

ANDREW R. WARGO
Curriculum Vitae

1. PERSONAL INFORMATION

Name: Andrew Wargo

Office Address: 223 Chesapeake Bay Hall, Virginia Institute of Marine Science

Office Phone: 804-684-7311

Email: arwargo@vims.edu

Date: December 2, 2024

Position Title/Rank: Associate Professor

VIMS Section: Ecosystem Health

2. EDUCATION

Ph.D. (Biological Sciences), University of Edinburgh, Scotland, 2007

B.A. (Biology, Chemistry Minor), *Summa Cum Laude*, University of Vermont, 2001
Semester abroad: James Cook University, Townsville, Australia 1999

3. ACADEMIC POSITIONS

Associate Professor, Ecosystem Health Section, Virginia Institute of Marine Science, William & Mary, VA 2018 – present

-*Sabbatical Viral Discovery Pacific Island Aquaculture* 2020

Assistant Professor, Department of Aquatic Health Sciences, Virginia Institute of Marine Science, William & Mary, VA 2012 - 2018

Postdoctoral Research Associate, University of Washington Department of Biology and USGS Western Fisheries Research Center, Seattle, WA 2008 – 2012

Postdoctoral Senior Fellow Trainee (see NRSA grant below), University of Washington Department of Pathobiology and USGS WFRRC, Seattle, WA 2006 – 2008

4. HONORS, PRIZES AND AWARDS

Plumeri Award, William & Mary 2023

Provosts Mid-Level Academic Leaders Grant, William & Mary 2022
-Development of DEI curriculum training for faculty (\$6,500)

Sustainability Conference Travel Award, Sustainability Committee, William & Mary 2020

5. CONTRIBUTIONS TO TEACHING

Courses taught:

Course	Year	Title	Co-Taught	Instructors	Credits	Students
MSCI 548/498, KINE 460	2024	Ethics in Epidemiology	No	1	3	6
MSCI 548/498, KINE 460	2023	Ethics in Epidemiology	No	1	3	7
MSCI 501/401E	2022	Fundamentals Env. Chem./Tox./Path.	Yes	2	2	11
MSCI 644	2022	Aquatic Epidemiology	No	1	3	5
MSCI 501/401E	2021	Fundamentals Env. Chem./Tox./Path.	Yes	2	2	20
MSCI 698	2021	Discussion in Disease Ecology and Evolution	Yes	3	1	6
MSCI 501/401E	2020	Fundamentals Env. Chem./Tox./Path.	Yes	2	2	12
MSCI 501/401E	2019	Fundamentals Env. Chem./Tox./Path.	Yes	2	2	6
MSCI 501/401E	2018	Fundamentals Env. Chem./Tox./Path.	Yes	2	2	13
MSCI 565	2018	Principles of Pathobiology	Yes	3	3	3
MSCI 698	2017	Epidemiological Heterogeneity	No	1	1	3
MSCI 644	2016	Aquatic Epidemiology	No	1	3	2
MSCI 565	2015	Principles of Pathobiology	Yes	3	3	5
MSCI 698	2014	Ecology and Evolution of Aquatic Infectious Disease	Yes	3	1	6
MSCI 575	2014	Aquatic Microbial Ecology (Guest Lecture)	Yes	3	3	6
MSCI 698	2013	Aquatic Environments and Human Health	Yes	3	1	6
MSCI 565	2013	Principles of Pathobiology (Guest Lecture)	Yes	3	3	4

6. MENTORSHIP

6a. Graduate Students Advised

- 5) Isabelle Danforth, MS, enrolled summer 2023
- 4) Malina Loeher, PhD 2019 – 2024 (Graduated)
- 3) Aman Kohli, PhD, 2017 – 2023 (Graduated)
 - Awarded Sea Grant Fellowship
 - Served as primary mentor with co-advisor Wolf Vogelbein
- 2) Zoemma Warshafsky, MS, 2014 – 2017 (Graduated)

- Awarded Sea Grant Fellowship
- Served as primary mentor with co-advisor Rob Latour
- 1) Darbi Jones, PhD, 2014 – 2019 (Graduated)

