

## Curriculum Vitae

Michael H. Meeuwig, PhD

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### **Academic Background**

- 09/04 – 12/08 Doctor of Philosophy in Biological Sciences, Montana State University, Bozeman  
Department of Ecology; 37 credits, 4.00 GPA  
Dissertation: *Ecology of lacustrine-adfluvial bull trout populations in an interconnected system of natural lakes*
- 08/97 – 05/00 Master of Science in Biology, University of Nevada, Reno  
Department of Biology; 34 credits, 3.75 GPA  
Thesis: *Effects of constant and cyclical thermal regimes on growth, feeding, and swimming performance of cutthroat trout of variable sizes*
- 08/92 – 05/97 Bachelor of Science, University of Nevada, Reno  
Department of Biology; 133 credits, 3.11 GPA

### **Employment and Work Experience**

- 01/12 – Date: Native Trout Project Leader (NRS-3), Oregon Department of Fish and Wildlife, Corvallis Research Laboratory, Native Fish Investigations Project
- 07/11 – 12/11: Research Scientist, Montana State University, Department of Ecology, Montana Cooperative Fishery Research Unit
- 12/08 – 04/11: Postdoctoral Scholar, University of Nevada, Reno, College of Science, Biology Department
- 04/04 – 12/08: Graduate Research Assistant, Montana State University, Department of Ecology, Montana Cooperative Fishery Research Unit
- 11/00 – 04/04: Fishery Biologist (GS-0482-07/09), US Geological Survey, Western Fisheries Research Center, Columbia River Research Laboratory
- 11/00 – 11/00: Field Assistant, Donald W. Sada, Consultant
- 07/97 – 10/00: Graduate Research Assistant, University of Nevada, Reno, Biological Resources Research Center
- 05/96 – 06/97: Biological Science Technician (GS-0404-04), US Geological Survey, Western Fisheries Research Center, Reno Field Station

### ***Professional Societies***

American Fisheries Society, Parent Society Member, 01/05 – Date  
American Fisheries Society, Education Section Member, 01/06 – Date  
American Fisheries Society, Fish Habitat Section Member, 01/12 – Date  
American Fisheries Society, Oregon Chapter Member, 01/12 – Date  
American Fisheries Society, Montana Chapter Member, 01/05 – 12/11  
American Fisheries Society, Montana State University Subunit Member, 10/04 – 12/08

### ***Professional Services***

Webmaster, Oregon Chapter of the American Fisheries Society, 04/13 – Date  
Website co-chair, Fish Habitat Section of the American Fisheries Society, 09/11 – Date  
Website coordinator, Education Section of the American Fisheries Society, 10/05 – 09/10  
Bull Trout Expert Panel Workshop, assessing potential impacts of a proposed reintroduction of bull trout on ESA-listed salmon and steelhead in the Clackamas River, 07/08  
Vice President, Montana State University Student Subunit of the American Fisheries Society, 02/07 – 02/08  
Program co-chair, American Fisheries Society 2006 Western Division Annual Meeting, 09/05 – 05/06  
Fish and Wildlife Banquet, Montana State University, planning committee, 01/05 – 04/05  
Columbia River Basin Lamprey Technical Workgroup, 12/03 – 03/04  
US Geological Survey Conference on Science in Oregon and Southwest Washington planning committee, 10/02 – 01/04  
Peer-reviews for: Canadian Journal of Fisheries and Aquatic Sciences  
Ecology of Freshwater Fish  
Environmental Biology of Fishes  
Fisheries Management and Ecology  
Journal of Applied Ichthyology  
Journal of Fish Biology  
Molecular Ecology  
North American Journal of Fisheries Management  
Oikos  
Transactions of the American Fisheries Society

### ***Awards and Honors***

Best Student Paper – Honorable Mention, American Fisheries Society 2007 Annual Meeting, San Francisco, CA  
Skinner Memorial Award – Honorable Mention, American Fisheries Society 2007  
Wally McClure Fisheries Scholarship, Montana Chapter of the American Fisheries Society, 2007  
Montana Water Center Student Research Fellowship, 2007

Sustainable Fisheries Foundation William Trachtenberg Memorial Scholarship Fund,  
Western Division of the American Fisheries Society, 2006

STAR Award, US Geological Survey, 2002

STAR Award, US Geological Survey, 2001

### **Doctor of Philosophy Dissertation**

Meeuwig, M.H. 2008. Ecology of lacustrine-adfluvial bull trout populations in an interconnected system of natural lakes. PhD Dissertation. Montana State University, Bozeman.

