

## **C. MICHAEL WAGNER**

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### **EDUCATION**

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Ph.D., University of Georgia (2004), Forest Resources (Fisheries Ecology)

Dissertation: An experimental study of foraging aggression in two southeastern minnows: implications for an ongoing invasion.

M.S., College of William & Mary (1997), Marine Science

Thesis: Correspondence between environmental gradients and the assemblage structure of littoral fishes in the tidal portion of three Virginia coastal plain rivers.

B.S., Texas A&M University - Galveston (1989), Marine Biology

### **EDUCATIONAL HONORS**

1998-2000 University of Georgia Graduate School, University-Wide Graduate Assistantship  
1997 Atlantic Estuarine Research Society, Best Student Paper (M.S. level)  
1989 Texas A&M University, Graduated Cum Laude  
1987-1988 Texas A&M University, A.B. and Hazel H. Carter Award  
1985-1989 New York State Board of Regents, Regents Scholarship for Academic Performance

### **PROFESSIONAL APPOINTMENTS**

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2014-present Associate Professor with Tenure, Michigan State University, Department of Fisheries and Wildlife  
2006-2013 Assistant Professor (tenure stream), Michigan State University, Department of Fisheries and Wildlife  
2004-2006 Visiting Assistant Professor, Michigan State University, Department of Fisheries and Wildlife  
1998-2004 Research assistant (graduate student), Warnell School of Forest Resources, University of Georgia  
1994-1997 Research assistant (graduate student), School of Marine Science, College of William and Mary (Virginian Institute of Marine Science).  
1991-1994 Environmental Scientist (GS-12), U.S. Environmental Protection Agency - Region 6, Water Management Division, Marine and Estuarine Section  
1990 Research Assistant I, University of Texas – Medical Branch, Galveston, TX.

## GRANTS AND AWARDS

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Career Awards as Principal Investigator (22):	\$ 4,132,319	(since 2014: \$2,451,545)
Career Awards as Co-Principal Investigator (16):	\$ 9,127,595	(since 2014: \$8,459,954)
CAREER TOTAL (38):	\$ 13,259,914	(since 2014: \$10,911,499)

### AWARDED (\* = active)

- 2025-2026\* Wagner CM (PI), Hrodey P, Booth R, Symbal M, Miehl S, Zielinski D. Toward effective fishing practices for migrating adult sea lamprey in large, difficult-to-assess rivers (Phase I): Systematic knowledge review and site assessment protocol development. Great Lakes Fishery Commission (invited submission). **\$206,353.**
- 2025-2027\* Scott AM (PI), Wagner CM, Li W, Symbal M, Booth R. Systematic overview of sea lamprey chemosensory cues and their potential management applications (Science Transfer). Great Lakes Fishery Commission (invited submission). **\$8000.**
- 2024-2029\* Johnson NS (PI) and 23 co-PIs (CM Wagner, co-PI). Deploy and evaluate sea lamprey controls that supplement lampricides and barriers – SUPCON Stage II. Great Lakes Fishery Commission. **\$3,905,000.**
- 2023-2024\* Wagner CM (PI). Unraveling the mystery of how sea lamprey migrate in the deep, cold waters of Lake Huron. Glassen Undergraduate Research Experience (funding for two undergraduate researchers). **\$6000.**
- 2023-2026\* Wagner CM (PI), Castro Santos TR, Cotel A. Development of a prototype two-channel fishway that selectively excludes and removes sea lamprey. Great Lakes Fishery Commission. **\$482,603.**
- 2023-2028\* Tan X (PI), Wagner CM + 9 others (co-PI). NRT-HDR: WaterCube: Convergent Graduate Training on Data-enabled Water Sustainability. National Science Foundation, National Research Traineeship Program. **\$3,000,000.**
- 2023-2025\* Miehl S (PI), Mulligan K, Haro A, Johnson N, Wagner CM. Using white light and alarm cue to direct downstream migrating transformed sea lamprey into traps. Great Lakes Fishery Commission. **\$98,763.**
- 2023-2024\* Dawson HA (PI), Lowe MR, Allison M, White T, Anderson J, Deng D, Wagner CM, Booth RMW, Symbal M. Reconnaissance: tracking outmigration of sea lampreys as they seek their first host. Great Lakes Fishery Commission. **\$21,304.**
- 2023-2024\* Flavio P (PI), Wagner CM, Miehl S, Deng D, Pye J, Wilkie M. Physiological and behavioral effects of tagging post-metamorphic sea lamprey with a micro-acoustic tag. Great Lakes Fishery Commission. **\$151,335 (Canadian Dollars).**
- 2022-2025\* Hume JB (PI), Wagner CM (co-PI). Sea Lamprey Aquaculture and Procurement Initiative (SLAP). Great Lakes Fishery Commission. **\$107,345.**
- 2022-2024\* Wagner CM (PI), Roth B. Connectivity and fishery enhancement in the coastal river mouths of Michigan. AgBioResearch, College of Agriculture and Natural Resources, Michigan State University. **\$140,000.**

- 2018-2024\* Wagner CM (PI), Holbrook C, Hrodey P, Meckley TD. Siting and application criteria for push-configuration open-water trapping of sea lamprey in rivers. Great Lakes Fishery Commission. **\$431,095**
- 2019-2022 Nair MG (PI), Wagner CM, Dissanayake A. Bioassay directed isolation and characterization of a natural sea lamprey deterrent – Phase II. Great Lakes Fishery Commission. **\$405,796**.
- 2019-2021 Li W (PI), Wagner, CM. PERM Agreement Support for Dr. John Hume. Great Lakes Fishery Commission. **\$208,392**.
- 2018-2022 Hume JB, Wagner CM (PI), Docker MF, Dawson H, Dobiesz N. Reducing uncertainty in the sea lamprey operating model with life-stage specific empirical evidence: a methodological approach and model-based evaluation. Great Lakes Fishery Commission. **\$234,386**.
- 2019-2021 Wagner CM (PI), Brenden T, Holbrook C, Deng D, Miehl S. Estimation of transformer out-migration mortality. Great Lakes Fishery Commission. **\$142,004**.
- 2017-2019 Johnson NS (PI), Siefkes M, Wagner CM, Bravener G, Steeves M, Twohey M. Optimize 3kPZS application rate to yield large and consistent catches of sea lamprey in barrier-integrated traps. Great Lakes Fishery Commission (jointly funded project with GLFT, below). **\$166,400**.
- 2017-2019 Johnson NS (PI), Siefkes M, Wagner CM, Bravener G, Steeves M, Twohey M. Optimize 3kPZS application rate to yield large and consistent catches of sea lamprey in barrier-integrated traps. Great Lakes Fishery Trust (jointly funded project with GLFC, above). **\$47,000**.
- 2016-2018 Nair M (PI), Wagner CM, Dissanayake A. Bioassay-directed isolation and characterization of a natural sea lamprey deterrent. Great Lakes Fishery Commission. **\$348,619**.
- 2016-2017 Wagner CM (PI), Hume JB, Lucas M, Reinhardt U, Hrodey, P. A proof-of-concept test of selective removal of sea lamprey via behavioral guidance in a model fishway. Great Lakes Fishery Commission. **\$160,691**.
- 2015 Wagner CM (PI), Hume JB. Toward sustainable barriers: exploring the interface of animal and human behavior to aid bidirectional fish passage and invasive species control in the Great Lakes. MSU VISTAS Travel Award. **\$3,969**.
- 2014-2016 Wagner CM (PI, shared), Nair M (PI, shared). Behavioral and Chemical Elucidation of the Sea Lamprey Alarm Substance. Great Lakes Fishery Commission. **\$355,401**.
- 2014-2016 Wagner CM (PI), Luhring T, Siefkes M, Johnson N, Twohey M, Miehl S. Implementing Trap-based Control of Sea Lamprey in the Great Lakes. U.S. Environmental Protection Agency. **\$495,396**.
- 2012-2013 Wagner CM (PI). Add-on to initiate a formal collaboration with Eliezer Gurarie (University of Washington) to develop novel methods for the co-analysis of three-dimensional behavioral and hydrographic information. Great Lakes Fishery Commission. **\$12,000**.

- 2012-2014 Wagner CM (PI), Johnson NS, Stroud E, Siefkes M, Twohey M. A species-specific chemical barrier to vastly improve sea lamprey control. U.S. Environmental Protection Agency. **\$392,823.**
- 2012-2013 Johnson NS, Wagner CM, Siefkes MJ, Li W. Application of natural male mating pheromone at management scales to increase sea lamprey capture and compare effectiveness to 3kPZS. Great Lakes Fishery Commission. **\$51,600.**
- 2011-2014 Wagner CM (PI), Stroud E. Development of a putrefaction-derived repellent for the sea lamprey. Great Lakes Fishery Commission. **\$180,902.**
- 2010-2013 Hanson J (PI), Wagner CM. Development of a controlled-release polymer for deployment of the sea lamprey pheromone 3-keto-petromyzonol sulfate. Great Lakes Fishery Commission. **\$171,582.**
- 2010-2011 Wagner CM (PI). Preliminary identification of a putrefaction-derived repellent for the invasive sea lamprey (*Petromyzon marinus*). Center for Water Sciences, Michigan State University. **\$10,000.**
- 2010-2013 Wagner CM (PI), Bergstedt RA, Li W, Twohey MB. A field investigation of the potential to control sea lamprey through pheromone-mediated redistribution of migrants in the Great Lakes. Great Lakes Fishery Commission. **\$359,402.**
- 2009-2010 Wagner CM (PI), Li W, Bergstedt RA. Sea lamprey staging behavior in response to variations in migratory pheromone compounds: a proof-of-concept study. Center for Water Sciences, Michigan State University. **\$9,956.**
- 2009-2011 Johnson N, Wagner CM, Siefkes M, Li W. Deployment of a synthesized pheromone for lamprey control. Great Lakes Fishery Commission. **\$406,459.**
- 2008-2009 Wagner CM (PI), Li W, Twohey MB, Bergstedt RA, McDonald R. A full-scale field test of the efficacy of the male mating pheromone compound 3-keto-petromyzonal-sulfate in trapping-for-control scenarios. Great Lakes Fishery Commission. **\$129,695.**
- 2007-2009 Wagner CM (PI). Identifying the most effective mixtures for use of the sea lamprey migratory pheromone in trapping and redistribution management scenarios. Great Lakes Fishery Commission. **\$173,583.**
- 2005-2007 Wagner CM (PI), Jones ML, Twohey MB, Sorensen PW. A field test of the potential for sea lamprey pheromones to promote trapping success in natural streams. Great Lakes Fishery Commission. **\$103,560.**
- 2003-2004 Grossman GD, Wagner CM (associate investigator, as graduate student). Effects of inter- vs. intraspecific interactions on the neuroendocrine stress axis. Georgia State University, Center for Behavioral Neuroscience. **\$30,000.**
- 2000-2003 Wagner CM (fellow). Science To Achieve Results (STAR) Graduate Fellowship. U.S. Environmental Protection Agency. **\$102,000.**
- 1999 Wagner CM. American Society of Ichthyologists and Herpetologists, Raney Award for Graduate Research. **\$500.**

## PUBLICATIONS

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*I currently follow the ecological tradition of placing myself last in the string of authors when I secured the funding and provided intellectual leadership for the project that generated the manuscript. Our lab policy is for lead authors to also be the corresponding author unless they choose otherwise.*

*Colors and symbols indicate authors who were mentored [graduate students](#) (\*), [undergraduate students](#) (#), or [post-doctoral fellows](#) (†). Agency partners are underlined.*

### REFEREED JOURNAL ARTICLES (SUBMITTED)

54. [Luehring MA\\*](#), Wagner CM. Strength or character? Variation in male odor influences female mate search behavior in sea lamprey. Submitted to Behavioral Ecology and Sociobiology.
53. [Feder ME\\*](#), Wagner CM. Building a natural repellent: Effects of varying alarm cue exposure on maintaining activity and unhabituated spatial avoidance in an invasive fish. Submitted to Conservation Physiology.