6b. Graduate Student Committee Service

- 9) Taylor Dolan, MS, 2024 – present (Major advisor Jessica Moss Small)
- 8) Isabelle Castro, PhD, 2024 – present (Major advisor Juliette Smith)
- 7) Johana “Sarah” Koshak, PhD, 2021 – present (Major advisor Jeff Shields)
- 6) Anna Poslednik, MS, 2021 – 2023 (Major advisor Ryan Carnegie)
- 5) Elizabeth Weatherup, MS, 2021 – 2023 (Major advisor Ryan Carnegie)
- 4) Meredith Seeley, PhD, 2017 – 2021 (Major advisor Rob Hale)
- 3) Lucia Safi, PhD, 2016 – 2020 (Major advisor Ryan Carnegie)
- 2) Lauren Huey, MS, 2016 – 2018 (Major advisor Ryan Carnegie)
- 1) Lydia Bienlien, MS, 2016 – 2016 (Major advisor Ryan Carnegie)

6c. Non-Graduate Student Mentorship

William & Mary Undergraduates (6): (6) Emily Han, 2023 – present; (5) Anu Desai, 2022 – present; (4) Anna Mehlhorn, 2020 – 2022; (3) Mary Frazier, 2017 – 2019; (2) Manuel Labbe, 2013; (1) Jessie Viss, 2013 – 2015

REU Students (6): (6) Katie Gabe, 2023; (5) Kai Galvan-Dubois, 2021; (4)Thalia Wallace, 2019; (3) Quazetta Brown, 2018; (2) Molly “Gray” Ryan, 2017; (1) Corelle Rokicki, 2015

High School Students (3): (3) Flora Freer, 2023 (Governor’s School); (2) Summer Vander Kooi, 2022-2023; (1) Hannah Brown, 2017 – 2018

6d. Postdoctoral Researchers Supervised (2)

- (2) Kate Langwig (Primary Mentor: Marc Lipsitch, Harvard), 2016 – 2018
- (1) Juliette Doumayrou, 2015 – 2018

6e. Technicians Supervised (8)

- (8) Courtney Croasdale, 2024 – present; (7) Barb Rutan, 2012 – present; (6) Hannah Brown, 2019 – present; (5) Gaelan Verry, 2020 – 2021; (4) Amy Taylor, 2017 – 2019; (3) Paula Dye, 2016 – 2019; (2) David Beck, 2015 – 2017; (1) Nick Egan, 2016

7. FELLOWSHIPS AND GRANTS

Competitive, Peer-reviewed Awards	12	\$~5,700,000
Awards as Lead PI	8	\$~4,000,000
Total	15	\$~5,716,500

7a. Competitive, Peer-reviewed Awards

2023-2025	USDA Aquaculture, “Rethinking Selective Breeding For Health: Reduced Pathogen Shedding As A Novel Component Of Multi-	\$300,000
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	Trait Enhancement In Salmonid Aquaculture” 2023-70007-40203. AR Wargo role – PI. Co-PI – Jesse Trushenski, Riverence Holdings LLC.	
2019-2023	NOAA, “Do Microplastic Increase Disease Susceptibility in a Commercially Important Salmonid Species” NA19N0S9990085. AR Wargo role – Co-PI. Co-PI’s – Rob Hale (VIMS), Wolf Vogelbein (VIMS), Patty Zwollo (W&M), Meredith Seeley (VIMS)*.	\$280,839
2018-2024	NSF DEB Program, “Virulence Evolution After Viral Host Jump and Emergence” 1754692. AR Wargo role – PI. Co-PI’s – Gael Kurath (USGS), David Kennedy (Penn. State).	\$1,195,000
2017-2021	USDA EEID Program, “A Specialist Generalist Framework for Viral Transmission in Salmon of the Northwest”. AR Wargo role – Co-PI. PI- Kerry Naish (U. Washington). Co-PI’s – Gael Kurath (USGS), Maureen Purcell (USGS), Paige Ferguson (U. Alabama).	\$2,490,906 (\$211,845 to Wargo)
2015-2020	USDA NIFA Program, “Quantification of the Prevention Efficacy of Vaccines against Virulence Evolution of Infectious Hematopoietic Necrosis Virus in Aquaculture” 2015-67015-23112. AR Wargo role - PI	\$480,000
2014-2019	NIH EEID Program, “ <i>The Impacts of Host Vaccination and Genetic Resistance on Pathogen Transmission, Ecology, and Epidemiology</i> ” 1R01GM113233-01. AR Wargo role - PI. Co-PI’s – Marc Lipsitch (Harvard), Greg Wiens (USDA), Tim Leeds (USDA).	\$1,957,156
2012-2016	USDA EEID Program, “ <i>Ecological Drivers of Transmission, Emergence, and Displacement of an Aquatic Virus in Fish Hosts</i> ”. AR Wargo role – Senior Personnel and co-author. PI - Kerry Naish (U. Washington). Co-PIs – Gael Kurath (USGS), Maureen Purcell (USGS), Shannon LeDeau (Cary Institute).	\$2,062,822 (\$75,000 to Wargo)
2008-2012	NSF EEID Program, “ <i>Virulence Trade-offs in a Vertebrate Virus</i> ”. AR Wargo role – Postdoc and co-author. PI – Benjamin Kerr (U. Washington); Co-PI – Gael Kurath (USGS).	\$986,088