### **Master of Science Thesis**

Meeuwig, M.H. 2000. Effects of constant and cyclical thermal regimes on growth, feeding, and swimming performance of cutthroat trout of variable sizes. MS Thesis. University of Nevada, Reno.

### **Peer-Reviewed Publications**

Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2011. Trophic relationships between a native and a nonnative predator in a system of natural lakes. *Ecology of Freshwater Fish* 20:315-325. DOI: 10.1111/j.1600-0633.2011.00498.x

Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2011. Use of cover habitat by bull trout, *Salvelinus confluentus*, and lake trout, *Salvelinus namaycush*, in a laboratory environment. *Environmental Biology of Fishes* 90:367-378. DOI: 10.1007/s10641-010-9747-1

Meeuwig, M.H., C.S. Guy, S.T. Kalinowski, and W.A. Fredenberg. 2010. Landscape influences on genetic differentiation among bull trout populations in a stream-lake network. *Molecular Ecology* 19:3620-3633. DOI: 10.1111/j.1365-294X.2010.04655.x

Kalinowski, S.T., M.H. Meeuwig, S.R. Narum, and M.L. Taper. 2008. Stream trees: a statistical method for mapping genetic differences between populations of freshwater organisms to the sections of streams that connect them. *Canadian Journal of Fisheries and Aquatic Sciences* 65:2752-2760. DOI: 10.1139/F08-171

Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2008. Influence of landscape characteristics on fish species richness among lakes of Glacier National Park, Montana. *Intermountain Journal of Sciences* 14:1-16.

Meeuwig, M.H., A.L. Puls, and J.M. Bayer. 2007. Survival and tag retention of Pacific lamprey larvae and macrophthalmia marked with coded wire tags. *North American Journal of Fisheries Management* 27:96-102. DOI: 10.1577/M06-074.1

Meeuwig, M.H., J.M. Bayer, and R.A. Reiche. 2006. Morphometric discrimination of early life stage *Lampetra tridentata* and *L. richardsoni* (Petromyzonidae) from the Columbia River Basin. *Journal of Morphology* 267:623-633. DOI: 10.1002/jmor.10427

Meeuwig, M.H., and J.M. Bayer. 2005. Morphology and aging precision of statoliths from larvae of Columbia River Basin lampreys. *North American Journal of Fisheries Management* 25:38-48. DOI: 10.1577/M03-184.1

Meeuwig, M.H., J.M. Bayer, and J.G. Seelye. 2005. Effects of temperature on survival and development of early life stage Pacific and western brook lampreys. *Transactions of the American Fisheries Society* 134:19-27. DOI: 10.1577/FT03-206.1

Meeuwig, M.H., J.B. Dunham, J.P. Hayes, and G.L. Vinyard. 2004. Effects of constant and cyclical thermal regimes on growth and feeding performance of cutthroat trout of variable sizes. *Ecology of Freshwater Fish* 13:208-216. DOI: 10.1111/j.1600-0633.2004.00052.x

### ***Manuscripts in Preparation***

Meeuwig, M.H., and M.M. Peacock. Food web characteristics in an alpine lake: challenges to reintroduction of a threatened trout.

Meeuwig, M.H., M.M. Peacock, and J.T. Peterson. A temperature based model of spatial overlap to guide cutthroat trout reintroduction in an alpine lake.

### ***Technical Reports and Documents***

Meeuwig, M., and S. Clements. 2014. Use of depletion electrofishing and a generalized random-tessellation stratified design to estimate density and abundance of redband trout in the northern Great Basin. Oregon Department of Fish and Wildlife – Information Reports 2014-01.

Meeuwig, M., S. Clements, and S. Starcevich. 2012. Native trout decision support model: summary report. Report of Oregon Department of Fish and Wildlife – Native Fish Investigations Program.

