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- Gomez and Sullivan
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Ted Castro-Santos  Research Ecologist, United States Geological Survey, Conte Anadromous Fish Research Center
Margaret Lang  Professor, Environmental Resources Engineering, Humboldt State University
Kevin Mulligan  Research Hydraulic Engineer, United States Geological Survey, Conte Anadromous Fish Research Center
Herman Wanningen  Director, World Fish Migration Foundation
Marcin Whitman  Senior Hydraulic Engineer, California Department of Fish and Wildlife
Laura Wildman  Director, New England Regional Office, Water Resources and Fisheries Engineer, Princeton Hydro

Local Organizing committee

Adrian Jordaan, Chair  Assistant Professor, Department of Environmental Conservation, University of Massachusetts Amherst
Ted Castro-Santos  Research Ecologist, United States Geological Survey, Conte Anadromous Fish Research Center
Stephen Gephard  Inland Fisheries Division, Connecticut Department of Environmental Protection
Scott Jackson  Extension Associate Professor, Department of Environmental Conservation, University of Massachusetts Amherst
Allison Roy  Assistant Unit Leader, U.S. Geological Survey, Massachusetts Cooperative Fish and Wildlife Research Unit
Amy Singler  Associate Director, River Restoration Program, American Rivers, Connecticut River Program, The Nature Conservancy
Laura Wildman  Director, New England Regional Office, Water Resources and Fisheries Engineer, Princeton Hydro

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Michael Garello  Fisheries Engineer and Senior Professional Associate, HDR Engineering, Inc.
Kurt Gernerd  Assistant Director; Engineering, Technology & Geospatial Services, Forest Service, National Headquarters
Matthew Gordos  Fish Passage Manager, Aquatic Habitat Rehabilitation Unit, Fisheries NSW, Australia
Sally Harold  Director, River Restoration/Fish Passage, The Nature Conservancy in Connecticut
Andrew Jones  CINAR Postdoctoral Scholar, Woods Hole Oceanographic Institution
Beth Lambert  Aquatic Habitat Restoration Program Manager, Division of Ecological Restoration, MA Department of Fish and Game
Mary Moser  Research Fishery Biologist, NOAA Fisheries, Northwest Fisheries Science Center
Austin Polebitski  Assistant Professor in Civil and Environmental Engineering, University of Wisconsin-Platteville
Sara Turner  Diadromous Fish Biologist, Massachusetts Division of Marine Fisheries
Andrew Vowles  Research Fellow in Ecohydraulics and Fisheries Management, International Centre for Ecohydraulics Research

Coordination Team

Adrian Jordaan, Assistant Professor, Department of Environmental Conservation, University of Massachusetts Amherst
Ashleigh Novak, Graduate Student, Department of Environmental Conservation, University of Massachusetts Amherst
Ted Castro-Santos  Research Ecologist, United States Geological Survey, Conte Anadromous Fish Research Center
Allison Roy  Research Assistant Professor, Department of Environmental Conservation, University of Massachusetts Amherst
Laura Wildman  Director, New England Regional Office, Water Resources and Fisheries Engineer, Princeton Hydro
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
Looking After the Leap: Reflections on the Penobscot River Restoration Project
Removal of the Veazie Dam – Improving Habitat Access for Sea-run Fish, Uncovering History, and Unharnessing the Penobscot River
1:30 Martin*, K. 1, and K. Maloney2. 1Kleinschmidt; 2Brookfield - Black Bear Hydro Partners.
Fish Passage Enhancements on the Lower Penobscot River
1:45 Burke*, M. 1, L. Stiles2, G. Aponte Clarke3, B. Kulik2, and S. Fuller4. 1Inter-Fluve, Inc.; 2Kleinschmidt Associates; 3Penobscot River Restoration Trust; 4SumCo Eco-Contracting.
Aspects of Design and Construction of the Howland Fish Bypass Channel, Piscataquis River, Maine
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. 1, J. Levine1, S. Jackson2. 1The Nature Conservancy; 2University of Massachusetts Amherst
Prioritizing Barriers
1:15 Jackson*, S. 1, K. McGarigal1, B. Compton1, and B. Letcher1,2. 1University of Massachusetts Amherst; 2U.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. 1, and R. Taylor2. 1NOAA Restoration Center; 2Ross 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.1, J. T. Petty2, F. Boettner1, F. Orr3, and M. Strager2. 1Downstream Strategies; 2West Virginia University; 3Critegen.
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