2006-2008	NIH NRSA Postdoctoral Training Grant, “ <i>The Association between Virulence and Fitness in a Vertebrate Virus</i> ”. AR Wargo role – PI	\$100,000
2003-2006	Wellcome Trust Ph.D. Studentship Grant, University of Edinburgh	£107,453
2003-2006	Universities UK Ph.D. Studentship Grant, University of Edinburgh	£18,000
2005	British Society for Parasitology Ann Bishop Travel Grant, Tanzania, Africa	£1,500

7b. Non-Competitive Private Donations

2023	Riverence Brood Inc., “Aquaculture Disease Research Fund”. AR Wargo role – PI.	\$5,500
2022	Riverence Brood Inc., “Aquaculture Disease Research Fund”. AR Wargo role – PI.	\$5,500
2021	Riverence Brood Inc., “Aquaculture Disease Research Fund”. AR Wargo role – PI.	\$5,500

8. RESEARCH

Students mentored, staff and postdocs***

8a. Refereed publications (33)

33) Jones, D.R.*, Everson, J.***, Leeds, T.D., Wiens, G.D. **Wargo, A.R.** 2024. The impact of exposure dosage and host genetics on the shedding kinetics of *Flavobacterium psychrophilum* in rainbow trout. *Journal of Fish Diseases*, e14026.

32) Seeley, M.E.*, Hale, R.C., Zwollo, P., Vogelbein, W., Verry, G.***, **Wargo, A.R.** 2023. Microplastics exacerbate virus-mediated mortality in fish. *Science of the Total Environment*, 866, 161191

31) Everson, J.L., Jones, D.R.*, Taylor, A.K.***, Rutan, B.J.***, Leeds, T.D., Langwig, K.E.***, **Wargo, A.R.**, Wiens, G.D. 2021. Aquaculture reuse water, genetic line, and vaccination affect rainbow trout (*Oncorhynchus mykiss*) disease susceptibility and infection dynamics. *Frontiers Immunology*, 12:721048.

30) **Wargo, A.R.**, Kurath, G., Scott, R.J.***, Kerr, B. 2021. Virus shedding kinetics and unconventional tradeoffs. *Plos Pathogens*, 17(5), e1009528.

- 29) Jones, D.R.* , Rutan, B.J.** , **Wargo, A.R.** 2020. Impact of vaccination and pathogen exposure dose on shedding kinetics of infectious hematopoietic necrosis virus (IHNV) in rainbow trout. *J. Aquatic Animal Health*, 32(3), 95-108. **Paper of the year award.**
- 28) Doumayrou, J.** , Ryan, M.G.* , **Wargo, A.R.** 2019. A method for serial passage of infectious hematopoietic necrosis virus (IHNV) in rainbow trout. *Dis. Aquat. Org.*, 143, 223-236.
- 27) Langwig, K.E.** , Gomes, M.G.M., Clark, M.D., Kwitny, M., Yamanda, S., **Wargo, A.R.**, Lipsitch, M. 2019. Limited available evidence supports theoretical predictions of reduced vaccine efficacy at higher exposure dose. *Scientific Reports*, 9, 1-6.
- 26) Warshafsky, Z.T.* , Tuckey, T.D., Vogelbein, W.K., Latour, R.J., **Wargo, A.R.** 2018. Temporal, spatial, and biological variation of nematode epidemiology in American eels. *CJFAS*, 76(10), 1808-1818.
- 25) Langwig, K.E.** , **Wargo, A.R.**, Jones, D.R.* , Viss, J.R.* , Rutan, B.J.** , Egan, N.A.** , Sa-Guimaraes, P., Sun Kim, M., Kurath, G., Gomes, M.G.M, Lipsitch, M. 2017. Vaccine effects on heterogeneity in susceptibility and implication for population health management. *Mbio*, 8:e00796-17.
- 24) Breyta, R., Brito, I., Ferguson, S., Kurath, G., Naish, K.A., Purcell, M.K., **Wargo, A.R.**, LaDeau, S. 2017. Transmission routes maintaining a viral pathogen of steelhead trout within a complex multi-host assemblage. *Ecology and Evolution*, 7, 8187-8200.
- 23) **Wargo, A.R.**, Scott, R.J.** , Kerr, B., Kurath, G. 2017. Replication and shedding kinetics of infectious hematopoietic necrosis virus in juvenile rainbow trout. *Virus Research*, 227, 200-211.
- 22) Mckenney, D.G.* , Kurath, G., **Wargo, A.R.** 2016. Characterization of infectious dose and lethal dose of two strains of infectious hematopoietic necrosis virus (IHNV). *Virus Research*, 214, 80-89.
- 21) Kennedy, D.A., Kurath, G., Brito, I.L., Purcell, M.K., Read, A.F., Winton, J.R., **Wargo, A.R.** 2016. Potential drivers of virulence evolution in aquaculture. *Evolutionary Applications*, 9, 344-354.
- 20) Kurath, G. and **Wargo, A.R.** 2015. Evolution of Viral Virulence: Empirical Studies. Chapter in: *Virus Evolution: Current Research and Future Directions*. Editors: Weaver, S., Denison, M., Roossinck, M., Vignuzzi, M. Caister Academic Press.
- 19) Kell, A.M., **Wargo, A.R.**, Kurath, G. 2014. Virus fitness does not correlate with three genotype displacement events involving infectious hematopoietic necrosis virus. *Virology*, 464, 146-155.

