup>, R. McLaughlin<sup>2</sup>, and T. Pratt<sup>3</sup>. <sup>1</sup>Great Lakes Fishery Commission; <sup>2</sup>University of Guelph; <sup>3</sup>Fisheries and Oceans.  
Selective, bi-directional fish passage to balance tensions between management actions affecting fish movement  
1:30 Almeida\*, P. <sup>1</sup>, R. Oliveira<sup>1</sup>, C. S. Mateus<sup>1</sup>, C. M. Alexandre<sup>1</sup>, A. F. Belo<sup>1</sup>, E. Pereira<sup>1</sup>, A. Telhado<sup>2</sup>, M. F. Quadrado<sup>2</sup>, and B. R. Quintella<sup>1</sup>. <sup>1</sup>MARE–Centro de Ciências do Mar e do Ambiente, Universidade de Évora, Portugal; <sup>2</sup>Departamento de Recursos Hídricos, Agência, Portuguesa do Ambiente, I.P., Portugal.  
Sea lamprey behavior during negotiation of technical and nature-like fish passes  
1:45 Vorenkamp\*\*, K. E., B.J. Sansom, J.F. Atkinson, and S. J. Bennett. SUNY University at Buffalo.  
Quantifying the swimming capacity of emerald shiner minnows (*Notropis atherinoides*) from the Upper Niagara River, and determining fish passage criteria.  
2:00 Castro-Santos\*, T. <sup>1</sup>, and K. Sprankle<sup>2</sup>. <sup>1</sup>USGS-S.O. Conte Anadromous Fish Research Center; <sup>2</sup>U. S. Fish and Wildlife Service, Connecticut River Coordinator's Office.  
Passage performance and migratory delay of American shad at the Holyoke Fishlift  
2:15 Amaral, S.<sup>1</sup>, T. Grant<sup>\*1</sup>, P. Jacobson<sup>2</sup>, J. Pyatskowit<sup>3</sup>, and S. Dearden<sup>4</sup>. <sup>1</sup>Alden Research Laboratory, Inc.,; <sup>2</sup>EPRI; <sup>3</sup>Menominee Indian Tribe of Wisconsin; <sup>4</sup>Whooshh Innovations.  
Evaluation of Lake Sturgeon Passed through the Whooshh Fish Transport System



### *Modeling – Campus Center 168C*

- 1:00 Keefe\*, M., P. Hilgert, A. Shelly, and T. Sullivan. R2 Resource Consultants, Inc.  
What's in your tool box? Analytical tools for fish passage alternatives analyses.
- 1:15 Monk\*, S., and D. Christensen. WEST Consultants.  
Using 2D HEC-RAS to Determine Fish Passability and Habitat Quality
- 1:30 Ryan\*, E. R., T. A. Stephens, and B. P. Bledsoe. Colorado State University.  
Effects of Hydraulic Structures on Fish Passage: An Evaluation of 2D vs 3D Hydraulic Analysis Methods
- 1:45 MacBroom\*, J., and R. Schiff. Milone & MacBroom, Inc.  
Stream Power Thresholds and Applications
- 2:00 Walker\*, K., T. Vermeyen, and C. Svoboda. US Bureau of Reclamation.  
Physical modeling of the Inskip Diversion Dam Fish Screen
- 2:15 Duguay\*\*, J.<sup>1</sup>, J. Lacey<sup>1</sup>, and J. Gaucher<sup>2</sup>. <sup>1</sup>Université de Sherbrooke, Sherbrooke, Québec; <sup>2</sup>Hydraulic Engineering, Hydro Québec, Production Group.  
Experimental validation of an open-sourced and a commercial numerical model for simulating flows within a large scale pool and weir fishway in Québec, Canada

### *Innovations I – Campus Center 174-76*

- 1:00 Nau\*\*, G.<sup>1</sup>, I. Spooner<sup>1</sup>, M. Mallory<sup>1</sup>, N. McLellan<sup>2</sup>, C. White<sup>3</sup>, and M. Stokesbury<sup>1</sup>. <sup>1</sup>Acadia University; <sup>2</sup>Ducks Unlimited Canada; <sup>3</sup>Nova Scotia Department of Natural Resources.  
Using Sediment Core Analyses to Attempt to Quantify the Historical Abundance of Alewife (*Alosa pseudoharengus*) in Three Modified River Systems in the Maritime Provinces of Canada
- 1:15 Young\*, S. Shawn Paul Young Environmental Consulting, LLC.  
A 10-year history of Alabama Shad restoration via renewed fish passage
- 1:30 Goetz\*, F. U.S. Army Corps of Engineers.  
Upstream Migrant Trapping Solutions for a Puget Sound Glacial-fed River and Abundant Pink Salmon Runs
- 1:45 Hassinger\*, R. University of Kassel Germany.  
The fish-lifting trough - a combined trash cleaner and fish passage device
- 2:00 McLaughlin\*, R.<sup>1</sup>, E. Smyth<sup>2</sup>, M. Koops<sup>3</sup>, T. Pratt<sup>3</sup>, and L. Velez-Espino<sup>3</sup>. <sup>1</sup>University of Guelph; <sup>2</sup>ECOFISH Research; <sup>3</sup>Fisheries and Oceans Canada.  
When Enough is Enough: Assessing How the Effectiveness of Fish Passage Can Influence the Recovery a Fish Population
- 2:30 pm to 3:00 pm – Break and access to posters and sponsor booths – 1st Floor Concourse
- 3:00 pm to 4:15 pm – Concurrent sessions