### REFEREED JOURNAL ARTICLES AND BOOK CHAPTERS (PUBLISHED)

52. [Griffin KR\\*](#), [Holbrook C](#), [Zielinski D](#), [Cahill C](#), Wagner CM. In Press. Not all who meander are lost: migrating sea lamprey follow river thalwegs to facilitate safe and efficient upstream passage. Journal of Experimental Biology. DOI: 10.1242/jeb.249539.
51. [Haro A](#), [Miehls S](#), [Johnson NS](#), Wagner CM. In Press. Field and laboratory evaluation of visible light as a cue for guiding downstream migrant sea lamprey (*Petromyzon marinus*). Transactions of the American Fisheries Society.
50. [Luhring TM†](#), [Hume JB†](#), Wagner CM. In Press. Predation risk creates unexpected migration decisions in a non-homing semelparous fish. Animal Behaviour. DOI: 10.1016/j.anbehav.2024.10.027.
49. [Lewandowski SA](#), [Robinson KF](#), [Brenden TO](#), [Booth R](#), [Hrodey P](#), [Hume JB](#), [Pratt TC](#), [Scott AM](#), [Symbal M](#), [Wagner CM](#), [Johnson NS](#). 2024. Decision analysis of integrated pest management: A case study on invasive sea lamprey. Journal of Environmental Management, 373: 123666. DOI: 10.1016/j.jenvman.2024.123666.
48. [Feder ME\\*](#), [Wisenden BD](#), [Luhring TM†](#), Wagner CM. 2024. Speed kills? Migrating sea lamprey (*Petromyzon marinus*) increase speed when exposed to an antipredator cue but make worse short-term decisions. Journal Great Lakes Research, 50: 102398. DOI: 10.1016/j.jglr.2024.102398.
47. [Clemens BJ](#), Wagner CM. 2024. Stream and river flows mediate adult lamprey spawning migrations: Considerations for management. River Research and Applications, 40: 1447-1468. DOI: 10.1002/rra.4322
46. [Haas TF\\*](#), [Brenden TO](#), [Deng ZD](#), Wagner CM. 2023. Evaluation of survival estimates generated from tracking downstream migrating juvenile sea lamprey (*Petromyzon marinus*) with a miniature acoustic telemetry tag. Canadian Journal of Fisheries and Aquatic Sciences, 81: 403-416. DOI: 10.1139/cjfas-2023-0194
45. Wagner CM, [Bals JD\\*](#), [Byford GJ\\*](#), [Scott AM](#), [Feder ME\\*](#). 2023. Olfactory sensitivity and threat-sensitive responses to alarm cue in an invasive fish. Biological Invasions, 25: 3083–3101. DOI: 10.1007/s10530-023-03092-6

44. [Haas TF\\*](#), [Castro-Santos T](#), [Miehls SM](#), [Deng ZD](#), [Bunning TM](#), [Wagner CM](#). 2023. Survival, healing, and swim performance of juvenile migratory sea lamprey (*Petromyzon marinus*) implanted with a new acoustic micro-transmitter designed for small eel-like fishes. *Animal Biotelemetry*, 11, Article number: 9. DOI: 10.1186/s40317-023-00318-1
43. [Mensch EL\\*](#), [Dissanayake AA](#), [Nair MG](#), [Wagner CM](#). 2022. The effect of putrescine on space use and activity in sea lamprey (*Petromyzon marinus*). *Nature Scientific Reports*. 12, 17400. DOI: 10.1038/s41598-022-22143-x
42. [Mensch EL\\*](#), [Dissanayake AA](#), [Nair MG](#), [Wagner CM](#). 2022. Sea lamprey alarm cue comprises water- and chloroform-soluble components. *Journal of Chemical Ecology*, 48: 704-717. DOI: 10.1007/s10886-022-01384-0
41. [Wagner CM](#), [Bals JD\\*](#), [Hanson ME\\*](#), [Scott AM](#). 2022. Attenuation and recovery of an avoidance response to a chemical antipredator cue in an invasive fish: implications for use as a repellent in conservation. *Conservation Physiology*, 10(1): coac019. DOI: 10.1093/conphys/coac019
40. [Wisenden BE](#), [Taylor AA](#), [Udem JD](#), [Wagner CM](#). 2022. Moby-Bass: suction feeding by predators limits direct release of alarm cues in fishes. *Behavioral Ecology and Sociobiology*, 76: 33. DOI: 10.1007/s00265-022-03146-0
39. [Dissanayake A](#), [Wagner CM](#), [Nair M](#). 2021. Evaluation of Health Benefits of Sea Lamprey (*Petromyzon marinus*) Isolates Using In Vitro Anti-inflammatory and Antioxidant Assays. *PLoS One*, 16(11): e0259587. DOI: 10.1371/journal.pone.0259587
38. [Sabal MC](#), [Boyce MS](#), [Charpentier CL](#), [Furey NB](#), [Luhring TM†](#), [Martin HW](#), [Melnychuk MC](#), [Srygley RB](#), [Wagner CM](#), [Wirsing AJ](#), [Ydenberg RC](#), [Palkovacs EP](#). 2021. Predation Landscapes Influence Migratory Prey Ecology and Evolution. *Trends in Ecology and Evolution*, 36:737-749. DOI: 10.1016/j.tree.2021.04.010
37. [Evans TM](#), [Wagner CM](#), [Haas TF\\*](#), [Miehls SM](#), [Johnson NS](#), [Moser MB](#), [Dunlop E](#), [Manzon R](#). 2021. Before the first meal: Sea lamprey life history after metamorphosis but before parasitic feeding and potential research directions. *Journal of Great Lakes Research*, 47: S580-S589. DOI: 10.1016/j.jglr.2021.02.005
36. [Fisette S](#), [Scott A](#), [Wagner CM](#), [Buchinger T](#), [Johnson NS](#), [Li W](#). 2021. Semiochemicals for use in sea lamprey control: review and prospectus. *Journal of Great Lakes Research*, 47: S660-S672. DOI: 10.1016/j.jglr.2021.02.008
35. [Haro A](#), [Miehls S](#), [Johnson NS](#), [Wagner CM](#). 2020. Evaluation of visible light as a cue for guiding downstream migrant juvenile Sea Lamprey (*Petromyzon marinus*). *Transactions of the American Fisheries Society*, 149: 635-647. DOI: 10.1002/tafs.10261
34. [Hume JB†](#), [Lucas MC](#), [Reinhardt U](#), [Hrodey PJ](#), [Wagner CM](#). 2020. Sea lamprey (*Petromyzon marinus*) transit of a ramp equipped with studded substrate: Implications for fish passage and invasive species control. *Ecological Engineering*, 155: 105957. DOI: 10.1016/j.ecoleng.2020.105957
33. [Hume JB†](#), [Luhring TM†](#), [Wagner CM](#). 2020. Push, pull, or push-pull? A predation cue better guides migrating sea lamprey towards capture devices than a mating pheromone during the reproductive migration. *Biological Invasions*, 22: 2129–2142. DOI: 10.1007/s10530-020-02242-4
32. [Johnson NS](#), [Lewandoski S](#), [Bethany JA](#), [O'Connor L](#), [Bravener G](#), [Hrodey P](#), [Huerta B](#), [Barber J](#), [Li W](#), [Wagner CM](#), [Siefkes MJ](#). 2020. Behavioral responses of sea lamprey to varying application rates of a synthesized pheromone in diverse trapping applications. *Journal of Chemical Ecology*, 46: 233-249.

DOI: 10.1007/s10886-020-01151-z

31. Dissanayake A, Wagner CM, Nair MG. 2019. Nitrogenous compounds characterized in the deterrent skin extract of migratory adult sea lamprey from the Great Lakes region. PLOS ONE, 14(5): e0217417. DOI: 10.1371/journal.pone.0217417
30. Johnson NS, Miehls SM, Haro A, Wagner CM. 2019. Push and pull of downstream moving juvenile sea lamprey (*Petromyzon marinus*) exposed to chemosensory and light cues. Conservation Physiology, 7(1): coz080. DOI: 10.1093/conphys/coz080
29. Wagner CM, Hanson JE, Meckley TD\*, Johnson NS, Bals JD\*. 2018. A simple, cost-effective emitter for controlled release of fish pheromones: development, testing, and application to management of the invasive sea lamprey. PLOS ONE 13(6): e0197569
28. Hume JB†, Wagner CM. 2018. A death in the family: sea lamprey (*Petromyzon marinus*) avoidance of confamilial alarm cues diminishes with phylogenetic distance. Ecology and Evolution 8: 3751–3762. DOI: 10.1002/ece3.3930
27. Meckley TD\*, Gurarie E, Miller JR, Wagner CM. 2017. How do fishes find the shore? Evidence for orientation to bathymetry from the non-homing sea lamprey. Canadian Journal of Fisheries and Aquatic Sciences, 74: 2045-2058. DOI: 10.1139/cjfas-2016-0412
26. Barnett M, Imre I, Wagner CM, DiRocco RT, Johnson NS, Brown GE. 2016. Evaluating potential artefacts of photo-reversal on behavioral studies with nocturnal invasive sea lamprey. Canadian Journal of Zoology, 94: 405-410. DOI: 10.1139/cjz-2015-0254
25. Byford GJ\*, Hume JB†, Moser ML, Wagner CM. 2016. Do native Pacific lamprey and invasive sea lamprey share an alarm cue? Implications for use of a natural repellent to guide imperiled Pacific lamprey into fishways. North American Journal of Fisheries Management, 35: 1090-1096. DOI: 10.1080/02755947.2016.1198286
24. Dawson HA, Jones ML, Irwin BJ, Johnson NS, Wagner CM, Szymanski M. 2016. Management strategy evaluation of a new control tactic to manage an invasive fish. Natural Resources Modeling, 29: 448-469. DOI: 10.1111/nrm.12096
23. Dissanayake A, Wagner CM, Nair MG. 2016. Chemical characterization of lipophilic constituents in the skin of migratory adult sea lamprey from the Great Lakes region. PLoS ONE, 11(12): e0168609. DOI:10.1371/journal.pone.0168609
22. Gurarie E, Delgado M, Bracis C, Meckley TD\*, Kojola I, Wagner CM. 2016. What is the animal doing? Tools for exploring behavioural structure in animal movements. Journal of Animal Ecology, 85: 69–84. DOI: 10.1111/1365-2656.12379
21. Luhning TM†, Meckley TD\*, Johnson NS, Siefkes MJ, Hume JB†, Wagner CM. 2016. A semelparous fish continues upstream migration when exposed to alarm cue but adjusts movement speed and timing. Animal Behaviour, 121: 41-51. DOI: 10.1016/j.anbehav.2016.08.007
20. Wagner CM, Kierczynski K‡, Hume JB†, Luhning TM†. 2016. Exposure to an adult alarm cue suppresses downstream movement in larval sea lamprey *Petromyzon marinus* in the laboratory. Journal of Fish Biology, 89: 1897-1904. DOI: 10.1111/jfb.13095
19. Hume JB†, Meckley TD\*, Johnson NS, Luhning TM†, Siefkes MJ, Wagner CM. 2015. The application of an alarm cue in a push-pull configuration hastens arrival of invasive sea lamprey (*Petromyzon marinus*) at a trapping location. Canadian Journal of Fisheries and Aquatic Science, 72: 1799-1806. DOI: 10.1139/cjfas-2014-0535