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. 1, P. Hrodey2, and K. Mann1. 1U.S. Fish and Wildlife Service; 2Great Lakes Fishery Commission.
Balancing connectivity with sea lamprey control

3:15 Ratcliff*, D.1, J. O’Hanley2, and L. DeBruyckere3. 1U.S. Fish and Wildlife Service; 2Kent Business School, University of Kent; 3California Fish Passage Forum.
FISHPass: A Decision Support Tool for Optimizing Barrier Mitigation

3:30 Wright*, J.1, A. Abbott1, and J. O’Hanley2. 1U.S. Fish and Wildlife Service; 2University of Kent.
What can we learn from 17,000 structures?

3:45 Jordan*, M.1, and R. Gubernick2. 1Jordan Environmental Engineering; 2U.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. 1D. D. Tullos2, J. R. Bellmore3, J. A. Bountry4, P. J. Connolly4, P. B. Shafroth5, and A. C. Wilcox6. 1NOAA; 2Oregon State University, 3USDA Forest Service; 4Bureau of Reclamation; 5USGS; 6University of Montana
Synthesis of common management concerns associated with dam removal

3:15 Nislow*, K.1, F. J. Magilligan2, B. Kynard3, A. Hackman4, and P. Damkot5. 1USDA Forest Service; 2Dartmouth College; 3University of Massachusetts Amherst; 4Massachusetts Department of Environmental Conservation.
Geomorphic and ecological adjustments following dam removal

3:30 Macdonald*, G. 1, M. Chelminski2, and L. Wildman3. 1Save the Sound; 2Stantec; 3Princeton 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.1, A. Popper2, M. Birmann3, J. Caumartin4, T. Pratt5, and P. Jacobson6. 1Alden Research Laboratory, Inc., Holden, MA; 2University of Maryland (retired); 3Scientific Solutions, Inc.; 4Hydro-Québec; 5Fisheries and Oceans Canada; 6Electric Power Research Institute.
Can vibration or electromagnetic fields guide downstream migrating silver eels?

Acoustically guided avoidance responses in three invasive carp species

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. 1, P. Kibel1, G. Morier-Genoud2, M. Raeder3, and P. Kemp4. 1Fishtek Consulting; 2Poyry; 3Xayaburi Power Company Limited; 4Southampton University. The swimming ability of wild-caught Mekong fish species and implications for fish pass design in SE Asia

4:45  Hahn*, L. 1, H. Marques1, J. Kilpp1, M. Granai1, A. Cardoso1, A. Marçal2, L. Nunes1, and L. Machado1. 1Neotropical Environmental Consulting Company; 2Ecofish 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. 1, P. Branco1, S. Amaral1, A. Silva2, C. Katopodis3, T. Ferreira1, A. Pinheiro4, and T. Viseu5. 1Instituto Superior de Agronomia, Universidade de Lisboa; 2Norwegian Institute for Nature Research; 3Katopodis Ecohydraulics Ltd.; 4Instituto Superior Técnico, Universidade de Lisboa; 5Laboratório 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. 1, S. Chan2, R. Lackey2, and T. Jarvis2. 1Washington Department of Fish and Wildlife, 2Oregon 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. 1, and L. Wildman2. 1Integrated Aquatic Sciences, LLC; 2Princeton Hydro. Use of unmanned aerial vehicles for monitoring habitat restoration and dam removals

4:45  Arruda*, S. D.1, N. Wiberg1, S. Harold2 and S. Comings2. 1Fuss & O'Neill, Inc.; 2The Nature Conservancy. No longer caught up in that old race – successful velocity barrier elimination for anadromous fish

5:00  Hollingsworth-Segedy*, L.1, and B. Beran2. 1American Rivers; 2Beran Environmental Services. Large Wood Debris and Dam Removal, Part 1: Elevating Practice Through Complementary Techniques