### *Case Studies III – Campus Center Auditorium*

- 3:00 Gleason\*, N., and R. Mesko. U.S. Army Corps of Engineers.  
Skokomish River Basin Ecosystem Restoration
- 3:15 Raz\*, Y. Yarqon River Authority.  
Rehabilitation of the Yarqon River, a polluted Mediterranean climate ecosystem and reintroduction of the Yarqon bleak, an endangered endemic freshwater cyprinid fish
- 3:30 Shively\*, D.<sup>1</sup>, G. Apke<sup>2</sup>, D. Heller<sup>3</sup>, J. Capurso<sup>1</sup>, and A. Moore<sup>4</sup>. <sup>1</sup>U.S. Forest Service; <sup>2</sup>Oregon Department of Fish and Wildlife; <sup>3</sup>Oregon Fish Passage Task Force; <sup>4</sup>Trout Unlimited.  
Salmon SuperHwy: Strategic Fish Passage Barrier Prioritization and Community Engagement in the Tillamook-Nestucca Subbasin, Oregon.
- 3:45 Ekren\*, M. G.<sup>1</sup>, Ağırlioğlu, N.<sup>1</sup> and H. G. Coşkun<sup>2</sup>. <sup>1</sup>Department of Hydraulics and Water Resources Engineering, Istanbul Technical University; <sup>2</sup>Department of Geomatics Engineering, Istanbul Technical University, Turkey.  
Secure Fish Passage Design for Sustainable Fish Populations: A Case Study in the Vereinigte Weißeritz River

### *Fish Passage Studies II – Campus Center 163C*

- 3:00 Phipps\*, J.<sup>1</sup>, P. Heisey<sup>1</sup>, C. Avalos<sup>1</sup>, and R. Koenigs<sup>2</sup>. <sup>1</sup>Normandeau Associates; <sup>2</sup>WDNR.  
Estimates of turbine passage of fingerling and yearling lake sturgeon passing the Shawano project, Wolf River, Wisconsin
- 3:15 Haraldstad\*, T. <sup>1</sup>, E. Höglund<sup>1</sup>, F. Kroglund<sup>2</sup>, and T. O. Haugen<sup>3</sup>. <sup>1</sup>Norwegian Institute for Water Research; <sup>2</sup>County Governor of Aust- and Vest-Agder; <sup>3</sup>Norwegian University of Life Sciences.  
Long-term effects on Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*) smolts of down stream migration through hydropower turbines
- 3:30 Teichert\*, M.<sup>1</sup>, T. Havn<sup>2</sup>, E. Thorstad<sup>2</sup>, F. Økland<sup>2</sup>, O. Diserud<sup>2</sup>, S. Sæther<sup>2</sup>, J. Borcharding<sup>1</sup>, M. Tambets<sup>3</sup>, L. Heermann<sup>1</sup>, and R. Hedger<sup>2</sup>. <sup>1</sup>University of Cologne; <sup>2</sup>Norwegian Institute of Nature Research; <sup>3</sup>Estonian Wildlife.  
Comparison of three downstream fish pass solutions in Germany, using Atlantic salmon smolt
- 3:45 Heermann\*, L. <sup>1</sup>, T. Havn<sup>2</sup>, E. Thorstad<sup>2</sup>, F. Økland<sup>2</sup>, M. Teichert <sup>1</sup>, S. Sæther<sup>2</sup>, J. Borcharding <sup>1</sup>, and M. Tambets<sup>3</sup>. <sup>1</sup>University of Cologne; <sup>2</sup>Norwegian Institute of Nature Research; <sup>3</sup>Wildlife Estonia.  
The drifting dead: drift of dead fish in three German rivers

### *Ocean Connections – Campus Center 168C*

- 3:00 Bernier\*, M. ERT Contractor; NOAA Restoration Center.  
When a Rising Tide Doesn't Pass All Fish
- 3:15 Silva\*, S.<sup>1</sup>, B. Byatt<sup>2</sup>, M. Lowry<sup>1</sup>, C. Macaya<sup>1</sup>, E. T. Silva<sup>1</sup>, and M. C. Lucas<sup>1</sup>. <sup>1</sup>School of Biological and Biomedical Sciences, Durham University, UK; <sup>2</sup>Environmental Agency, UK.  
European River Lamprey *Lampetra fluviatilis* passage efficacy at a tidal barrage using a navigation lock as a novel fish pass
- 3:30 Alcott\*\*, D.<sup>1</sup>, and T. Castro-Santos<sup>1,2</sup>. <sup>1</sup>University of Massachusetts Amherst; <sup>2</sup>U.S. Geological Survey.  
Migratory delay of anadromous river herring at anthropogenic obstacles on a small coastal stream
- 3:45 Philippart\*, C.<sup>1</sup>, M. Baptist<sup>1</sup>, E. Folmer<sup>2</sup>, and A. Zuur<sup>3</sup>. <sup>1</sup>Waddenacademie; <sup>2</sup>Ecospace; <sup>3</sup>Highland Statistics.  
Potential measures to strengthen diadromous fish stocks in the Wadden Sea
- 4:00 McCarthy\*, T. K., D. Nowak, and C. Lawton. National University of Ireland Galway.  
Silver eel (*Anguilla anguilla*) production, spawner escapement biomass and mitigation of hydropower mortalities in the River Erne, Ireland.