18. Johnson NS, [Siefkes MJ](#), Wagner CM, [Bravener G](#), [Steeves M](#), [Twohey MB](#), Li W. 2015. Factors influencing capture of sea lamprey in traps baited with a synthesized pheromone component. *Journal of Chemical Ecology* 41: 913-923. DOI: 10.1007/s10886-015-0626-2
17. Johnson NS, [Tix JA](#), [Hlina BL](#), Wagner CM, [Siefkes MJ](#), Wang H, Li W. 2015. Sea lamprey sex pheromone mixture increases trap catch relative to a single synthesized component in specific environments. *Journal of Chemical Ecology* 41: 311-321. DOI: 10.1007/s10886-015-0561-2
16. [Meckley TD\\*](#), [Holbrook C](#), Wagner CM, [Binder TR](#). 2014. An approach for filtering hyperbolically positioned underwater acoustic telemetry data with position precision estimates. *Animal Biotelemetry*, 2:7 (28 April 2014). DOI:10.1186/2050-3385-2-7
15. [Meckley TD\\*](#), Wagner CM, Gurarie E. 2014. Coastal movements of migrating sea lamprey (*Petromyzon marinus*) in response to a partial pheromone: implications for management of invasive populations. *Canadian Journal of Fisheries and Aquatic Sciences*, 71(4): 533-544. DOI: 10.1139/cjfas-2013-0487
14. Johnson NS, [Siefkes MJ](#), Wagner CM, Dawson HA, Wang H, [Steeves T](#), [Twohey MB](#), Li W. 2013. A synthesized mating pheromone component increases adult sea lamprey (*Petromyzon marinus*) trap capture in management scenarios. *Canadian Journal of Fisheries and Aquatic Sciences*, 70:1101-1108. DOI: 10.1139/cjfas-2013-0080
13. Wagner CM, Rice PH, Pease AP. 2013. First record of dicephalia in a bull shark foetus *Carcharhinus leucas* (Chondrichthyes: Carcharhinidae) from the Gulf of Mexico, U.S.A. *Journal of Fish Biology*, 82: 1419–1422. DOI: 10.1111/jfb.12064
12. Wagner CM, Grossman GD. 2013. Input matching and patch use by native and invasive minnows. *Ecology of Freshwater Fish*, 22: 55-65. DOI: 10.1111/eff.12001
11. [Bals JD\\*](#), Wagner CM. 2012. Behavioral responses of sea lamprey (*Petromyzon marinus*) to a putative alarm cue derived from conspecific and heterospecific sources. *Behaviour*, 149: 901-923. DOI: 10.1163/1568539X-00003009
10. [Meckley TD\\*](#), Wagner CM, [Luehring MA\\*](#). 2012. Field evaluation of larval odor and mixtures of synthesized pheromone components for attracting migrating sea lampreys in rivers. *Journal of Chemical Ecology*, 38:1062–1069. DOI: 10.1007/s10886-012-0159-x
9. Wagner CM, Stroud EM, [Meckley TD\\*](#). 2011. A deathly odor suggests a new sustainable tool for controlling a costly invasive species. *Canadian Journal of Fisheries and Aquatic Sciences*, 68: 1157–1160. DOI: 10.1139/f2011-072
8. [Luehring MA\\*](#), Wagner CM, Li W. 2011. The efficacy of two synthesized sea lamprey sex pheromone components as a trap lure when placed in direct competition with natural male odors. *Biological Invasions*, 13: 1589–1597. DOI: 10.1007/s10530-010-9916-3
7. Grossman GD, Ratajczak RE, Farr MD, Wagner CM, Petty JT. 2010. Why Are There Fewer Fish Upstream? Pages 63-82 in Gido, K.B. and Jackson, D.A. (eds.) *Community Ecology of Stream Fishes: Concepts, Approaches, and Techniques*. American Fisheries Society Symposium, volume 73. DOI: 10.47886/9781934874141.ch4
6. Grossman GD, Ratajczak RE, Wagner CM, Petty JT. 2010. Dynamics and population regulation of southern brook trout (*Salvelinus fontinalis*) in an Appalachian stream. *Freshwater Biology* 55: 1494-1508. DOI: 10.1111/j.1365-2427.2009.02361.x
5. Wagner CM, [Twohey MB](#), Fine JM. 2009. Conspecific cueing in the sea lamprey: do reproductive



migrations consistently follow the most intense larval odor? *Animal Behavior* 78: 593–599. DOI: 10.1016/j.anbehav.2009.04.027

4. Li W, [Twohey MB](#), Jones M, Wagner CM. 2007. Research to guide use of pheromones to control sea lamprey. *Journal of Great Lakes Research* 33 (Special Issue 2):70–86. DOI: 10.3394/0380-1330(2007)33[70:RTGUOP]2.0.CO;2
3. Wagner CM, Jones ML, [Twohey MB](#), Sorensen PW. 2006. A field test verifies that pheromones can be useful for sea lamprey (*Petromyzon marinus*) control in the Great Lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 63: 475-479. DOI: 10.1139/f06-008
2. Wagner CM. 1999. Expression of the estuarine species minimum in littoral fish assemblages of the lower Chesapeake Bay tributaries. *Estuaries* 22: 304-312. DOI: 10.2307/1352986
1. Wagner CM, Austin HM. 1999. Correspondence between environmental gradients and summer littoral fish assemblages in low salinity reaches of the Chesapeake Bay, USA. *Marine Ecology Progress Series* 177: 197-212. DOI: 10.3354/meps177197

#### PROJECT REPORTS (not peer-reviewed)

20. Flavio H, Wagner CM, Miehl S, Deng D, Pye J, Wilkie, M. 2024. Physiological and behavioural effects of tagging post-metamorphic sea lamprey with a microacoustic tag. Great Lakes Fishery Commission.
19. Wagner CM. 2023. NIFA Final Report: Developing novel strategies for the control of Great Lakes sea lamprey based on the manipulation of movements and decisions.
18. Nair MG, Wagner CM, Dissanayake A, [Mensch E\\*](#). 2022. Bioassay directed isolation and characterization of a natural sea lamprey deterrent – Phase II. Great Lakes Fishery Commission.
17. [Hume JB†](#), Wagner CM, Docker MF, Dawson H, Dobiesz N. 2022. Reducing uncertainty in the sea lamprey operating model with life-stage specific empirical evidence: a methodological approach and model-based evaluation. Great Lakes Fishery Commission.
16. Wagner CM, [Haas TF\\*](#), Brenden T, Holbrook C, Deng D, Miehl S. 2021. Estimation of transformer out-migration mortality. Great Lakes Fishery Commission.
15. Wagner CM. 2018. NIFA Umbrella Project Final Report: Developing useful management applications for the Great Lakes based on the application of sea lamprey pheromones.
14. Nair M, Wagner CM, Dissanayake A. 2018. Project Completion Report: Bioassay-directed isolation and characterization of a natural sea lamprey deterrent. Great Lakes Fishery Commission.
13. [Hume JB†](#), Wagner CM, Lucas M, Reinhardt U, Hrodey P. 2017. Project Completion Report: A proof-of-concept test of selective removal of sea lamprey via behavioral guidance in a model fishway. Great Lakes Fishery Commission.
12. Wagner CM, [Luhning TM†](#), Siefkes MJ, Johnson NS, Twohey MB, Miehl A. 2016. Project Completion Report: Implementing Trap-based Control of Sea Lamprey in the Great Lakes. US Environmental Protection Agency.
11. Wagner CM, [Byford GJ\\*](#), Nair MG, Miller JR. 2016. Project Completion Report: Altering migratory routes of sea lamprey through push-pull application of semiochemicals. Great Lakes Fishery Commission.
10. Wagner CM, [Hume JB†](#). 2014. Project Completion Report: A species-specific chemical barrier to vastly improve sea lamprey control. US Environmental Protection Agency.
9. Wagner CM, Stroud E. 2014. Project Completion Report: Development of a putrefaction-derived

repellent for the sea lamprey. Great Lakes Fishery Commission.

8. Johnson NS, Wagner CM, Siefkes MJ, Li W. 2013. Project Completion Report: Application of natural male mating pheromone at management scales to increase sea lamprey capture and compare effectiveness to 3kPZS. Great Lakes Fishery Commission.
7. Hanson JE, Wagner CM. 2013. Project Completion Report: Development of a controlled-release polymer for deployment of the sea lamprey pheromone 3-keto-petromyzonol sulfate. Great Lakes Fishery Commission.
6. Wagner CM, Bergstedt RA, Li W, Twohey MB. 2013. Project Completion Report: A field investigation of the potential to control sea lamprey through pheromone-mediated redistribution of migrants in the Great Lakes. Great Lakes Fishery Commission.
5. Johnson NS, Wagner CM, Siefkes MJ, Li W. 2011. Project Completion Report: Deployment of a synthesized pheromone for lamprey control. Great Lakes Fishery Commission.
4. Wagner CM, Thomas A, Li W, Twohey MB, Bergstedt RA, McDonald R. 2011. Project Completion Report: A full-scale field test of the efficacy of the male mating pheromone compound 3-keto-petromyzonal-sulfate in trapping-for-control scenarios. Great Lakes Fishery Commission.
3. Wagner CM, Meckley TD. 2009. Project Completion Report: Identifying the most effective mixtures for use of the sea lamprey migratory pheromone in trapping and redistribution management scenarios. Great Lakes Fishery Commission.
2. Wagner CM, Luehring MA\*. 2007. Project Completion Report: A field test of the potential for sea lamprey pheromones to promote trapping success in natural streams. Great Lakes Fishery Commission.
1. Austin HM, Seaver DM, Wagner CM. 1997. Monitoring juvenile recreational fishes on the ocean beaches and eastern shore of Virginia with special focus on developing a bluefish, *Pomatomus saltatrix*, Young-of-the-Year index in Virginia. Vir. Inst. Mar. Sci. 133 p.