Meeuwig, M.H., and M.M. Peacock. 2012. Fishery research activities for Fallen Leaf Lake, California, 2009-2010: suggest fish assemblage monitoring protocol, and contemporary food web characteristics. Report of University of Nevada, Reno, to US Fish and Wildlife Service. (*and one interim scientific report*)

Meeuwig, M.H., P.J. Brown, and C.S. Guy. 2012. Use of mobile electrofishing to induce mortality in lake trout embryos: report of activities conducted during the 2011 project year. Report of MT Cooperative Fishery Research Unit to Montana Fish, Wildlife & Parks.

Fredenberg, W., M. Meeuwig, and C. Guy. 2007. Action plan to conserve bull trout in Glacier National Park. Report of US Fish and Wildlife Service and US Geological Survey to US National Park Service. (*and three interim investigator's annual reports*)

Meeuwig, M.H., and C.S. Guy. 2007. Evaluation and action plan for protection of 15 threatened adfluvial populations of bull trout in Glacier National Park, Montana. Final scientific report of MT Cooperative Fishery Research Unit to US Fish and Wildlife Service. (*and three interim scientific reports*)

Meeuwig, M.H., A.L. Puls, and J.M. Bayer. 2004. Survival and tag retention of Pacific lamprey larvae and macrophthalmia marked with coded wire tags. Report of US Geological Survey to US Fish and Wildlife Service, Vancouver, Washington.

Meeuwig, M.H., J.M. Bayer, R.A. Reiche. 2004. Identification of larval Pacific lampreys (*Lampetra tridentata*), river lampreys (*L. ayresi*), and western brook lampreys (*L. richardsoni*), and thermal requirements of early life history stages of lampreys. Final report of US Geological Survey to Bonneville Power Administration, Portland, Oregon. (*and four interim scientific reports*)

### **Professional Presentations**

- Brown, P., M. Meeuwig, and C. Guy. 2013. Efficacy of mobile electrofishing equipment for inducing lake trout embryo mortality. Western Division of the American Fisheries Society 2013 Annual Meeting, Boise, ID (04/13). ORAL PRESENTATION.
- Meeuwig, M., S. Clements, S. Gunckel, M. Heck, S. Jacobs, and S. Miller. 2013. Estimating abundance of redband trout in the Great Basin. Western Division of the American Fisheries Society 2013 Annual Meeting, Boise, ID (04/13). ORAL PRESENTATION, INVITED SPEAKER
- Smith, J., M. Meeuwig, and M. Peacock. 2013. Microsatellite study clarifies non-native threat to Lahontan cutthroat trout reintroduction in Fallen Leaf Lake, California. Western Division of the American Fisheries Society 2013 Annual Meeting, Boise, ID (04/13). ORAL PRESENTATION
- Meeuwig, M.H., S. Clements, and J.T. Peterson. 2012. Malheur's native fishes. Aquatic Health Workshop, Burns, OR (03/12). ORAL PRESENTATION
- Meeuwig, M.H., and M.M. Peacock. 2012. Food web characteristics of an alpine lake in relation to cutthroat trout reintroduction. Oregon Chapter of the American Fisheries Society 2012 Annual Meeting, Eugene, OR (02/12). ORAL PRESENTATION
- Meeuwig, M.H., and M.M. Peacock. 2011. Food web characteristics of an alpine lake in relation to cutthroat trout reintroduction. American Fisheries Society 2011 Annual Meeting, Seattle, WA (09/11). ORAL PRESENTATION
- Meeuwig, M.H., and M.M. Peacock. 2011. Research and monitoring for a Lahontan cutthroat trout reintroduction effort. Lahontan Cutthroat Trout Management Interagency Meeting (01/11). ORAL PRESENTATION
- Meeuwig, M.H., and M.M. Peacock. 2010. Reintroduction ecology of cutthroat trout in an alpine lake. Lahontan Cutthroat Trout Management Interagency Meeting (01/10). ORAL PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2009. Trophic relationships among bull trout, lake trout, and other fishes in a lake trout invaded system. American Fisheries Society 2009 Annual Meeting, Nashville, TN (08/09). ORAL PRESENTATION, INVITED SPEAKER
- Meeuwig, M.H. 2008. Ecology and conservation biology of lacustrine-adfluvial bull trout populations in an interconnected system of natural lakes. Dissertation Defense Seminar, Montana State University, Bozeman (11/08). ORAL PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2008. Trophic interactions between bull trout and lake trout in Glacier National Park, Montana. New Graduate Student Dinner, Bozeman, MT (09/08). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2008. Interactions between bull trout and lake trout for simulated cover habitat. Montana Chapter of the American Fisheries Society 2008 Annual Meeting, Billings, MT (02/08). ORAL PRESENTATION
- Fredenberg, W.A., M.H. Meeuwig, and C.S. Guy. 2008. Action plan to conserve bull trout in Glacier National Park. Crown of the Continent Research Learning Center Brown Bag Seminar Series (01/08). ORAL PRESENTATION

- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2007. Trophic interactions between bull trout and lake trout in Glacier National Park, Montana. Wild Trout IX Symposium, West Yellowstone, MT (10/07). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, and S.T. Kalinowski. 2007. Influence of landscape structure on genetic structure of bull trout in Glacier National Park, Montana. American Fisheries Society 2007 Annual Meeting, San Francisco, CA (09/07). ORAL PRESENTATION, INVITED SPEAKER
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2007. Trophic interactions between bull trout and lake trout in Glacier National Park, Montana. American Fisheries Society 2007 Annual Meeting, San Francisco, CA (09/07). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2007. Lake trout in the lakes of Glacier National Park, Montana. Montana Chapter of the American Fisheries Society 2007 Annual Meeting, Missoula, MT (02/07). ORAL PRESENTATION, INVITED SPEAKER, PANELIST
- Meeuwig, M.H., C.S. Guy, W.A. Fredenberg, and S.T. Kalinowski. 2007. Influence of migratory barriers on genetic diversity and similarity among bull trout populations in Glacier National Park, Montana. Montana Chapter of the American Fisheries Society 2007 Annual Meeting, Missoula, MT (02/07). ORAL PRESENTATION
- Meeuwig, M.H., C.S. Guy, W.A. Fredenberg, and W. Michels. 2006. Fishery surveys in Glacier National Park and preliminary assessment of bull trout population genetics. Bozeman Fish Technology Center Seminar Series (12/06). ORAL PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2006. Effects of lake trout presence and lake morphometry on the relative abundance of adfluvial bull trout in Glacier National Park, Montana. *Salvelinus confluentus* Curiosity Society 2006 (08/06). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, W.A. Fredenberg, and W. Michels. 2006. Distribution and abundance of bull trout in Glacier National Park: a function of barriers, lake trout, or both? Waterton-Glacier Science and History Day (07/06). ORAL PRESENTATION, INVITED SPEAKER
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2006. Effects of lake trout presence and lake morphometry on the relative abundance of adfluvial bull trout in Glacier National Park, Montana. Western Division of the American Fisheries Society 2006 Annual Meeting, Bozeman, MT (05/06). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, and W.A. Fredenberg. 2006. Fish assemblages of Glacier National Park, Montana. Western Division of the American Fisheries Society 2006 Annual Meeting, Bozeman, MT (05/06). POSTER PRESENTATION
- Meeuwig, M.H., C.S. Guy, A.M. Dux, W.A. Fredenberg, and W. Michels. 2005. Glacier National Park bull trout: knocking on heaven's door. *Salvelinus confluentus* Curiosity Society 2005 (09/05). ORAL PRESENTATION, INVITED SPEAKER
- Guy, C.S., A.M. Dux, M.H. Meeuwig, W.A. Fredenberg, and W. Michels. 2005. Bull trout and lake trout in Glacier National Park: a tragic combination. Waterton-Glacier Science and History Day (08/05). ORAL PRESENTATION, INVITED SPEAKER
- Meeuwig, M.H., J.M. Bayer, and R.A. Reiche. 2004. Thermal requirements of early life history stages of Pacific lampreys and western brook lampreys. Columbia River Lamprey Technical Workgroup, Vancouver, WA (03/04). ORAL PRESENTATION