### *Innovations II – Campus Center 174-76*

- 3:00 Sečnik\*, M., M. Brilly, K. Zabret, K. Sapač, and A. Vidmar. Faculty of Civil and Geodetic Engineering, University of Ljubljana, Jamova 2, SI-1000 Ljubljana, Slovenia.  
A stereo vision camera system for monitoring fish migration
- 3:15 Mader\*, H. <sup>1</sup>, S. Käfer<sup>2</sup>, and F. Kratzert<sup>1</sup>. <sup>1</sup>University of Natural Resources and Life Sciences, Vienna; <sup>2</sup>VERBUND Hydro Power GmbH.  
Fishcam – a video-based monitoring system for fish passes
- 3:30 Gordos\*, M.<sup>1</sup>, M. Mallen-Cooper<sup>2</sup>, H. Robinson<sup>3</sup>, S. Slarke<sup>4</sup>, and C. Copeland<sup>1</sup>. <sup>1</sup>NSW Department of Primary Industries (Fisheries); <sup>2</sup>Fishway Consulting Services; <sup>3</sup>NSW Public Works; <sup>4</sup>URS Australia Pty Ltd.  
Designing a cost effective vertical-slot fishway
- 3:45 Bowden\*, A.<sup>1</sup>, D. Borggaard<sup>2</sup>, and B. Gahagan<sup>3</sup>. <sup>1</sup>The Nature Conservancy; <sup>2</sup>National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office; <sup>3</sup>MA Division of Marine Fisheries.  
Linking Passage, Habitat Quality and Range-wide Survival, New Approaches for Conservation of River Herring

4:15 pm to 4:30 pm – Break and access to posters and sponsor booths – 1st Floor Concourse

4:30 pm to 5:30 pm – Concurrent sessions

### *Case Studies IV – Campus Center Auditorium*

- 4:30 Gahagan\*, B., and Scott Elzey. Massachusetts Division of Marine Fisheries.  
Adaptive Management of Fish Passage at a Weir-Pool Fishway

- 4:45 Spares, A.<sup>1</sup>, G. Nau<sup>\*1</sup>, N. McLellan<sup>2</sup>, S. Andrews<sup>1</sup>, M. Mallory<sup>1</sup>, and M. Stokesbury<sup>1</sup>. <sup>1</sup>Acadia University; <sup>2</sup>Ducks Unlimited Canada.  
 Mutiyear evaluation of fishway passage, river switching and survival of alewife (*Alosa pseudoharengus*) within the Tantramar Marshes, Canada.
- 5:00 Mast\*, N. Institute of Applied Ecology.  
 A 5-Year Pit-Tag Survey tracking migrating fish in the River Elbe, at the Geesthacht Dam, Germany
- 5:15 Kynard\*, B. <sup>1,2</sup>, B. Kynard<sup>1</sup>, and C. Morgan<sup>1,2</sup>. <sup>1</sup>BK-Riverfish, LLC; <sup>2</sup>Department of Environmental Conservation, University of Massachusetts Amherst.  
 Evaluation of the Owens Pond Fishway, Amherst, MA
- Fish Passage Studies III – Campus Center 163C*
- 4:30 Mulligan<sup>\*1</sup>, K., A. Haro<sup>1</sup>, B. Towler<sup>2</sup> J. Noreika<sup>1</sup> and B. Sojkowski<sup>2</sup>. <sup>1</sup>US Geological Survey, <sup>2</sup>US Fish and Wildlife Service.  
 The effect of fishway entrance gate orientation on upstream migrating adult American shad (*Alosa sapidissima*)
- 4:45 Kucukali\*, S. Cankaya University.  
 Flow and turbulence structure in a brush fish pass
- 5:00 Gisen\*, D.<sup>1</sup>, P. Heneka<sup>1</sup>, and C. Schütz<sup>2</sup>. <sup>1</sup>Federal Waterways Engineering and Research Institute, Germany; <sup>2</sup>Federal Institute of Hydrology, Germany.  
 Fish-size-based criteria for assessing attraction flow
- 5:15 Wilson\*, J.<sup>1</sup>, K. Connell<sup>1</sup>, and J. Perry<sup>2</sup>. <sup>1</sup>Fuss & O'Neill, Inc.; <sup>2</sup>CTDEEP.  
 Sediment Redistribution & Impact Analysis at Springborn Dam, Enfield, CT
- Eels I – Campus Center 168C*
- 4:30 Jacobson\*, P. T. Electric Power Research Institute.  
 The Eel Passage Research Center: Bi-National Collaboration at the Interface of Research, Resource Management, and Regulatory Compliance
- 4:45 Wechsler\*, J. Kleinschmidt.  
 Monitoring juvenile American eel movements to inform the design of eel fishways - location, location, location!
- 5:00 Avalos\*, C., P. G. Heisey, and D. Mathur. Normandeau Associates.  
 European Eel Passage Survival and Injury Through Three Propeller Type Turbines in France
- 5:15 Haro\*, A.<sup>1</sup>, T. Castro-Santos<sup>1</sup>, and M. Grader<sup>2</sup>. <sup>1</sup>S. O. Conte Anadromous Fish Research Laboratory, US Geological Survey; <sup>2</sup>Ecological Services, Region 5, US Fish and Wildlife Service.  
 Telemetry study of downstream passage of silver phase eels at three small hydroelectric projects on the Shetucket River, Connecticut
- Innovations III – Campus Center 174-76*
- 4:30 Abbott\*, A. US Fish and Wildlife Service.  
 The Maine Model – Flexible Partnerships for Restoration
- 4:45 O'Farrell\*, M., J. Kent, and C. Burger. Smith-Root Inc.  
 Fish passage philosophy on European rivers fueling hydropower installations in the 21st century
- 5:00 Wagner\*, J. US Bureau of Reclamation.  
 Fish Passage - Challenge Grants
- 5:15 Druschke\*, C.G. University of Rhode Island.  
 The Future of Dams: Developing a stakeholder-engaged, solutions-focused framework for decision-making
- 5:30 pm Reception – 1st Floor Concourse (WHOOSH)
- 5:30 pm to 7:00 pm Poster session – 1st Floor Concourse
- 7:00 pm to 10:30 pm Conference banquet – Campus Center Auditorium
- 8:00 pm **Presentation of Career Achievement Award** – Campus Center Auditorium
- 8:30 pm to 12:00 am After hours party at UPub – 2nd Floor Campus Center