## **PROFESSIONAL PRESENTATIONS**

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*Colors indicate speakers who were mentored [graduate students](#) (or\*), [undergraduate students](#) (or ‡), or [post-doctoral research associates](#) (or †).*

## **INVITED SCIENTIFIC PRESENTATIONS**

36. Wagner CM, Haas TF\*, Brenden T, Deng D. 2023. Investigations of seaward migration and survival of juvenile sea lamprey using ELAT, a micro-acoustic transmitter. Pacific Lamprey Conservation Initiative Information Exchange. 13 December 2023. Virtual.
35. Wagner CM, Hume JB†, Castro-Santos T, Hrodey P, Lucas M. 2023. Field test of a fishway that excludes an invasive species via behavioral manipulation. Exploration of the science and innovation supporting selective connectivity at barriers (special symposium), Annual Meeting of the American Fisheries Society, Grand Rapids, MI.
34. Griffin KR\*, Wagner CM, Zielinski D, Holbrook C, Cahill C, Hrodey P, Meckley TD\*, McElroy B. 2023. Swimming a fine line: How migrating sea lamprey navigate complex habitats. Pacific Lamprey Conservation Initiative Information Exchange. 13 December 2023. Virtual.
33. Wagner CM, Bals JD\*, Byford GJ\*, Griffin KR\*, Hanson ME\*, Hume JB†, Luehring TM†, Scott A. 2022. Is it better to be loved or feared? Manipulating chemical information to improve management of

- invasive sea lamprey in the Laurentian Great Lakes. Symposium on Physiology of Invasive Fishes, International Congress on the Biology of Fish, Montpellier, France, 30 June 2022.
32. Wagner CM, Castro-Santos T, Hume JB<sup>†</sup>. 2021. Development of a two-channel selective fishway for sea lamprey, and a wee bit about cognition. Cross-continental Fish Passage and Conservation Research Workshop (online), 19 May 2021.
  31. Wagner CM, Luhring TM<sup>†</sup>, Bals JD\*, Byford GJ\*, Meckley TD\*, Hume JD<sup>†</sup>, Hanson ME\*. 2019. Context-specific selection of anti-predator tactics during the spawning migration of sea lamprey. Symposium on Migration and Predation, American Fisheries Society Annual Meeting, 3 Oct 2019, Reno, NV.
  30. Wagner CM. 2020. Chemosensory Research: where do we go from here? SLAWS meeting of the Great Lakes Fishery Commission, 22 Jan 2020, Traverse City, MI.
  29. Wagner CM, Luhring TM<sup>†</sup>, Bals JD\*, Byford GJ\*, Meckley TD\*, Hume JD<sup>†</sup>, Hanson ME\*. 2019. Context-specific selection of anti-predator tactics during the spawning migration of sea lamprey. Symposium on Migration and Predation, American Fisheries Society Annual Meeting, 3 Oct 2019, Reno, NV.
  28. Wagner CM. 2019. Can we manipulate the movement decisions made by migrating lampreys? Third Sea Lamprey International Symposium, 30 July 2019, Detroit, MI.
  27. Wagner CM. 2018. The sea lamprey's cryptic migration: unraveling 'big behaviors' with large-scale hypothesis driven field experiments. Dept. of Marine Biology, Texas A&M University, 22 March 2018, Galveston, TX.
  26. Wagner CM. 2017. Under Pressure: Decoding the migratory strategy of the invasive Great Lakes sea lamprey. Western Michigan University, January 27, 2017.
  25. Wagner CM. 2016. Selective fish passage concepts for the Boardman River – an interactive discussion. GLFC Selective Fish Passage Workshop I, Nov, 2, 2016, Windsor, ON, Canada.
  24. Wagner CM, Byford GJ\*, Luhring TM<sup>†</sup>, Hume JB<sup>†</sup>, Bals JD\*, Nair M. 2016. Sea Lamprey Responses to Chemical Alarm Signaling in the Lab and Field: Applications for Invasive Species Management and Selective Fish Passage. Theory and Application of Behavioral Guidance Technologies to Deter Invasive and Native Fish (Symposium), American Fishery Society Meeting, Aug. 25, 2016, Kansas City, MO.
  23. Wagner CM, Meckley TD\*, Gurarie E, Miller J. 2015. A fish out of (salt) water: Swimming upstream to decode the migratory strategy of the Sea Lamprey. 75<sup>th</sup> Anniversary Alumni Research Symposium, Virginia Institute of Marine Science, Oct. 9, 2015, Gloucester Point, VA.
  22. Hume JB<sup>†</sup>, Wagner CM. 2015. Making an ugly fish sexy: Can a lamprey be a useful model organism for studying evolutionary ecology. Eastern Michigan University, 14 October 2015, Ypsilanti, MI.
  21. Meckley TD\*, Wagner CM, Mantha P, Nguyen T, Gurarie E. 2014. Understanding the sea lamprey migration: from open water to the coast. Bill Fagan Lab, College Park, MD. 22, September 2014.
  20. Wagner CM, Bals JD\*, Byford GJ\*, Hume JB<sup>†</sup>, Meckley TD\*, Miller J, Nair M, Stroud E. 2014. Risk-mediated habitat selection by sea lamprey during the reproductive migration. International Conference on the Biology of Fishes, 4 August 2014, Edinburgh, Scotland.
  19. Wagner CM and 15 others. 2014. Pushing pheromones forward – attraction/repulsion approaches. Annual meeting of the Great Lakes Fishery Commission, 2 June 2014, Chicago, IL.
  18. Wagner CM. 2014. Risk and Reward: Chemically-mediated decision-making in sea lamprey. University of Guelph, 4 Feb 2014, Guelph, ONT, Canada.

17. Wagner CM. 2013. Risk and Reward: Chemically mediated decision-making in sea lamprey. Purdue University, 24 Sept 2013, Lafayette, IN.
16. Wagner CM. 2013. Risk and Reward: Chemically mediated decision-making in sea lamprey. Bowling Green State University, 25 Sept 2013, Bowling Green, OH.
15. Bals JD\*, Wagner CM. 2012. Using conspecific alarm cues to manipulate sea lamprey migrations. Annual Meeting of the American Fisheries Society Symposium: Biology and Control of Invasive Fishes. St. Paul, MN.
14. Meckley TD\*, Wagner CM, Holbrook C, Mantha P. 2012. Illustrating the sea lamprey migration: Can we draw them in? American Fisheries Society Annual Meeting Symposium: Advances in Telemetry in the Great Lakes and Beyond. St. Paul, MN.
13. Siefkes MJ, Johnson NS, Li W, Wagner CM. 2012. Understanding chemosensory communication in the sea lamprey: implications for sea lamprey control. American Fisheries Society Annual Meeting Symposium: Biology and Control of Invasive Fishes. St. Paul, MN.
12. Wagner CM, Bals JD\*, Stroud EM. 2012. Alarming Developments: Investigations of a Natural Repellent for Sea Lamprey Control. Sea Lamprey Control Board, Great Lakes Fishery Commission, Ann Arbor, MI.
11. Wagner CM. 2011. My Semiochemical Romance: Lampreys, pheromones, and invasive species control. Seton Hall University, Newark, N.J.
10. Wagner CM. 2010. Widespread PANIC! How a False Alarm May Get Us Closer to Targets. Great Lakes Fishery Commission Annual Meeting, Sault Ste. Marie, Ontario, CAN.
9. Wagner CM. 2010. Recent Developments in Pheromone-based Control of Invasive Sea Lamprey in the Great Lakes. Great Lakes Panel on Aquatic Invasive Species, Maumee Bay State Park, OH.
8. Wagner CM. 2010. Movers and Brakers: Testing Pheromones in Redistribution Scenarios. Great Lakes Fishery Commission, Sea Lamprey Integration Committee, Ann Arbor, MI.
7. Wagner CM. 2010. Why Sea Lamprey Control Needs Behavioral Ecology (and vice versa). Annual Meeting of the Lake Committees, Windsor, Ontario, CAN.
6. Wagner CM. 2010. Why Sea Lamprey Control Needs Behavioral Ecology (and vice versa). Great Lakes Fishery Commission, Sea Lamprey Annual Working Session, Traverse City, MI.
5. Wagner CM. 2009. Sea lamprey pheromones: the potential for pest management. SeaGrant Regional Fishery Workshop, Ludington, MI.
4. Wagner CM. 2007. On the Path to Pheromone Control: Strategic Planning. Sea Lamprey Integration Committee fall meeting. Ann Arbor, MI.
3. Wagner CM. 2007. On the Path to Pheromone Control: Strategic Planning for 2010 and Beyond. Annual Meeting of the Great Lakes Fishery Commission. Traverse City, MI.
2. Wagner CM. 2006. The Potential for Managing Great Lakes Sea Lamprey with Pheromones. Pere Marquette Sea Lamprey Symposium, Ludington, MI.
1. Wagner CM. 2006. From Lab to Field: Investigations of Sea Lamprey Responses to Pheromones in Natural Streams. Annual Meeting of the American Fisheries Society, Lake Placid, NY.

#### CONTRIBUTED SCIENTIFIC PRESENTATIONS

91. Jones M#, Wagner CM, Gonzalez X#, Bergstedt R, Larson E. 2024. Casting toward shore: vertical

movements reveal timing and duration of shoreward migration in sea lamprey. Annual meeting of the International Association for Great Lakes Research. Windsor, Ontario.

90. [Gonzalez X<sup>‡</sup>](#), Wagner CM, [Jones M<sup>‡</sup>](#), Bergstedt R, Larson E. 2024. First observations of host finding behaviors of parasitic sea lamprey in the wild. Annual meeting of the International Association for Great Lakes Research. Windsor, Ontario.
89. [Griffin KR<sup>\\*</sup>](#), Wagner CM, Zielinski D, Holbrook C, Cahill C, Hrodey P, [Meckley TD<sup>\\*</sup>](#), McElroy B. 2023. Swimming a fine line: How migrating sea lamprey navigate complex habitats. International Conference on Fish Telemetry. 15 June 2023. Setè, France.
88. [Griffin KR<sup>\\*</sup>](#), Wagner CM, Zielinski D, Holbrook C, Cahill C, Hrodey P, [Meckley TD<sup>\\*</sup>](#), McElroy B. 2023. Swimming a fine line: How migrating sea lamprey navigate complex habitats. American Fisheries Society Annual Meeting. 23 August 2023. Grand Rapids, MI.
87. [Haas TF<sup>\\*</sup>](#), Wagner CM, Castro-Santos TR, Miehl SM, Bruning T. 2021. An Assessment of the Physiological Effects from the Surgical Implantation of a Dummy JSATS Microacoustic Transmitter in Juvenile Sea Lamprey. Michigan State University, Fisheries and Wildlife Graduate Student Organization Annual Symposium. Virtual Conference.
86. [Haas TF<sup>\\*</sup>](#), Wagner CM, Castro-Santos TR, Miehl SM, Bruning T. 2021. An Assessment of the Physiological Effects from the Surgical Implantation of a Dummy JSATS Microacoustic Transmitter in Juvenile Sea Lamprey. Great Lakes Acoustic Telemetry Observation System Annual Meeting, Virtual Conference.
85. [Griffin KR<sup>\\*</sup>](#), Wagner CM. 2020. Fear, Flows, and the Herding of Fish: Can we create a ‘fishable’ situation for invasive sea lamprey? Great Lakes Acoustic Telemetry Observation System 2020 Coordination Meeting, Ann Arbor, MI.
84. [Griffin KR<sup>\\*</sup>](#), Wagner CM. 2020. Fear, Flows, and the Herding of Fish: Can we create a ‘fishable’ situation for invasive sea lamprey? February 21, 2020, Michigan State University’s Fisheries and Wildlife Graduate Student Organization Symposium, East Lansing, MI.
83. [Mensch EL<sup>\\*</sup>](#), Wagner CM, Nair MG, Dissanayake AA. Crying wolf in sheep’s clothing: can we bottle “fear” to trick invasive species and achieve conservation outcomes? February 21, 2020, Michigan State University’s Fisheries and Wildlife Graduate Student Organization Symposium, East Lansing, MI.
82. Wagner CM, [Byford GJ<sup>\\*</sup>](#), [Luhning TM<sup>‡</sup>](#). Avoidable vs. unavoidable risk: chemical information landscapes affect response to a conspecific habitat quality cue in migrating sea lamprey. Predator-Prey Interactions (Gordon Research Conference), 28 Jan 2020, Ventura, CA
81. [Griffin KR<sup>\\*</sup>](#), Wagner CM. 2019. Understanding sea lamprey movement decisions will lead to more effective assessment and control methods. Poster presentation to the Third Sea Lamprey International Symposium, 28 July 2019, Detroit, MI.
80. [Hanson ME<sup>\\*</sup>](#), Wagner CM. 2019. Making a Repellent: Overcoming Physiological Impediments to Guiding Migratory Lamprey with an Alarm Cue. Poster presentation to the Third Sea Lamprey International Symposium, 28 July 2019, Detroit, MI.
79. [Hume JB<sup>‡</sup>](#), [Luhning TM<sup>‡</sup>](#), Wagner CM (2019) Push it: death is a stronger motivator than sex during the sea lamprey spawning migration. International Association for Great Lakes Research, Brockport, NY, USA. June 2019.
78. Wagner CM. 2019. Manual tracking of sea lamprey in open waters: experiences and outcomes. Annual meeting of GLATOS, 26 Feb 2019, Ann Arbor, MI.