5:15  Beran*, B.1, and L. Hollingsworth-Segedy2. 1Beran Environmental Services; 2American 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


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
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
     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. 1, 2. 1LINKit Consult; 2Wanningen 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
     Oceanographic Institution; 2Coonamessett River Trust, Falmouth; 3Marine 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.1, R. McLaughlin2, and T. Pratt3. 1Great Lakes Fishery Commission; 2University of Guelph; 3Fisheries and
     Oceans.
     Selective, bi-directional fish passage to balance tensions between management actions affecting fish
     movement
1:30  Almeida*, P. 1, R. Oliveira1, C. S. Mateus1, C. M. Alexandre1, A. F. Belo1, E. Pereira1, A. Telhado2, M. F.
     Quadrado2, and B. R. Quintella1. 1MARE-Centro de Ciências do Mar e do Ambiente, Universidade de Évora, Portugal;
     2Departamento de Recursos Hídricos, Agência, Portuguesa do Ambiente, I.P., Portugal.
     Sea lamprey behavior during negotiation of technical and nature-like fish passes
     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. 1, and K. Sprankle2. 1USGS-S.O. Conte Anadromous Fish Research Center; 2U. 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.1, T. Grant1, P. Jacobson2, J. Pyatskowit3, and S. Dearden4. 1Alden Research Laboratory, Inc.; 2EPRI;
     3Menominee Indian Tribe of Wisconsin; 4Whooshh 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.
Using 2D HEC-RAS to Determine Fish Passability and Habitat Quality
Effects of Hydraulic Structures on Fish Passage: An Evaluation of 2D vs 3D Hydraulic Analysis Methods
Stream Power Thresholds and Applications
Physical modeling of the Inskip Diversion Dam Fish Screen
2:15 Duguay**, J., J. Lacey, and J. Gaucher. 1Université de Sherbrooke, Sherbrooke, Québec; 2Hydraulic 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., 1I. Spooner, 1M. Mallory, 2N. McLellan, 3C. White, and M. Stokesbury. 1Acadia University; 2Ducks Unlimited Canada; 3Nova 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., 1E. Smyth, 1M. Koops, 1T. Pratt, and L. Velez-Espino. 1University of Guelph; 2ECOFISH Research; 3Fisheries 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
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., 1G. Apke, 1D. Heller, 1J. Capurso, and A. Moore. 1U.S. Forest Service; 2Oregon Department of Fish and Wildlife; 3Oregon Fish Passage Task Force; 4Trout Unlimited.
Salmon SuperHwy: Strategic Fish Passage Barrier Prioritization and Community Engagement in the Tillamook-Nestucca Subbasin, Oregon.
3:45 Ekren*, M. G., 1Ağiralioğlu, N., and H. G. Coşkun. 1Department of Hydraulics and Water Resources Engineering, Istanbul Technical University; 2Department of Geomatics Engineering, Istanbul Technical University, Turkey.
Secure Fish Passage Design for Sustainable Fish Populations: A Case Study in the Vereinigte Weiβeritz River
Fish Passage Studies II – Campus Center 163C
3:00 Phipps*, J., P. Heisey, C. Avalos, and R. Koenigs. 1Normandeau Associates; 2WDNR.
Estimates of turbine passage of fingerling and yearling lake sturgeon passing the Shawano project, Wolf River, Wisconsin
Long-term effects on Atlantic salmon (Salmo salar) and brown trout (Salmo trutta) smolts of down stream migration through hydropower turbines
Comparison of three downstream fish pass solutions in Germany, using Atlantic salmon smolt
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., B. Byatt, M. Lowry, C. Macaya, E. T. Silva, and M. C. Lucas. 1School of Biological and Biomedical Sciences, Durham University, UK; 2Environmental Agency, UK.
European River Lamprey Lampetra fluviatilis passage efficacy at a tidal barrage using a navigation lock as a novel fish pass
Migratory delay of anadromous river herring at anthropogenic obstacles on a small coastal stream
3:45 Philippart*, C., M. Baptist, E. Folmer, and A. Zuur. 1Waddenacademie; 2Ecospace; 3Highland Statistics.
Potential measures to strengthen diadromous fish stocks in the Wadden Sea
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., S. Käfer, and F. Kratzert. 1University of Natural Resources and Life Sciences, Vienna; 2VERBUND Hydro PowerGmbH.
Fishcam – a video-based monitoring system for fish passes
3:30 Gordos*, M., M. Mallen-Cooper, H. Robinson, S. Slarke, and C. Copeland. 1NSW Department of Primary Industries (Fisheries); 2Fishway Consulting Services; 3NSW Public Works; 4URS Australia Pty Ltd.
Designing a cost effective vertical-slot fishway
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.¹, G. Nau∗¹, N. McLellan², S. Andrews¹, M. Mallory¹, and M. Stokesbury¹. ¹Acadia University; ²Ducks 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. ¹,², B. Kynard¹, and C. Morgan¹,². ¹BK-Riverfish, LLC; ²Department of Environmental Conservation, University of Massachusetts Amherst.
Evaluation of the Owens Pond Fishway, Amherst, MA