## Wednesday, June 22, 2016

7:30 am to 8:45 am Continental Breakfast, registration – 1st Floor Concourse

9:00 am to 10:15 am Concurrent Sessions

### *Case Studies V – Campus Center Auditorium*

- 9:00 Kumar, B. G. Govt. Science College, Ministry of Education, Dhaka-1000. Bangladesh.  
Hydraulic impact on fish migration in the Sariakandhi fish pass of Bangladesh.
- 9:15 Verep\*, B. <sup>1</sup>, S. Küçükali<sup>2</sup>, D. Turan<sup>1</sup>, and A. Alp<sup>3</sup>. <sup>1</sup>University of RTE; <sup>2</sup>University of Çankaya; <sup>3</sup>University of Kahramanmaraş Sütçüimam.  
A critical analysis of existing fish pass structures at small hydropower plants in Turkey
- 9:30 Mulder\*, R. <sup>1</sup>, and W. de Bruijne<sup>2</sup>. <sup>1</sup>Province Fryslân, The Netherlands; <sup>2</sup>LINKit Consult.  
Fish Migration River - project update
- 9:45 de Bruijne\*, W. <sup>1,2</sup>, and R. Mulder<sup>3</sup>. <sup>1</sup>LINKit Consult; <sup>2</sup>Wanningen water consult; <sup>3</sup>Province of Fryslan, The Netherlands.  
Fish Migration River – Monitoring and evaluation after construction
- 10:00 Panahon\*, M. L.<sup>1</sup>, and P. P. Ocampo<sup>2</sup>. <sup>1</sup>City Government of Calapan, Oriental Mindoro, Philippines; <sup>2</sup>Limnological research station, UPLB, Brgy. Mayondon, Los banos, Laguna.  
Butas River, Naujan, Oriental Mindoro, Philippines Fish Assessment: Issues and Challenges

### *Fish Passage Studies IV – Campus Center 163C*

- 9:00 Schuetz\*, C., and M. Herbst. German Federal Institute of Hydrology.  
Reducing sample size in an open flume experiment by using a crossover design
- 9:15 de Bie\*, J., and P. S. Kemp. University of Southampton.  
Horizontal vs. vertical fish screens: efficacy in guiding fish schools
- 9:30 Frick\*, K. <sup>1</sup>, S. Corbett<sup>2</sup>, M. Hanks<sup>1</sup>, and M. Moser<sup>1</sup>. <sup>1</sup>National Marine Fisheries Service; <sup>2</sup>Ocean Associates.  
Passage Options for Climbing Lamprey: If You Build it They Will Come
- 9:45 Gordos\*, M<sup>1</sup>. for D. Masters<sup>2</sup>, P. Hamson<sup>2</sup>, and C. Copeland<sup>1</sup>. <sup>1</sup>NSW Department of Primary Industries (Fisheries); <sup>2</sup>NSW Department of Industry.  
Are fishways cost beneficial?

### *Eels II – Campus Center 168C*

- 9:00 Chase\*, B., E. Clark, and B. Gahagan. Massachusetts Division of Marine Fisheries.  
American Eel Passage Improvements at Coastal Rivers in Massachusetts
- 9:15 Avalos\*, C.<sup>1</sup>, R. Bleistine<sup>1</sup>, and K. Long<sup>2</sup>. <sup>1</sup>Normandeau Associates; <sup>2</sup>Exelon Power Corporation.  
Biological Studies of American Eel at the Conowingo Project
- 9:30 Bolland\*, J. <sup>1</sup>, R. Stanford<sup>1</sup>, N. Lewin<sup>2</sup>, C. Williams<sup>2</sup>, N. Angelopoulos<sup>1</sup>, N. Baker<sup>1</sup>, L. Murphy<sup>1</sup>, I. Cowx<sup>1</sup>, J. Reeds<sup>2</sup>, K. Jerrom<sup>2</sup>, J. Hooker<sup>2</sup>, and R. Wright<sup>2</sup>. <sup>1</sup>University of Hull International Fisheries Institute; <sup>2</sup>Environment Agency.  
Survival and health of European eels, *Anguilla anguilla*, entrained in water pumps of varying size, design and specification
- 9:45 Kreische\*, F. <sup>1</sup>, J. Borchering<sup>1</sup>, T. Havn<sup>2</sup>, L. Heermann<sup>1</sup>, M. Teichert<sup>1</sup>, E. Thorstad<sup>2</sup>, F. Økland<sup>2</sup>. <sup>1</sup>University of Cologne; <sup>2</sup>Norwegian Institute for Nature Research.  
Analyzing small-scale movements in the downstream migration of European eel: a radio telemetry study
- 10:00 Irmscher\*, P. Institut für Angewandte Ökologie / Institute for Applied Ecology.  
15 Years of MIGROMAT® - An Early Warning System Protecting Migrant Eels