77. [Hanson ME\\*](#), Wagner CM. 2019. Defeating habituation to an anti-predator cue in sea lamprey: A step towards invasive species control. 14<sup>th</sup> Annual Department of Fisheries and Wildlife Graduate Student Symposium, 22 Feb 2019, East Lansing, MI.
76. Nair M, Wagner CM. 2018. Bioassay directed isolation and characterization of a natural sea lamprey deterrent – Phase II. Sea Lamprey Research Board, GLFC, March 8, 2018, Cleveland, OH.
75. Wagner CM. 2018. Estimation of transformer out-migration mortality. Sea Lamprey Research Board, GLFC, 8 March 2018, Cleveland, OH.
74. Wagner CM. 2018. Can we fish migrating sea lamprey in open rivers? Annual meeting of the Great Lakes Acoustic Telemetry Observing System, Feb. 27, 2018, Ann Arbor, MI.
73. Wagner CM, [Byford GJ\\*](#). 2017. Completion Report - Altering migratory routes of sea lamprey through push-pull application of semiochemicals. GLFC Sea Lamprey Research Board, March 9, 2017, Ann Arbor, MI.
72. [Hume JB†](#), Wagner CM, Lucas MC, Reinhardt U. 2017. Intraspecific differences in sea lamprey behaviour impact passage outcomes in a model fishway. Canadian Conference for Fisheries Research. January 2017, Montreal, Canada.
71. Wagner CM. 2016. Toward sustainable barriers: Exploring bi-directional fish passage and invasive species control in the Great Lakes. VISTAS investigator meeting, Nov. 17, 2016, ESPP Program, MSU, East Lansing, MI.
70. [Meckley TD\\*](#), Wagner CM, Mantha P, Nguyen T, Gurarie E, Holbrook C, Miller J. 2016. Can We Manipulate Reproductive Migrations? Lamprey Search Behavior and Habitat Selection Presents Opportunities for Improved Conservation. American Fishery Society Meeting, Aug. 25, 2016, Kansas City, MO.
69. [Meckley TD\\*](#), Wagner CM, Mantha P, Nguyen T, Gurarie E, Holbrook C. 2016. Migrating without a map: How does a non-homing fish find a suitable habitat? NOAA, July 21, 2016., Silver Spring, MD.
68. [Hume JB†](#), Wagner CM. 2016. Push-Pull manipulation: achieving trapping and/or passive sorting of lampreys in fishway. GLFC SLAWS Biennial Meeting, Feb. 4, 2016, Traverse City, MI.
67. [Byford GJ\\*](#), Wagner CM. 2016. Apparent risk of predation alters migratory sea lamprey response to a habitat-selection cue. Poster presentation. GLFC SLAWS Biennial Meeting, Feb. 4, 2016, Traverse City, MI.
66. [Byford GJ\\*](#), Wagner CM. 2015. Does the Apparent Risk of Predation Alter the Response to a Habitat Selection Pheromone in Migrating Sea Lamprey? American Fisheries Society Annual Meeting, Special Symposium on Lamprey Biology and Implications for Managers, 19 Aug 2015, Portland, OR.
65. [Hume JB†](#), Wagner CM, [Meckley TD\\*](#), [Luhning TM†](#), Johnson NS, Siefkes MJ. 2015. Sure it's big enough, but look at the location! Using odors to guide sea lamprey towards a barrier-integrated trap. American Fisheries Society Annual Meeting, Special Symposium on Lamprey Biology and Implications for Managers, 18 Aug 2015, Portland, OR.
64. Johnson NS, Wagner CM, Li W, Miehl S, Bravener G, Barber J. Integrate non-physical cues to remove invasive sea lamprey and pass valued species in tributaries to the Great Lakes. Annual Meeting of the American Fisheries Society, 17 Aug 2015, Portland, OR.
63. [Meckley TD\\*](#), Wagner CM, Nguyen T, Gurarie E, Mantha P, Holbrook C, Miller J. 2015. Before the river: revealing how lamprey migrate in open water and coastal environments. American Fisheries Society Annual Meeting, Special Symposium on Lamprey Biology and Implications for Managers, 19



Aug 2015, Portland, OR.

62. Wagner CM. 2015. Risks and Rewards: Odor-mediated movement and habitat-selection in sea lamprey. American Fisheries Society Annual Meeting, Special Symposium on Lamprey Biology and Implications for Managers, 18 Aug 2015, Portland, OR.
61. Wagner CM. 2015. Can migrating lampreys be effectively guided into fish passage devices using semiochemicals? Evidence from studies in the Laurentian Great Lakes. International Fish Passage Conference 2015, Groningen, Netherlands, 24 June 2015.
60. Kierczynski K<sup>‡</sup>, Luhring TM<sup>†</sup>, Wagner CM. 2015. Run or Hide: How do larval sea lamprey respond to the odor of dead adults? University Undergraduate Research & Arts Forum. Michigan State University, East Lansing, MI. 10 April 2015.
59. Wagner CM. 2015. Research into the use of a conspecific alarm cue to manage invasive sea lamprey. MSE strategy meeting, East Lansing, MI, 20 March 2015.
58. Hume JB<sup>†</sup>, Wagner CM. 2015. Push-Pull trapping study, Carp Lake River. MSE strategy meeting, East Lansing, MI, 20 March 2015.
57. Luhring TM<sup>†</sup>, Wagner CM. 2015. Push-Pull manipulation of the sea lamprey migration in two streams. MSE strategy meeting, East Lansing, MI, 20 March 2015.
56. Wagner CM, Meckley TD\*, Gurarie E, Miller J. 2015. How do non-homing fishes find the shore? Evidence for bathymetric tracking in sea lamprey. Great Lakes Acoustic Telemetry Observation System (GLATOS) Annual Meeting, Ann Arbor, MI. 11, March 2015.
55. Meckley TD\*, Wagner CM, Mantha P, Nguyen T, Gurarie E, Holbrook C. 2015. Maps or beacons: Do sea lamprey pheromones aid navigation or simply label river plumes? Great Lakes Acoustic Telemetry Observation System (GLATOS) Annual Meeting, Ann Arbor, MI. 11, March 2015.
54. Meckley TD\*, Wagner CM, Mantha P, Nguyen T, Gurarie E. 2014. Search Behavior and decision making of migratory phase sea lamprey: an alternative to natal homing. Ecology, Evolutionary Biology, and Behavior (EEBB) graduate colloquium series, East Lansing, MI. 6 November 2014.
53. Dawson HA, Jones ML, Irwin B, Johnson NS, Wagner CM, Szymanski M. 2014. A model evaluation of the effectiveness of incorporating pheromone-baited trapping techniques into an integrated pest management program of Great Lakes sea lamprey. Annual Meeting of the American Fisheries Society, Quebec City, Quebec, 20 Aug 2014.
52. Johnson NS, Miehl S, Siefkes MJ, Wagner CM, Bravener G, Twohey M. 2014. Advances in alternative controls for sea lampreys in the Great Lakes. Annual Meeting of the American Fisheries Society, Quebec City, Quebec, 20 Aug 2014.
51. Siefkes MJ, Li W, Wagner CM, Johnson NS. 2014. Current Understanding of Pheromone Communication in the Sea Lamprey. Jawless Fishes of the World Symposium. American Fisheries Society Annual Meeting, Aug 2014, Quebec City, QC.
50. Luhring TM<sup>†</sup>, Wagner CM. 2014. Chemical Risk Information Guides Migratory Movements of Semelparous Sea Lamprey: Implications for Control and Conservation. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Chattanooga, TN. 3 Aug. 2014.
49. Kierczynski K<sup>‡</sup>, Luhring TM<sup>†</sup>, Wagner CM. 2014. The Effect of Alarm Cue on Sea Lamprey Larvae Behavior. Joint Meeting of Ichthyologists and Herpetologists (JMIH). Chattanooga, TN. 1 Aug. 2014.
48. Johnson NS, Siefkes MJ, Wagner CM, Li W. 2014. Alternatives to sea lamprey barriers: pheromones and trapping. International Conference on Engineering and Ecohydrology for Fish Passage. Madison,

Wisconsin, 9 Jun 2014.