Fish Passage Studies III – Campus Center 163C

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.¹, P. Heneka¹, and C. Schütz². ¹Federal Waterways Engineering and Research Institute, Germany; ²Federal Institute of Hydrology, Germany.
Fish-size-based criteria for assessing attraction flow

5:15 Wilson*, J.,¹, K. Connell¹, and J. Perry². ¹Fuss & O’Neill, Inc.; ²CTDEEP.
Sediment Redistribution & Impact Analysis at Springborn Dam, Enfield, CT

Eels I – Campus Center 168C

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!

European Eel Passage Survival and Injury Through Three Propeller Type Turbines in France

5:15 Haro*, A.¹, T. Castro-Santos¹, and M. Grader². ¹S. O. Conte Anadromous Fish Research Laboratory, US Geological Survey; ²Ecological 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

The Maine Model – Flexible Partnerships for Restoration

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. 1, S. Kıcığülaı̈ 2, D. Turan 1, and A. Alp 3.  
1University of RTE; 2University of Çankaya; 3University of Kahramanmaraş Sütçüi̇mam.  
A critical analysis of existing fish pass structures at small hydropower plants in Turkey  

9:30  Mulder*, R. 1, and W. de Bruijne 2.  
1Province Fryslân, The Netherlands; 2LINKit Consult.  
Fish Migration River - project update  

9:45  de Bruijne*, W. 1,2, and R. Mulder 3.  
1LINKit Consult; 2Wanningen water consult; 3Province of Fryslan, The Netherlands.  
Fish Migration River – Monitoring and evaluation after construction  

10:00  Panahon*, M. L. 1, and P. P. Ocampo 2.  
1City Government of Calapan, Oriental Mindoro, Philippines; 2Limnological 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  

University of Southampton.  
Horizontal vs. vertical fish screens: efficacy in guiding fish schools  

9:30  Frick*, K. 1, S. Corbett 2, M. Hanks 1, and M. Moser 1.  
1National Marine Fisheries Service; 2Ocean Associates.  
Passage Options for Climbing Lamprey: If You Build it They Will Come  

9:45  Gordos*, M. 1, for D. Masters 2, P. Hamson 2, and C. Copeland 1.  
1NSW Department of Primary Industries (Fisheries); 2NSW 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. 1, R. Bleistine 1, and K. Long 2.  
1Normandeau Associates; 2Exelon Power Corporation.  
Biological Studies of American Eel at the Conowingo Project  

9:30  Bolland*, J. 1, R. Stanford 1, N. Lewin 2, C. Williams 1, N. Angelopoulos 1, N. Baker 1, L. Murphy 1, I. Cowx 1, J. Reeds 2, K. Jerrom 1, J. Hooker 2, and R. Wright 2.  
1University of Hull International Fisheries Institute; 2Environment Agency.  
Survival and health of European eels, Anguilla anguilla, entrained in water pumps of varying size, design and specification  