Meeuwig, M.H., J.M. Bayer, and J.G. Seelye. 2002. Thermal requirements of early life history stages of Pacific lampreys and western brook lampreys. Third Annual US Geological Survey Conference on Science in Oregon and Southwest Washington, Troutdale, OR (10/02). POSTER PRESENTATION

Meeuwig, M.H., J.M. Bayer, and J.G. Seelye. 2002. Thermal requirements of early life history stages of Pacific lampreys and western brook lampreys. International Congress on the Biology of Fish, University of British Columbia, Vancouver, Canada (07/02). Abstract Published. ORAL PRESENTATION

Meeuwig, M.H., J.M. Bayer, and J.G. Seelye. 2001. Thermal requirements of early life history stages of Pacific lampreys and western brook lampreys. Native American Fish and Wildlife Society, Pendleton, OR (10/01). ORAL PRESENTATION

Meeuwig, M.H., J.M. Bayer, and J.G. Seelye. 2001. Thermal requirements of early life history stages of Pacific lampreys and western brook lampreys. Second Annual US Geological Survey Conference on Science in Oregon and Southwest Washington, Gresham, OR (10/01). POSTER PRESENTATION

Meeuwig, M.H. 2000. Effects of constant and cyclical thermal regimes on growth, feeding, and swimming performance of cutthroat trout of variable sizes. Thesis Defense Seminar, University of Nevada, Reno (02/00). ORAL PRESENTATION

### ***Guest Lectures***

Characterizing fish populations (one class period), April 2006, Fish and Wildlife Topics, F&WL 401 – Montana State University, D. Willey.

Buoyancy and sensory perception (one class period), February 2006, Ichthyology, BIOL 415 – Montana State University, S. Harting.

Stable isotope analysis in fish ecology (two class periods), February 2006, Topics in Fish Ecology, BIOL 452 – Montana State University, T. McMahon.

### ***Grants Received***

Documenting the Current Status of Bull Trout in the Odell Lake Recovery Unit

Source: US Fish and Wildlife Service

Duration: 10/13 – 09/15

Amount: \$60,000

Life-History Characteristics of Redband Trout in the Blitzen River Basin, Oregon

Source: US Army Corps of Engineers

Duration: 10/12 – 09/15

Amount: \$840,000

Spawning characteristics and early life history of mountain whitefish in the Madison River, Montana

Source: C. Walker Cross Foundation; Madison River Foundation

Duration: 01/12 – 12/12

Amount: \$56,000

Use of mobile electrofishing to induce mortality in lake trout embryos

Source: Montana Fish, Wildlife & Parks

Duration: 07/11 – 06/12

Amount: \$96,300

Characterization of naturalized rainbow trout (*Oncorhynchus mykiss*) populations in the Fallen Leaf Lake watershed

Source: US Fish and Wildlife Service

Duration: 05/10 – 05/11

Amount: \$50,329

Survival and tag retention of larval and recently metamorphosed Pacific lampreys marked with coded wire tags

Source: US Geological Survey

Duration: 03/04 – 12/04

Amount: \$13,661

### **Other Qualifications**

CPR and AED: American Red Cross, 10/11

Scientific Diver (SCUBA): US Geological Survey, 09/11

First Aid: American Red Cross, 09/11

Collaboration and Conflict Resolution: Continuing Education Course, Montana Chapter of the American Fisheries Society, 02/11

Motorboat Operators Certification Course: US Fish and Wildlife Service, 03/09

Fluvial Geomorphic Processes in River Restoration: Northwest Environmental Training Center, 09/06

Electrofishing Safety and Policy: Montana Fish, Wildlife and Parks, 05/04

Multivariate Statistical Analysis: National Conservation Training Center, 09/02

Microsoft Access Training: US Geological Survey, 03/01

SCUBA Certified: PADI, Advanced Open Water, 07/89

Software: SAS, Systat, SigmaPlot, ArcGIS and associated software, Microsoft Excel, Access, Word, and Powerpoint, ImagePro Plus (image analysis), GeneMapper, ProCite, and various population simulation and population genetics programs