47. Johnson NS, Wagner CM, Miehl S, Sullivan P, Barber J, McLaughlin R. 2014. Deter and Conquer: The quest for an effective non-physical migration barrier for invasive sea lamprey. International Conference on Engineering and Ecohydrology for Fish Passage. Madison, Wisconsin, 9 Jun 2014.
46. Wagner CM, [Luhning TM](#)<sup>†</sup>, [Bals JD](#)<sup>\*</sup>, Nair M. Field-testing the chemical repellent: a progress report. GLFC Sea Lamprey Control Board, 15 April 2014, Ann Arbor, MI.
45. Johnson NS, Wagner CM, Miehl S, Sullivan P, Barber J, McLaughlin R. 2014. Deter and Conquer: The quest for an effective non-physical migration barrier for invasive sea lamprey. Western Division American Fisheries Society Meeting. Mazatlan, Mexico. 9 Apr 2014.
44. Siefkes MJ, Johnson NS, Li W, Wagner CM, McLaughlin RM. 2014. Are There Sea Lamprey Control Tactics Alternative to Barriers? Western Division American Fisheries Society Meeting, Mazatlan, Mexico.
43. Wagner CM, [Meckley TD](#)<sup>\*</sup>, Nguyen T, Mantha P, Gurarie E, Holbrook C. 2014. Linking 3-D movements to hydrography to decode sea lamprey migratory behavior. GLATOS annual meeting, 20 March 2014, Ann Arbor, MI.
42. Wagner CM, Mora CV. 2014. Magnetic perception in sea lamprey: a proof-of-concept study. GLFC Sea Lamprey Research Board, 6 March 2014, Ann Arbor, MI.
41. [Meckley TD](#)<sup>\*</sup>, Wagner CM. 2013. Can you picture it? Using Surfer and Voxler to visualize movement data. Great Lakes Acoustic Telemetry Operating System Meeting (GLATOS). Ann Arbor, MI. 14 March 2013.
40. [Meckley TD](#)<sup>\*</sup>, Wagner CM, Gurarie E, Mantha P, Nguyen T, Holbrook C. 2013. Understanding how the sea lamprey locates and evaluates river plumes in the Great Lakes. Great Lakes Acoustic Telemetry Operating System Meeting (GLATOS). Ann Arbor, MI. 13 March 2013.
39. [Bals JD](#)<sup>\*</sup>, Wagner CM, Stroud EM. 2013. Alarming Developments: Investigations of a Natural Repellent for Sea Lamprey Control. Annual meeting of the Michigan Fish Producers Association.
38. [Bals JD](#)<sup>\*</sup>, Wagner CM. 2012. The sea lamprey alarm response: Implications for control. Sea Lamprey Annual Workshop (SLAWS). Petoskey, MI.
37. [Bals JD](#)<sup>\*</sup>, Wagner CM. 2012. Fatal Fragrances: Sea lampreys fear the scent of death. Department of Fisheries and Wildlife Annual Graduate Student Research Symposium at Michigan State University. East Lansing, MI.
36. Gurarie E, Wagner CM, [Meckley TD](#)<sup>\*</sup>. 2012. Analysis of Individual Movement Data: What Can We Learn? Where Can We Go? American Fisheries Society Annual Meeting Symposium: Advances in Telemetry in the Great Lakes and Beyond. St. Paul, MN.
35. Johnson NS, Siefkes MJ, Wagner CM, Li W. 2012. Management-scale tests of synthesized 3kPZS to influence adult sea lamprey stream selection. Completion Report. Great Lakes Fishery Commission, Sea Lamprey Research Board, Ann Arbor, MI.
34. [Meckley TD](#)<sup>\*</sup>, Wagner CM. 2012. Open water migration: Which way to go? Department of Fisheries and Wildlife Annual Graduate Student Research Symposium at Michigan State University. East Lansing, MI.
33. [Meckley TD](#)<sup>\*</sup>, Wagner CM. 2012. Coastal search strategies of migrating sea lampreys. Sea Lamprey Annual Workshop (SLAWS). Petoskey, MI.
32. [Meckley TD](#)<sup>\*</sup>, Wagner CM. 2012. Manipulating sea lamprey migrations via pheromone addition.



Great Lakes Acoustic Telemetry Observation System 2<sup>nd</sup> annual Meeting, Rogers City, MI.

31. Wagner CM, Meckley TD\*, Bals JD\*. 2012. Elucidating the influence of countervailing chemical information on reproductive habitat selection in a basal vertebrate. Biannual meeting of the International Society for Behavioral Ecology, Lund, Sweden.
30. Bals JD\*, Wagner CM. 2011. Adult sea lamprey responses to the odor emitted by peri- and post-mortem conspecifics is modulated by maturation. Bioactive Water Borne Chemicals, Faro, Portugal.
29. Meckley TD\*, Wagner CM. 2011. Manual tracking of migrating sea lamprey reveals odor-mediated search tactics. Great Lakes Acoustic Telemetry Observation System 1<sup>st</sup> annual Meeting, Petoskey, MI.
28. Meckley TD\*, Wagner CM. 2011. Unraveling Large-Scale Movements of Migratory Phase Sea Lamprey with Acoustic Telemetry. Bioactive Water Borne Chemicals, Faro, Portugal.
27. Johnson NS, Siefkes MJ, Wagner CM, Li W. 2010. Taking time to stop and smell the trap: Sea lamprey mating pheromone field trials. Great Lakes Fishery Commission Annual Meeting, Sault Ste. Marie, ON.
26. Johnson NS, Siefkes MJ, Wagner CM, Li W. 2010. Management-scale field trials of a synthesized pheromone in sea lamprey control. Great Lakes Fishery Commission, Sea Lamprey Annual Working Session, Traverse City, MI.
25. Meckley TD\*, Wagner CM. 2010. Unraveling Large-Scale movements of Migratory Phase Sea Lamprey with Acoustic Telemetry. 71st Annual Midwest Fish and Wildlife Conference, Minneapolis, MN.
24. Meckley TD\*, Wagner CM. 2010. Exploring large-scale movements of migratory phase sea lamprey, (*Petromyzon marinus*), with acoustic telemetry. 5th Annual Fisheries and Wildlife Graduate Student Research Symposium, Michigan State University, East Lansing, MI.
23. Thomas A\*, Wagner CM. 2010. How Can We Effectively Deploy a Partial Pheromone to Control an Invasive Species? A Test of the Reverse-Intercept Concept. Department of Fisheries and Wildlife Annual Graduate Student Research Symposium at Michigan State University. East Lansing, MI.
22. Johnson NS, Siefkes MJ, Wagner CM, Li W. 2009. Deployment of a synthesized pheromone for sea lamprey control. Brown Bag Seminar to the United States Geological Survey, Great Lakes Science Center. Ann Arbor, MI.
21. Meckley TD\*, Wagner CM. 2009. The evaluation of pheromone trapping in Lepidoptera: The blend verses component hypotheses and their implications on sea lamprey control, *Petromyzon marinus*. Insect Behavior Discussion Series, Michigan State University, 11 December, 2009.
20. Meckley TD\*, Wagner CM. 2009. Exploring large-scale movements of migratory phase sea lamprey, with acoustic telemetry and understanding the role of migratory pheromone. Friday Discussion, Marquette Biological Station, Marquette Michigan, 24 April, 2009.
19. Siefkes MJ, Johnson NS, Wagner CM, Li W, Twohey MB, Steeves TB, Bergstedt, R.A. 2009. Pheromone field trial implementation. Great Lakes Fishery Commission 2009 Annual Meeting. Kingston, Ontario.
18. Thomas A\*, Wagner CM. 2009. Capture of naturally spawning sea lampreys through strategic placement of pheromone baited traps. American Fisheries Society Michigan Chapter Annual Meeting, Dundee, MI.
17. Wagner CM. 2009. Sea lamprey pheromones and the ecology of choice: what does the nose really know? GSO Seminar Series, Department of Fisheries & Wildlife, Michigan State University, East Lansing, MI.
16. Wagner CM. 2008. A field test of the potential for sea lamprey pheromones to promote trapping

success in natural streams. Research completion report presented to the Great Lakes Fishery Commission Sea Lamprey Research Board. Ann Arbor, MI.

15. Luehring MA\*, Wagner CM. 2007. Investigations of Female Sea Lamprey Responses to Male Odors that Differ in Concentration and Composition. Department of Fisheries and Wildlife, GSO seminar series, East Lansing, MI.
14. Wagner CM. 2007. A Full-scale Field Test of the Efficacy of 3kPZS in Trapping-for-control Scenarios. Great Lakes Fishery Commission, Sea Lamprey Research Board. Ann Arbor, MI.
13. Luehring MA\*, Wagner CM. 2006. Pheromone trapping of sea lamprey. Annual Midwest Fish and Wildlife Conference, Grand Rapids, MI.
12. Luehring MA\*, Wagner CM. 2006. Pheromone trapping of spawning phase female sea lampreys: Effects of bait level on distribution and capture efficiency. Department of Fisheries and Wildlife Graduate Student Symposium.
11. Wagner CM, Jones ML, Twohey MB, Li W, Sorensen PW, Stein RA. 2005. The potential use of pheromones in sea lamprey control: A proof-of-concept study. Annual meeting of the International Association for Great Lakes Research, Ann Arbor, MI.
10. Wagner CM, Grossman GD. 2005. Flow mediates the competitive influence of an invasive minnow on a threatened native stream fish. 58th Canadian Conference for Fisheries Research, Windsor, Ontario.
9. Wagner CM, Grossman GD. 2003. Condition-specific competition between native and introduced minnows may mitigate an ongoing invasion. Ecological Society of America, Savannah, GA.
8. Wagner CM, Grossman GD. 2003. Behavioural interactions between native rosyside dace and introduced yellowfin shiner: implications from habitat selection theory for an ongoing invasion. Fisheries Society of the British Isles, Norwich, England, United Kingdom.
7. Wagner CM, Grossman GD. 2003. Condition-specific competition among stream fishes: implications for an ongoing invasion in the Little Tennessee River, North Carolina. North American Benthological Society, Athens, GA.
6. Wagner CM. 2002. Interrelationships between social rank, aggression, foraging success, and prey availability in small groups of drift-feeding minnows. American Society of Ichthyologists and Herpetologists, Kansas City, MO.
5. Wagner CM, MacLean A, Weatherbee JJ, Grossman GD. 2002. An automatic feeder for the delivery of natural prey items during controlled multi-patch behavioral experiments with drift-feeding stream fishes. American Society of Ichthyologists and Herpetologists, Kansas City, MO.
4. Wagner CM. 1998. The estuarine artenminimum: evidence from the Chesapeake Bay. American Society of Ichthyologists and Herpetologists, Guelph, Ontario, Canada.
3. Wagner CM. 1997. Littoral finfish assemblages along a river-estuarine gradient in three sub-estuaries of the lower Chesapeake Bay, Virginia, USA. American Society of Ichthyologists and Herpetologists, Seattle, WA.
2. Wagner CM. 1997. Littoral fish assemblages along a river-estuarine gradient in the Rappahannock River, Virginia. Atlantic Estuarine Research Society, Kiptopeake, VA.
1. Wagner CM. 1996. Spatial and temporal assemblages in the trawlable fish fauna of the lower Chesapeake Bay unvegetated bottom: a direct gradient analysis. American Society of Ichthyologists and Herpetologists, New Orleans, LA.

## OUTREACH PRESENTATIONS

55. Wagner CM. 2024. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, online meeting.
54. Griffin KR\*, Wagner CM. Can we fish sea lamprey in open rivers? Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces. 16 August 2023. Marquette, MI.
53. Wagner CM. 2023. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Fall Meeting, Marquette, MI.
52. Wagner CM. 2023. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Spring Meeting, Ann Arbor, MI.
51. Wagner CM. 2022. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Fall Meeting, Marquette, MI.
50. Wagner CM. 2022. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Spring Meeting, Ann Arbor, MI.
49. Wagner CM. 2021. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Fall Meeting, Marquette, MI.
48. Wagner CM. 2021. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Spring Meeting, Ann Arbor, MI.
47. Wagner CM. 2020. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 25 Aug 2020, online meeting.
46. Wagner CM. 2020. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 19 Feb 2020, Ann Arbor, MI.
45. Hume JB†, Wagner CM, Docker MF, Dawson H, Maguffee A. 2019. Project update to the GLFC Barriers and Trapping Task Force. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 28 Aug 2019, Marquette, MI.
44. Wagner CM. 2019. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 28 Aug 2019, Marquette, MI.
43. Wagner CM. 2019. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 20 Feb 2019, Ann Arbor, MI.
42. Hume JB†, Wagner CM. 2018. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 30 Aug 2018, Marquette, MI.
41. Wagner CM. 2018. What are the Decision-making Currencies for Chemical Control? GLFC Sea Lamprey Control Board 'Think-Tank' Session. 17 April 2018, Ann Arbor, MI.
40. Wagner CM. 2018. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Feb. 21, 2018, Ann Arbor, MI.
39. Hume JB†, Wagner CM. 2017. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Aug. 25, 2017, Marquette, MI.
38. Wagner CM, Hume JB†, Byford GJ\*. 2017. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Feb. 22, 2017, Ann Arbor, MI.
37. Hume JB†, Wagner CM. 2016. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Aug. 26, 2016, Marquette, MI.