### *Stream Crossings – Campus Center 174-76*

- 9:00 Mosey\*, B. <sup>1</sup>, J. Kozarek<sup>2</sup>, and J. Hatch<sup>1</sup>. <sup>1</sup>University of Minnesota; <sup>2</sup>St. Anthony Falls Laboratory.  
Do low light levels in long box culverts affect the movement of Topeka Shiner and other prairie stream fishes?
- 9:15 Hughes\*, K. ATS Environmental.  
Design criteria and Culvert Fish Baffle comparisons

- 9:30 Kozarek\*, J., S. Mielke, M. Hernick, B. Mosey, and J. Hatch. University of Minnesota.  
Experiments on Box Culvert Design for Fish Passage
- 9:45 Murphy\*, B. D., and S. R. Gephard. Connecticut Department of Energy and Environmental Protection.  
Engineering and Design Approaches to Provide Fish Passage at Culvert Slipline Projects in Connecticut
- 10:00 Kirn\*, R. Vermont Fish and Wildlife Department.  
Stream Sim Lite - Incorporating stream simulation concepts into Vermont statewide culvert design and construction standards.
- 10:15 am to 10:45 am – Break and access to posters and sponsor booths – 1st Floor Concourse
- 10:45 am to 12:00 pm – Concurrent sessions
- Case Studies VI – Campus Center Auditorium*
- 10:45 Boucher\*, J., and R. McBride. National Marine Fisheries Service, Northeast Fisheries Science Center.  
Dynamics of the 2015 spawning migration of American shad (*Alosa sapidissima*) in the Connecticut River
- 11:00 Modjeski<sup>1</sup>\*, A., J. Krug<sup>1</sup> and K. Conrad<sup>2</sup>. <sup>1</sup>American Littoral Society, <sup>2</sup>US Fish and Wildlife Service.  
Restoring connectivity to Wreck Pond, Monmouth County, New Jersey
- 11:15 Bhattacharya, T., and K. Ray\*. Katwa College, Burdwan University, India.  
Environmental toxicology with special reference to the study of fish biodiversity and physiology
- Eel III – Campus Center 168C*
- 10:45 Amaral\*, S.<sup>1</sup>, E. Perry<sup>2</sup>, L. Sullivan<sup>3</sup>, M. Timko<sup>3</sup>, D. Giza<sup>1</sup>, and P. Jacobson<sup>4</sup>. <sup>1</sup>Alden Research Laboratory, Inc. Holden, MA; <sup>2</sup>Biostatistician Consultant; <sup>3</sup>Blue Leaf Environmental; <sup>4</sup>Electric Power Research Institute  
Evaluation of Behavioral Cues for Guiding Silver American Eel at Hydro Projects
- 11:00 Kerr\*, A. Sustainable Eel Group.  
European Eel Recovery - it is all about collaboration
- 11:15 Gurshin\*, C.<sup>1</sup>, D. J. Coughlan<sup>1</sup>, A. Mueller<sup>2</sup>, D. J. Degan<sup>2</sup>, and P. T. Jacobson<sup>3</sup>. <sup>1</sup>Normandeau Associates, Inc.; <sup>2</sup>Aquacoustics, Inc.; <sup>3</sup>Electric Power Research Institute.  
Assessment of Three Sonars to Evaluate the Downstream Migration of American Eel in the St. Lawrence River
- 11:30 Haro\*, A.<sup>1</sup>, B. Watten<sup>1</sup>, J. Noreika<sup>1</sup>, N. Baker<sup>2</sup>, and J. Bolland<sup>2</sup>. <sup>1</sup>S. O. Conte Anadromous Fish Research Laboratory, U.S Geological Survey; <sup>2</sup>Hull International Fisheries Institute, University of Hull.  
Comparison of Attraction and Passage of Downstream Migrant American Eels for Airlift and Siphon Deep Entrance Bypass Systems
- Stream Crossings II – Campus Center 174-76*
- 10:45 Ham\*, E. Maine Department of Transportation.  
MaineDOT Stream Crossings – learning from ten years of experience to improve stream connectivity through transportation structures
- 11:00 Schiff\*, R., and J. Macbroom. Milone & Macbroom.  
Bridges, Culverts, and Flood Resiliency
- 11:15 Weiter\*, R., and E. Mas. Fuss & O'Neill, Inc.  
Assessment and Prioritization of Stream Crossings for Flood Resiliency and Ecological Connectivity in the Wood-Pawcatuck Watershed
- 11:30 Jackson\*, S. <sup>1</sup>, A. Abbott<sup>2</sup>, J. Levine<sup>3</sup>, E. Martin<sup>4</sup>, and M. Ocana<sup>1</sup>. <sup>1</sup>University of Massachusetts Amherst; <sup>2</sup>Gulf of Maine Coastal Program; <sup>3</sup>The Nature Conservancy Canada; <sup>4</sup>The Nature Conservancy.  
The North Atlantic Aquatic Connectivity Collaborative: A Coordinated Effort to Evaluate the Effects of Road-Stream Crossings on Aquatic Connectivity
- 11:45 Lambert\*, B., K. Ferry, and T. Chorey. MA Division of Ecological Restoration.  
Building municipal capacity for road-stream crossing replacement: Exploring a new model for habitat restoration
- 12:00 pm to 1:00 pm Lunch boxes (provided), poster take down – 1st Floor Concourse

- 12:30 pm to 2:30 pm Joint Committee of Fisheries Engineering and Science meeting (room TBD)
- 12:30 pm to 2:30 pm Know Your River - A Free Fish Counting & Migration Workshop with speakers from Vaki, FISHBIO and Biomark - Campus Center Auditorium
- 3:00 pm onwards Tours, meet on 1st Floor Concourse