9:45  Kreische*, F. 1, J. Borcherding 1, T. Havn 2, L. Heermann 1, M. Teichert 1, E. Thorstad 2, F. Økland 2.  
1University of Cologne; 2Norwegian 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. 1, J. Kozarek 2, and J. Hatch 1.  
1University of Minnesota; 2St. 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
9:45 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
11:00 Modjeski1*, A., J. Krug1 and K. Conrad2. 1American Littoral Society, 2US 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.1, E. Perry2, L. Sullivan1, M. Timko1, D. Giza1, and P. Jacobson4. 1Alden Research Laboratory, Inc. Holden, MA; 2Biostatistician Consultant; 3Blue Leaf Environmental; 4Electric 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
11:30 Haro*, A.1, B. Watten1, J. Noreika1, N. Baker2, and J. Bolland2. 1S. O. Conte Anadromous Fish Research Laboratory, U.S Geological Survey; 2Hull 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
11:30 Jackson*, S.1, A. Abbott2, J. Levine1, E. Martin1, and M. Ocana1. 1University of Massachusetts Amherst; 2Gulf of Maine Coastal Program; 3The Nature Conservancy Canada; 4The Nature Conservancy. The North Atlantic Aquatic Connectivity Collaborative: A Coordinated Effort to Evaluate the Effects of Road-Stream Crossings on Aquatic Connectivity
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., L. Murphy, N. Angelopoulos, R. Wright, I. Cowx, and J. Bolland. Hull International Fisheries Institute (HIFI), The Environment Agency. The fine-scale behavior of downstream migrating silver European eels (Anguilla anguilla) immediately upstream of pumping stations
2- Chin, A., M. Fortin, J. Linke, R. Cormier, and C. Godin. University of Toronto; Eco-Risk Management; Fisheries and Oceans Canada. Comparing the effects of culvert fragmentation on potential functional connectivity of diadromous fish species using morphometrics
3- Devine, M., A.H. Roy, A.R. Whiteley, and A. Jordaan. University of Massachusetts, Amherst, MA; U.S. Geological Survey; Massachusetts Cooperative Fish and Wildlife Research Unit; 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., and L. Sullivan. Public Utility District No. 2 of Grant County, Washington; 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., B. McGreavy, S. Randall, A. Fisher, E. Lundberg, and T. Quiring. University of Rhode Island; University of Maine. Manager, Media, and Community Member Representations of Dam Tradeoffs in New England, USA
7- Gillespie, N., D. ShivELY, D. Lockhart, L. Campbell, B. Kanalley, and M. Newton. 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
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. I., A. Hackman², E. Derleth³, G. Cademartori⁴, D. Sargent⁵, and A. Green⁶. NOAA Restoration Center; ²MA Division of Ecological Restoration; ³US Fish and Wildlife Service; ⁴City of Gloucester;
⁵Milone and MacBroom, Inc.

Little River Fish Passage Naturalization Project, Gloucester, MA

12- Jacobson*, P. ¹, S. Ault², J. Caumartin³, J. Gerlach⁴, D. Hatin⁵, S. LaPan⁶, B. Lenz⁷, A. Mathers², T. Maynard, S. Patch⁸, T. Pratt⁹, J. Sanna¹⁰, S. Schlueter¹¹, D. Stanley¹⁰, and A. Stuart¹¹. ¹Electric Power Research Institute; ²Kleinschmidt Associates; ³Hydro Quebec; ⁴New York Power Authority; ⁵Quebec Ministry of Natural Resources and Wildlife; ⁶New York State Department of Environmental Conservation; ⁷Ontario Ministry of Natural Resources; ⁸U.S. Fish and Wildlife Service; ⁹Fisheries and Oceans Canada; ¹⁰Ontario Power Generation; ¹¹Duke Energy.

The Eel Passage Research Center: Bi-National Collaboration at the Interface of Research, Resource Management, and Regulatory Compliance.


The Wetted Ramp for use in Passage of Non-Target Species over Low-Head Sea Lamprey (Petromyzon marinus) Barriers, Fish Length Dictates Passage Efficiency.


Use of PIT tag technology to assess fish movement through two highway culverts in Maine.