36. Wagner CM, Hume JB<sup>†</sup>. 2016. Sea lamprey alarm cue research: present and future. GLFC Commissioner's Annual Tour, May 18, 2016, Hammond Bay Biological Station, Millersburg, MI.
39. Wagner CM, Hume JB<sup>†</sup>, Byford GJ\*. 2016. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, Feb. 17, 2016, Ann Arbor, MI.
38. Wagner CM. 2015. The sea lamprey migration. Great Lakes Fishery Commission Pheromone Work Group, 27 August 2015, Marquette, MI.
37. Wagner CM. 2015. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 26 August 2015, Marquette, MI.
36. Wagner CM. 2015. Wagner Lab Research Update. Great Lakes Fishery Commission, Joint meeting of the Barrier and Trapping Task Forces, 25 February 2015, Ann Arbor, MI.
35. Wagner CM. 2014. Meet the Wagner Lab. Graduate Student Organization weekly seminar, Department of Fisheries and Wildlife, MSU. 29 Oct 2014.
34. Wagner CM. 2014. Shunts and ladders: reflections on recent innovations in selective adult removal. GLFC Sea Lamprey Control Board, 15 October 2014, Ann Arbor, MI.
33. Wagner CM. 2014. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Barrier Task Force Winter Meeting, 27 Aug 2014, Marquette, MI.
32. Wagner CM. 2014. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Barrier Task Force Winter Meeting, 28 Aug 2014, Marquette, MI.
31. Luhring TM<sup>†</sup>, Wagner CM. 2014. Work on the East Jordan River: Investigations of a Natural Repellent for Sea Lamprey Control. Friends of the Jordan River. East Jordan, MI. July 2014.
30. Wagner CM. 2014. Development of chemical barriers research date. Great Lakes Fishery Commission, Barrier Task Force Winter Meeting, 19 Feb 2014, Ann Arbor, MI.
29. Wagner CM. 2014. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Trapping Task Force Winter Meeting, 20 Feb 2014, Ann Arbor, MI.
28. Wagner CM. 2014. Alarming developments for sea lamprey control. Sea Lamprey Annual Working Session, 22 January 2014, Traverse City, MI.
27. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2013. Where to go with 3kPZS-baited trapping. Update to Sea Lamprey Control Board. 15Oct13
26. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2013. Where to go with 3kPZS-baited trapping. Update to Trapping Task Force. 29Aug13
25. Luhring TM<sup>†</sup>, Wagner CM. 2013. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Barrier Task Force Fall Meeting, 29 Aug 2013, Marquette, MI.
24. Luhring TM<sup>†</sup>, Wagner CM. 2013. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Trapping Task Force Fall Meeting, 28 Aug 2013, Marquette, MI.
23. Luhring TM<sup>†</sup>, Wagner CM. 2013. The sea lamprey alarm cue and the potential to erect chemical barriers to migration. Kalamazoo Valley Trout Unlimited, Camp Wa Wa Sum, 13 July 2013, Grayling MI.
22. Wagner CM. 2013. Development of chemical barriers research date. Great Lakes Fishery Commission, Barrier Task Force Winter Meeting, 21 Feb 2013, Ann Arbor, MI.
21. Wagner CM. 2013. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Trapping Task Force Winter Meeting, 20 Feb 2013, Ann Arbor, MI.

20. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2012. Deployment of a synthesized pheromone for sea lamprey control. Great Lakes Fishery Commission, Trapping Task Force. Marquette, MI.
19. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2012. Deployment of a synthesized pheromone for sea lamprey control. Great Lakes Fishery Commission, Reduction in Reproduction Task Force, Ann Arbor, MI.
18. Wagner CM, [Meckley TD\\*](#), [Bals JD\\*](#). 2012. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Trapping Task Force Fall Meeting. Marquette, MI.
17. Wagner CM, [Meckley TD\\*](#), [Bals JD\\*](#). 2012. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
16. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2011. Deployment of a synthesized pheromone for sea lamprey control: Update on Progress. Great Lakes Fisheries Commission, Reproduction Reduction Task Force, Spring Meeting. Ann Arbor, MI.
15. Johnson NS, Siekfes MJ, Wagner CM, Li W, Bergstedt R, Twohey M, Steeves TM. 2011. Deployment of a synthesized pheromone for sea lamprey control. Great Lakes Fisheries Commission, Reproduction Reduction Task Force, Fall Meeting. Marquette, MI.
14. Wagner CM, [Meckley TD\\*](#). 2011. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
13. Wagner CM, [Meckley TD\\*](#), [Bals JD\\*](#). 2011. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.
12. Wagner CM, [Meckley TD\\*](#), [Thomas A\\*](#). 2010. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
11. Wagner CM, [Meckley TD\\*](#), [Thomas A\\*](#). 2010. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.
10. Wagner CM, [Meckley TD\\*](#), [Thomas A\\*](#). 2009. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
9. Wagner CM, [Meckley TD\\*](#), [Thomas A\\*](#). 2009. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.
8. Wagner CM. 2008. Sea lamprey pheromones: a progress report. Great Lakes Fishery Commission, Sea Lamprey Integration Committee spring meeting. Ann Arbor, MI.
7. Wagner CM. 2008. Recent progress in sea lamprey pheromone research. Great Lakes Fishery Commission, Sea Lamprey Annual Working Session, Traverse City, MI.
6. Wagner CM. 2008. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
5. Wagner CM. 2008. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.
4. Wagner CM, [Luehring MA\\*](#). 2007. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.
3. Wagner CM, [Luehring MA\\*](#). 2007. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.
2. Wagner CM. 2006. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission,

Reducing Reproduction Task Force Spring Meeting. Ann Arbor, MI.

1. Wagner CM. 2006. Sea lamprey chemical ecology research update. Great Lakes Fishery Commission, Reducing Reproduction Task Force Fall Meeting. Marquette, MI.

#### INSTRUCTIONAL PRESENTATIONS

12. Wagner CM. 2019. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
11. Wagner CM. 2018. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
10. Wagner CM. 2017. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
9. Wagner CM. 2016. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
8. Wagner CM. 2015. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
7. Wagner CM. 2014. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
6. Wagner CM. 2009. Sea Lamprey, Pheromones, and the Fate of All Mankind! (except for that last part). SeaGrant COSEE Great Lakes Teacher's Workshop, Alpena, MI.
5. Wagner CM. 2009. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
4. Wagner CM. 2008. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
3. Wagner CM. 2007. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
2. Wagner CM. 2006. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.
1. Wagner CM. 2005. Slide-ology: Effective Visuals for Scientific Presentations. Workshop presentation, Department of Fisheries and Wildlife, Michigan State University.

#### TEACHING EXPERIENCE

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##### GRADUATE COURSES TAUGHT (PRIMARY INSTRUCTOR)

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| 2020      | <b>Translational Behavioral Ecology (FW891)</b> , 1 cr., special topics seminar. Graduate discussion course to explore the application of Translational Ecology to the study of animal behavior and behavioral ecology.  |
| 2017-2019 | <b>Principles and Perspectives in Fisheries and Wildlife (FW894)</b> , 3 cr., Spring or Fall. Introductory course for graduate students in the Department of Fisheries and Wildlife. Introduction to the concepts and practices that underlie the interdisciplinary and collaborative nature of research and management activities with fish and wildlife species. |

- 2013 **Slide-ology: Creating Effective Science Presentations** (FW891), 1 cr., special topics seminar. Advanced practicum on the development of effective scientific presentations through the medium of PowerPoint, applying visual design principles.
- 2013 **Ecology, Evolution, and Management of Aquatic Invasive Species** (FW893), 3 cr. An advanced examination of invasive species ecology and evolution focused on the exploitation of ecological and biological knowledge to create useful management solutions.
- 2005 **Recent Topics in Stream Ecology, Conservation, and Management** (FW893), 1 cr. Seminar, advanced exploration of recent theoretical and practical advances in understanding the ecology and management of streams.

#### UNDERGRADUATE COURSES TAUGHT (PRIMARY INSTRUCTOR)

- 2006-present **Stream Ecology** (FW420/IBIO420), 3 cr., lecture, Fall. An ecosystem-based examination of the structure and functions of rivers. Topics include: 1) the biological, chemical, physical, and geological processes controlling the structure and function of stream ecosystems; 2) theories, which unite these features into system-scale models of stream ecosystem function; and, 3) conservation and management of stream ecosystems.
- 2021 **Ichthyology** (FW471), 4 cr., Lecture and Lab, Spring. Advanced undergraduate course addressing the morphology, physiology, development, behavior, evolution, diversity, and ecology of fishes. The goal of the course is for students to achieve a comprehensive understanding of the structure and function of fishes, both in evolutionary and ecological terms, and to use that understanding to investigate challenges fishes face in the Anthropocene.
- 2013, 2016 **Introduction to Science, Technology, Environment and Public Policy** (FW181/LB181/MC181), 3 cr., Lecture. Introductory course for STEPP specialization. Examination of the relationships between science, technology, the environment, and public policy.

#### UNDERGRADUATE COURSES TAUGHT (GRADUATE STUDENT LAB INSTRUCTOR)

- 2003 Limnology and Stream Ecology (ECOL4310/6310), University of Georgia.
- 2003 Ichthyology (ECOL 4050/6050), University of Georgia.
- 2000 Organismal Biology for Non-Majors (BIOL 1104), University of Georgia

#### REGULAR GUEST LECTURES

Conservation Animal Behavior (annually, FW101: Introduction to Fisheries and Wildlife)

Invasive Species (annually, FW181: Introduction to Science, Technology, environment, and Public Policy)

Visual Design for Scientific Presentations (annually, FW895: Practice of Fisheries and Wildlife Outreach and Engagement)

#### **MENTORING**

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#### POST-DOCTORAL FELLOWS

Dr. Thomas Luhring (2013-2015). Current position: Assistant Professor, Wichita State University.

Dr. John Hume (2014-2020). Current position: Assistant Professor, Michigan State University.

#### GRADUATE STUDENTS (MAJOR ADVISOR)

David Creamer (Ph.D.), 2023-present

Kandace R. Griffin (Ph.D.), 2019-present

Taylor F. Haas (M.S.), 2019-2021. Current position: Biologist, Santa Clara Valley Water Authority

Emily Mensch (M.S.), 2019-2021. Current position: Ph.D. student, UC-Davis

Mikaela Hanson (M.S.), 2018-2021. Current position: Ph.D. student, University of Texas-Arlington.