### Thursday, June 23, 2016

9:00 am to 5:00 pm Short courses

Fish Passage Training Course – USFWS Headquarters at 300 Westgate Center Dr, Hadley, MA 01035

NAACC Protocols and Field Training – Holdsworth Hall 308

### Posters (dedicated session is Tuesday June 21, 5:30-7:00pm)

- 1- Baker, N.<sup>1</sup>, L. Murphy<sup>1</sup>, N. Angelopoulos<sup>1</sup>, R. Wright<sup>2</sup>, I. Cowx<sup>1</sup>, and J. Bolland<sup>\*1</sup>. <sup>1</sup>Hull International Fisheries Institute (HIFI), <sup>2</sup>The Environment Agency.  
The fine-scale behavior of downstream migrating silver European eels (*Anguilla anguilla*) immediately upstream of pumping stations
- 2- Chin<sup>\*\*</sup>, A.<sup>1</sup>, M. Fortin<sup>1</sup>, J. Linke<sup>1</sup>, R. Cormier<sup>2</sup>, and C. Godin<sup>3</sup>. <sup>1</sup>University of Toronto; <sup>2</sup>Eco-Risk Management; <sup>3</sup>Fisheries and Oceans Canada.  
Comparing the effects of culvert fragmentation on potential functional connectivity of diadromous fish species using morphometrics
- 3 - Devine<sup>\*\*</sup>, M.<sup>1</sup>, A.H. Roy<sup>1,2,3</sup>, A.R. Whiteley<sup>4</sup> and A. Jordaan<sup>1</sup>, <sup>1</sup>University of Massachusetts, Amherst, MA; <sup>2</sup>U.S. Geological Survey; <sup>3</sup>Massachusetts Cooperative Fish and Wildlife Research Unit; <sup>4</sup>College of Forestry & Conservation, University of Montana  
Optimal sampling effort for estimating juvenile alewife densities in freshwater lakes using a pelagic purse seine
- 4- Dotson, C. <sup>1</sup>, and L. Sullivan<sup>\*2</sup>. <sup>1</sup>Public Utility District No. 2 of Grant County, Washington; <sup>2</sup>Blue Leaf Environmental, Inc.  
Providing Upstream Passage of Adult Salmon and Lamprey at Wanapum Dam During Atypical Emergency Draw-down Operations
- 5- Druschke\*, C.G. <sup>1</sup>, B. McGreavy<sup>2</sup>, S. Randall<sup>2</sup>, A. Fisher<sup>1</sup>, E. Lundberg<sup>1</sup>, and T. Quiring<sup>2</sup>. <sup>1</sup>University of Rhode Island; <sup>2</sup>University of Maine.  
Manager, Media, and Community Member Representations of Dam Tradeoffs in New England, USA
- 6- Foster<sup>\*\*</sup>, B. <sup>1</sup>, E. Cashman<sup>1</sup>, B. Draeger<sup>1</sup>, M. Lang<sup>1</sup>, M. Love<sup>2</sup>, M. Nyberg<sup>1</sup>, and B. Weekly<sup>1</sup>. <sup>1</sup>Humboldt State University; <sup>2</sup>Michael Love and Associates.  
An Investigation of Pool-and-Chute Fishway Hydraulics for a Prototype Vortex Weir Design for Anadromous Fish Passage
- 7- Gillespie\*, N.<sup>1</sup>, D. Shively<sup>1</sup>, D. Lockhart<sup>1</sup>, L. Campbell<sup>1</sup>, B. Kanalley<sup>1</sup>, and M. Newton<sup>1</sup>. <sup>1</sup>USDA Forest Service, WFWARP, Engineering and RSAC staffs.  
1000th Culvert Removed or Upgraded for Aquatic Organism Passage across the Forest Service
- 8- Haker\*, C. Tighe & Bond.  
Lower Mill Pond Dam / Stony Brook Fish Passage
- 9- Heermann\*, L. <sup>1</sup>, T. Havn<sup>2</sup>, M. Teichert<sup>1</sup>, E. Thorstad<sup>2</sup>, O. Diserud<sup>2</sup>, S. Sæther<sup>2</sup>, J. Borcharding<sup>1</sup>, M. Tambets<sup>3</sup>, R. Hedger<sup>2</sup>, and F. Økland<sup>2</sup>. <sup>1</sup>University of Cologne; <sup>2</sup>Norwegian Institute for Nature Research; <sup>3</sup>Wildlife Estonia.  
Influence of reservoir size on migration and loss of Atlantic salmon smolt