15- Linnansaari*, T. ¹, A. Babin¹, S. Andrews¹, D. Arluison¹, B. Dixon¹, G. Yamazaki¹, S. Peake¹, and R. A. Curry¹².

¹Canadian Rivers Institute and Department of Biology, University of New Brunswick; ²Faculty 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. ¹, J. Taylor¹, L. McLaughlin¹, L. Eaton¹, W. Crouch¹, W. Thompson¹, N. Bush¹, and E. Martin². ¹U.S. Fish & Wildlife Service; ²The Nature Conservancy.

Stream connectivity assessments on National Wildlife Refuges in northeastern USA


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

Damming of New England Watersheds and Consequences to Freshwater Ecosystems

19- Maxwell*, S. and B. Strawm AECOM.

Challenges of Small Town Atlantic Salmon Habitat Restoration in their Critical Habitat

20- McCartin**, K. I, M. Frisk¹, M. Sclafani², and A. Jordaan³. ¹Stony Brook University; ²Cornell Cooperative Extension; ³University of Massachusetts Amherst.

Diadromous Fish Passage Evaluation and Drivers of Movement in an Alaskan Steeppass

21- McDermott, S.¹, B. McDavitt²,³, and S. Tuxbury¹. ¹NOAA Fisheries Service; ²Integrated Statistics.

NOAA Fisheries Service fish passage and hydropower review


USFWS Engineering Criteria and the Design of Attraction Water Systems

23- Moser*, M.¹, S. Corbett², K. Frick¹, M. Keefer¹, C. Caudill¹, and S. Tackley¹. ¹National Marine Fisheries Service; ²Ocean Associates; ³University of Idaho; ⁴U.S. Army Corps of Engineers.

Providing Refuges for Pacific Lamprey in Lower Columbia River Fishways

24- Murphy, L.¹, N. J. Baker¹, N. V. Angelopoulos¹, J. Reeds¹, R. M. Wright², I. G. Cowx², and J. B. Bolland¹. ¹Hull International Fisheries Institute; ²Environment 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


Comparison of the detection rate of three telemetry systems
27- Sears*, M. HDR Engineering, Inc.
   A 3-year Evaluation of Atlantic Salmon Passage and Survival at a Hydroelectric Facility in Maine

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

29- Stettiner**, S.1, M. Staudinger1,2, J. Sheppard3 and A. Jordaan1. 1University of Massachusetts Amherst;
   2DOI Northeast Climate Science Center; 3Massachusetts Division of Marine Fisheries.
   Climate change induced shifts in the timing of migration of alewife (Alosa psuedoherengus) in Massachusetts natal streams

31- Towler*, B.1, A. Haro2, and K. Mulligan2. 1U.S. Fish and Wildlife Service; 2USGS S.O. Conte Anadromous
   Fish Research Center.
   Energy Dissipation Factor (EDF) and the Design of Fishways

32- Turek*, J.1, A. Haro2, and B. Towler3. 1NOAA Restoration Center; 2USGS Conte Anadromous Fish
   Laboratory; 3U.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.

   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

Conference Acknowledgments
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recognize a few people for going above and beyond. First is Kevin Mulligan, member of the POC and recent
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changes as requested and providing logistical support. Next is Ashleigh Novak, a master’s student at UMass
Amherst who dealt with almost every aspect of the conference in some way. Alison Bowden, chair of the AB, is
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We have to acknowledge UMass Amherst conference services, and Andrea Robbins and Rebecca Johnson in
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without your help.

Last, we would be remiss in not acknowledging the past conferences that have built a fan base of researchers
and practitioners that look forward to this meeting every year. In particular, Brett Towler and David Ahlfeld for
starting the conference at UMass Amherst in 2011 and 2012. This provided a blueprint from which to go on this
time around, a very helpful contribution indeed.

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.
Take elevators to 10th or 11th floor for Amherst Room and Marriott Center rooms, respectively.

Room 178 - Conference headquarters
Room 162 and 1st Floor Concourse - Sponsors
Room 165 and Campus Center Auditorium - Posters
- Water stations

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http://www.umass.edu/visit

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