Gregory Byford (M.S.), 2014-2016. Current position: Biologist, U.S. Geological Survey.

Jason Bals (M.S.), 2010-2012. Current position: Loan officer, Veterans United.

Trevor Meckley (M.S., Ph.D.), 2008-2015. Current position: Program manager, Effects of Sea Level Rise (ESLR) Competitive Research Program, National Centers for Coastal Ocean Science, NOAA.

Adam Thomas (M.S.), 2008-2010. Did not finish (thesis drafted, exited due to medical issues)

Mark Luehring (M.S.), 2005-2007. Current position: Inland fisheries biologist, Great Lakes Indian Fish and Wildlife Commission

#### GRADUATE STUDENTS (ADVISORY COMMITTEE)

Max Majinska, M.S., 2023-present

Jamal Ardister, Ph.D., 2022-present, Mechanical Engineering, MSU

Sarah Gorendyk, M.S., 2020-2022, Integrative Biology, MSU

Nicole Watson, Ph.D., 2019-2023, Fisheries and Wildlife, MSU

Samantha Stanton, M.S., 2017-2019, Fisheries and Wildlife, MSU

Lydia Wassink, Ph.D., 2016-2020, Integrative Biology, MSU

Jonathan Hegna, Ph.D., 2015-2023, Fisheries and Wildlife, MSU

Alex Jensen, Ph.D., 2013-2017, Fisheries and Wildlife, MSU

Kathleen Jay, M.S., 2011-2013, Fisheries and Wildlife, MSU

Cory Brant, M.S. and Ph.D., 2009-2015, Fisheries and Wildlife, MSU

Jared Myers, Ph.D., 2009-2014, Fisheries and Wildlife, MSU

#### UNDERGRADUATE STUDENTS

Maggie Jones, GLASSEN URE Fellow, 2023-present

Xochitl Gonzalex, GLASSEN URE Fellow, 2023-present

Leo Varitek, research technician, 2024

Jacob Hallett, research technician, 2024

Laura Lapek, research technician, 2022

Taylor Whipple, research technician, 2022



Ceridwyn Hunter, research technician, 2020-2022  
Emily Suominen, research technician, 2020  
Grace Forthaus, research technician, 2020  
Tyler Welklin, research technician, 2020  
Alana Barton, research technician, 2020  
Madison Perry, research technician, 2019  
Kris Rygiel, research technician, 2019  
Anna Tursky, research technician, 2019  
Sydney Tieman, research technician, 2019  
Allie Yackley, research technician, 2019  
Michael Nolan-Tamariz, research technician, 2019  
Seth Gibson, research technician, 2015  
Amanda Pomranke, research technician, 2015  
Luke Baker, research technician, 2014-2015  
Erica Adams, research technician, 2014  
Fawn Fisher, research technician, 2014  
Jameson Farinosi, research technician, 2014  
Nick Snowgold, research technician, 2014-2015  
Katie Kierczynski, research technician and undergraduate researcher, 2013-2014  
Skye Fissette, research technician, 2011-2013  
Sarah Ptasnik, research technician, 2011-2013  
Carrie Kozel, research technician, 2010-2013  
Eric Willman, research technician, 2010-2012  
Brett Diffin, research technician, 2010-2012  
Amber Masters, research technician, 2010-2012  
Jeff Yaklin, research technician, 2010-2012  
John Ewalt, research technician, 2008-2009  
Zac Wickert, research technician, 2008-2009  
Tajaa Tucker research technician, 2008-2009  
Tyler Buchinger research technician, 2008-2010  
Mike Kosinski, research technician, 2007  
Matt Altenritter, research technician, 2006-2007  
Kristine Hoffman, research technician, 2006

## **PROFESSIONAL SERVICE**

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### DEPARTMENT OF FISHERIES AND WILDLIFE (MSU)

2024 Faculty Search Committee - Conservation Genomics (chair)

2023-present Environmental Health and Safety, Departmental Representative  
 2023-present Mentor, Glassen Undergraduate Research Experience  
 2010-present Judge, Graduate Student Research Symposium  
 2022-2023 Alternate representative to the College Advisory Council  
 2022 Department Awards Committee  
 2019-2020 Strategic Plan Implementation Committee  
 2018 Department Chairperson Search Committee (chair)  
 2017-2022 Faculty Mentoring Committee (Dr. John Robinson)  
 2016 FW Core Course Development Committee (chair)  
 2015-2018 Department Advisory Committee (chair in 2018)  
 2014-2015 Department Graduate Committee  
 2014-2015 Host and Coordinator, Department Holiday Party  
 2010 Host and Coordinator, Department Holiday Party  
 2008 Host and Coordinator, Department Holiday Party  
 2005-2008 Department Curriculum Committee  
 2005-2010 Graduate Student Research Symposium Committee (founder and chair)

COLLEGE/UNIVERSITY (MSU)

2024-present CANR Dean Search Committee  
 2024-present Co-lead, Aquatic Ecosystem Sustainability Hub, MSU Water Alliance  
 2023 CANR Dean Search Committee  
 2021 CANR Elections Officer  
 2019-2021 CANR College Advisory Council (vice-chair)  
 2013-2016 CANR College Graduate Committee  
 2006-2008 Proposal reviewer, MSU Center for Water Sciences  
 2005-2008 MSU Invasive Species Initiative Steering Committee

NON-MSU UNIVERSITY

1998 Core Curriculum Review Group, School of Marine Science, College of William and Mary  
 1997 Faculty Search Committee (student member), Fisheries Science Department, School of Marine Science College of William and Mary

NON-UNIVERSITY

2024-present Chair, Fishing Sea Lamprey Team (ad hoc), Great Lakes Fishery Commission  
 2022-present Science Team, SUPCON Initiative, Great Lakes Fishery Commission  
 2016-present Science Advisory Board, FishPass Initiative, Great Lakes Fishery Commission  
 2004-present Trapping Task Force, Great Lakes Fishery Commission  
 2015 NSF Proposal Review Panel (Animal Behavior)  
 2008-2012 Chemosensory Communication Work Group (member), Great Lakes Fishery Commission  
 2006-2008 Sea Lamprey Pheromone Implementation Work Group (Chair), Great Lakes Fishery Commission  
 2005-2008 Sea Lamprey Research Board, Great Lakes Fishery Commission  
 2006-2008 Sea Lamprey Pheromone Implementation Work Group (Chair), Great Lakes Fishery Commission  
 1998 Core Curriculum Review Committee, School of Marine Science, College of William and Mary

- Mary
- 1997 Faculty Search Committee (student member), Fisheries Science Department, College of William and Mary, School of Marine Science
- 1991-1994 Data Management Sub-Committee of the Scientific-Technical Advisory Committee, Galveston Bay National Estuary Program
- 1992-1994 Scientific and Technical Advisory Committee, Barataria -Terrebonne National Estuary Program
- 1993-1994 Data and Information Management Action Plan Committee, Galveston Bay National Estuary Program
- 1993-1994 Living Resources Action Plan Committee, Galveston Bay National Estuary Program
- 1993-1994 Local Governments Action Plan Committee, Galveston Bay National Estuary Program
- 1993-1994 Public Participation Action Plan Committee, Galveston Bay National Estuary Program

#### EXTERNAL REVIEWER

**Journals:** American Naturalist; Animal Behaviour; Aquaculture, Fish and Fisheries; Behavioral Ecology; Behaviour; Biological Invasions; Canadian Journal of Fisheries and Aquatic Sciences; Copeia; Current Zoology; Ecology of Freshwater Fishes; Ecological Monographs; Estuaries; Estuarine, Coastal, and Shelf Science; Environmental Biology of Fishes; Ethology; Fisheries; Hydrobiologia; Journal of Fish Biology; Journal of Fish and Wildlife Management; Journal of Great Lakes Research; Marine Ecology Progress Series; North American Journal of Fisheries Management; Northeastern Naturalist; PLoS One; Oecologia; Proceedings of the Royal Society B; Scientific Reports; Transactions of the American Fisheries Society.

**Funding Agencies:** Great Lakes Fishery Commission; Michigan SeaGrant; National Oceanic and Atmospheric Administration; National Science Foundation; Texas SeaGrant; US Environmental Protection Agency; US Fish and Wildlife Service.

#### RECENT MAJOR MEDIA COVERAGE

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- 2024 Interview, Wood TV, Grand Rapids, MI
- 2024 On-air Interview, radio, WJR Detroit
- 2024 On-air Interview, TV, WILX (NBC) Evening News
- 2023 Interview for Interlochen Public Radio
- 2023 Interview for *Newsweek* magazine (shark week coverage)
- 2022 Interview and site visit for article in *Wired* magazine
- 2022 Interview for video story, *Scientific American* magazine
- 2022 Interview, *On Wildlife* podcast
- 2021 Radio interview, WKAR (public radio), East Lansing, MI
- 2021 Feature story, MSU Today, online magazine
- 2021 Interview, My Spartan Summer, MSU
- 2021 Images and source material for educational film, Natural History Museum of London
- 2021 Radio interview, Michigan Public Radio (FishPass)
- 2021 Filming and source material, Discovery Channel, narrated by Snoop Dogg.
- 2021 Episode of Brave Wilderness (Coyote Peterson), YouTube (18.6 million following), alarm cue
- 2020 Article in *Futures* magazine, AgBioResearch, MSU
- 2020 Magazine article, *Spotlight*, Department of Fisheries and Wildlife, MSU
- 2020 Radio interview, The Sci-Files, 88.9 FM, East Lansing, MI

- 2020 Interview, Great Lakes Echo article, Covid-19 impacts
- 2019 Interview, *Geography of Life* podcast
- 2019 Interview for Great Lakes Echo article
- 2019 Video and interview for VOA Conned (Voice of America)
- 2019 Video and interview for an episode of Animalogic, YouTube Nature series
- 2018 Discovery Channel, images for Shark Week (dicephaly)
- 2018 Article, *Pulse on Science*, Great Lakes Fishery Commission
- 2017 Interview, *National Fisherman* magazine (selective fish passage)
- 2017 Video segment for MSU RoadTrip, an online magazine highlighting MSU research
- 2017 Interview, Michigan Radio (NPR)
- 2017 Interview, source material for children's book on Invasive Species by Lynn Ermann
- 2017 Article in *Futures* magazine, AgBioResearch, MSU
- 2017 Interview, *National Fisherman* magazine (alarm cue repellent)
- 2016 NY Times Science Times article "*Hoping to Lead Great Lakes Lampreys to Demise by the Nose*"
- 2016 BBC Television Coverage, *Natures Weirdest Events*
- 2016 Great Lakes Echo article
- 2016 *Making Waves: Battle for the Great Lakes*, PBS Documentary aired nationally
- 2016 Radio interview, WBEZ, Chicago, IL
- 2016 Radio interview, *Current State*, National Public Radio

#### **PROFESSIONAL AFFILIATIONS**

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- American Fisheries Society
- American Society of Ichthyologists and Herpetologists
- Animal Behaviour Society
- Ecological Society of America
- International Association of Great Lakes Research