- 10- Hossain\*, M. and M. Abdul Baki. Department of Zoology, Jagannath University, Dhaka-1100.  
Bangladesh. Inventory of Freshwater Fish Species in the Buriganga River, Dhaka, Bangladesh
- 11- Hutchins\*, E.<sup>1</sup>, A. Hackman<sup>2</sup>, E. Derleth<sup>3</sup>, G. Cademartori<sup>4</sup>, D. Sargent<sup>4</sup>, and A. Green<sup>5</sup>. <sup>1</sup>NOAA Restoration Center; <sup>2</sup>MA Division of Ecological Restoration; <sup>3</sup>US Fish and Wildlife Service; <sup>4</sup>City of Gloucester; <sup>5</sup>Milone and MacBroom, Inc.  
Little River Fish Passage Naturalization Project, Gloucester, MA
- 12- Jacobson\*, P. <sup>1</sup>, S. Ault<sup>2</sup>, J. Caumartin<sup>3</sup>, J. Gerlach<sup>4</sup>, D. Hatin<sup>5</sup>, S. LaPan<sup>6</sup>, B. Lenz<sup>4</sup>, A. Mathers<sup>2</sup>, T. Maynard, S. Patch<sup>8</sup>, T. Pratt<sup>9</sup>, J. Sanna<sup>10</sup>, S. Schlueter<sup>8</sup>, D. Stanley<sup>10</sup>, and A. Stuart<sup>11</sup>. <sup>1</sup>Electric Power Research Institute; <sup>2</sup>Kleinschmidt Associates; <sup>3</sup>Hydro Quebec; <sup>4</sup>New York Power Authority; <sup>5</sup>Quebec Ministry of Natural Resources and Wildlife; <sup>6</sup>New York State Department of Environmental Conservation; <sup>7</sup>Ontario Ministry of Natural Resources; <sup>8</sup>U.S. Fish and Wildlife Service; <sup>9</sup>Fisheries and Oceans Canada; <sup>10</sup>Ontario Power Generation; <sup>11</sup>Duke Energy.  
The Eel Passage Research Center: Bi-National Collaboration at the Interface of Research, Resource Management, and Regulatory Compliance.
- 13- Kivari\*\*, L.R. Eastern Michigan University.  
The Wetted Ramp for use in Passage of Non-Target Species over Low-Head Sea Lamprey (*Petromyzon marinus*) Barriers, Fish Length Dictates Passage Efficiency.
- 14- Lickus\*, M., E. Ham, and C. Hebson. Maine Department of Transportation.  
Use of PIT tag technology to assess fish movement through two highway culverts in Maine.
- 15- Linnansaari\*, T. <sup>1</sup>, A. Babin<sup>1</sup>, S. Andrews<sup>1</sup>, D. Arluison<sup>1</sup>, B. Dixon<sup>1</sup>, G. Yamazaki<sup>1</sup>, S. Peake<sup>1</sup>, and R. A. Curry<sup>1,2</sup>.  
<sup>1</sup>Canadian Rivers Institute and Department of Biology, University of New Brunswick; <sup>2</sup>Faculty of Forestry and Environmental Management, University of New Brunswick.  
To remove or repair: How is fish passage science informing a decision for the future of a large dam?
- 16- Longenecker\*, R. <sup>1</sup>, J. Taylor<sup>1</sup>, L. McLaughlin<sup>1</sup>, L. Eaton<sup>1</sup>, W. Crouch<sup>1</sup>, W. Thompson<sup>1</sup>, N. Bush<sup>1</sup>, and E. Martin<sup>2</sup>. <sup>1</sup>U.S. Fish & Wildlife Service; <sup>2</sup>The Nature Conservancy.  
Stream connectivity assessments on National Wildlife Refuges in northeastern USA
- 17- Marshall\*\*, A. Connecticut College.  
Spatial variation in characterized buried soils and legacy sediments of the Northeast USA
- 18- Mattocks\*\*, S., C. Hall, and A. Jordaan. University of Massachusetts Amherst  
Damning of New England Watersheds and Consequences to Freshwater Ecosystems
- 19- Maxwell\*, S. and B. Strawn AECOM.  
Challenges of Small Town Atlantic Salmon Habitat Restoration in their Critical Habitat
- 20- McCartin\*\*, K. <sup>1</sup>, M. Frisk<sup>1</sup>, M. Sclafani<sup>2</sup>, and A. Jordaan<sup>3</sup>. <sup>1</sup>Stony Brook University; <sup>2</sup>Cornell Cooperative Extension; <sup>3</sup>University of Massachusetts Amherst.  
Diadromous Fish Passage Evaluation and Drivers of Movement in an Alaskan Steeppass
- 21- McDermott, S.<sup>1</sup>, B. McDavitt\*,<sup>2</sup> and S. Tuxbury<sup>1</sup>. <sup>1</sup>NOAA Fisheries Service; <sup>2</sup>Integrated Statistics.  
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- 22- Morales\*, J. U.S. Fish & Wildlife Service.  
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- 23- Moser\*, M.<sup>1</sup>, S. Corbett<sup>2</sup>, K. Frick<sup>1</sup>, M. Keefer<sup>3</sup>, C. Caudill<sup>3</sup>, and S. Tackley<sup>4</sup>. <sup>1</sup>National Marine Fisheries Service; <sup>2</sup>Ocean Associates; <sup>3</sup>University of Idaho; <sup>4</sup>U. S. Army Corps of Engineers.  
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- 24- Murphy, L.<sup>1</sup>, N. J. Baker<sup>1</sup>, N. V. Angelopoulos<sup>1</sup>, J. Reeds<sup>1</sup>, R. M. Wright<sup>2</sup>, I. G. Cowx<sup>2</sup>, and J. B. Bolland\*<sup>1</sup>. <sup>1</sup>Hull International Fisheries Institute; <sup>2</sup>Environment Agency.  
The indirect impact of pumping station operation on the downstream migration of silver European eels (*Anguilla anguilla*)
- 25- Qiao\*\*, J. University at Buffalo, SUNY.  
Mimicking Fish with a Convolutional Neural Network in 2D Domain
- 26- Rueter\*, A., B. Mockenhaupt, and C. Schuetz. German Federal Institute of Hydrology.  
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A 3-year Evaluation of Atlantic Salmon Passage and Survival at a Hydroelectric Facility in Maine

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DATA Collection: A critical component in supporting a successfully operating fishway

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<sup>2</sup>DOI Northeast Climate Science Center; <sup>3</sup>Massachusetts Division of Marine Fisheries.

Climate change induced shifts in the timing of migration of alewife (*Alosa pseudoharengus*) in Massachusetts natal streams

31- Towler\*, B. <sup>1</sup>, A. Haro<sup>2</sup>, and K. Mulligan<sup>2</sup>. <sup>1</sup>U.S. Fish and Wildlife Service; <sup>2</sup>USGS S.O. Conte Anadromous Fish Research Center.

Energy Dissipation Factor (EDF) and the Design of Fishways

32- Turek\*, J.<sup>1</sup>, A. Haro<sup>2</sup>, and B. Towler<sup>3</sup>. <sup>1</sup>NOAA Restoration Center; <sup>2</sup>USGS Conte Anadromous Fish Laboratory; <sup>3</sup>U.S. Fish and Wildlife Service.

Federal Interagency Passage Design Guidelines: Application to Nature-like Fishways for Atlantic Coast Diadromous Fishes

33- Watten\*, B., P. L. Sibrell, and J. F. Noreika. USGS Leetown Science Center.

Exploring the impacts of a concentration dependent fish passage rate: Application of reactor theory Part II.

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A vacuum assisted weir (VAW) that reduces nappe velocities for enhanced fish passage at diversion structures: scale model and field trial results

35- Wildman\*, N. MA Division of Ecological Restoration.

Economic Effects of Small Dam Removal in Massachusetts

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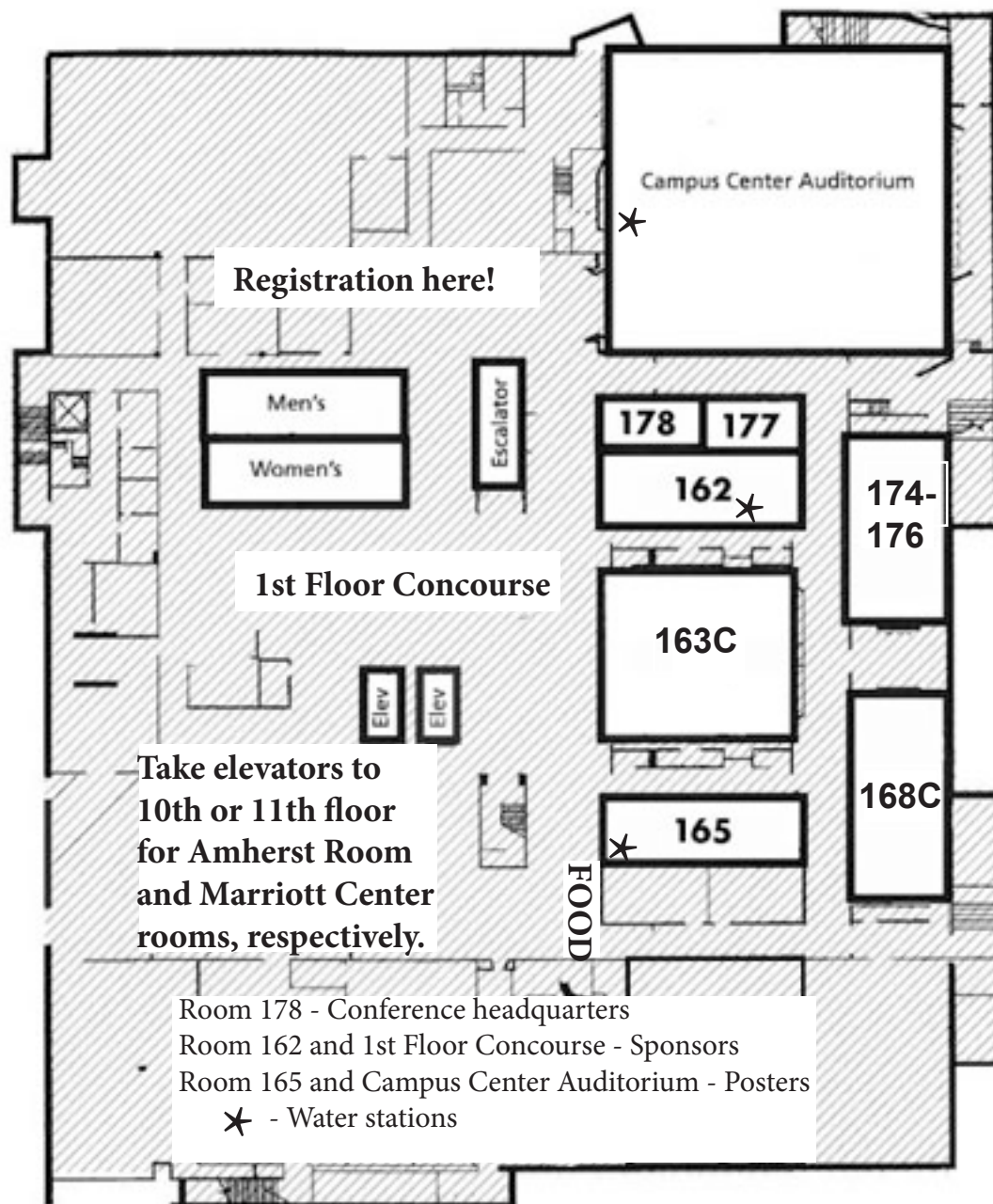
To all the participants who are traveling here from Massachusetts and from around the world, thank you and enjoy! Please join us for the next two meetings and save the dates!

Fish Passage 2017 will be June 19 - 21, 2017 at Oregon State University in Corvallis, Oregon

Fish Passage 2018 will be December 10 - 14, 2018 hosted by Charles Sturt University in Albury, New South Wales, Australia.

# Campus Center

## First Floor



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