- 18) Gomes, M., Lipsitch, M., **Wargo, A.R.**, Kurath, G., Rebelo, C., Medley, G., and Coutinho, A. 2014. A missing dimension in measures of vaccination impacts. *Plos Pathogens*. 10, 1-3 .
- 17) Kell, A.M., **Wargo, A.R.**, Kurath, G. 2013. The role of virulence in *in vivo* superinfection fitness of a vertebrate RNA virus, Infectious Hematopoietic Necrosis Virus. *Journal of Virology*. 87, 8145 – 8157.
- 16) **Wargo, A.R.** and Kurath, G. 2012. Virus fitness: Definitions, measurements, and current insights. *Current Opinion in Virology*. 2, 538-545.
- 15) **Wargo, A.R.**, Kell, A.M., Scott, R.J.**, Thorgaard, G.H., Kurath, G. 2012. Analysis of host genetic diversity and viral entry as sources of between-host variation in viral load. *Virus Research*, 165, 71 – 80.
- 14) **Wargo, A.R.** and Kurath, G. 2011. *In vivo* fitness associated with high virulence in a vertebrate virus is a complex trait regulated by host entry, replication, and shedding. *Journal of Virology*, 85, 3959 – 3967.
- 13) Peñaranda, M.M.D., **Wargo, A.R.**, and Kurath, G. 2011. In vivo fitness correlates with host-specific virulence of *Infectious hematopoietic necrosis virus* (IHNV) in sockeye salmon and rainbow trout. *Virology*, 417, 312 – 319.
- 12) Park, J.W., Moon, C.H., Harmache, A., **Wargo, A.R.**, Purcell, M.K., Bremont, M., and Kurath, G. 2011. Restricted growth of U type IHNV in rainbow trout cells may be linked to casein kinase II activity. *Journal of Fish Diseases*, 34, 115 – 129.
- 11) **Wargo, A.R.**, Garver, K.A., and Kurath, G. 2010. Virulence correlates with fitness *in vivo* for two M group genotypes of *Infectious hematopoietic necrosis virus* (IHNV). *Virology*, 404, 51 – 58.
- 10) Metzger, D.C., Elliott, D.G., **Wargo, A.R.**, Park, L.K., and Purcell, M.K. 2010. Pathological and immunological responses associated with differential survival of Chinook salmon following *Renibacterium salmoninarum* challenge. *Diseases of Aquatic Organisms*, 90, 31 – 41.
- 9) Park, J.W., Moon, C.H., **Wargo, A.R.**, Purcell, M.K., and Kurath, G. 2010. Differential growth of U and M type infectious hematopoietic necrosis virus in a rainbow trout-derived cell line, RTG-2. *Journal of Fish Diseases*, 33, 583 – 591.
- 8) Huijben, S., Nelson, W.A., **Wargo, A.R.**, Sim, D.G, Drew, D.R., and Read, A.F. 2010. Chemotherapy, within-host ecology and the fitness of drug-resistant malaria parasites. *Evolution*, 64, 2952 – 2968.

- 7) Troyer, R.M., Garver, K.A., Ranson, J.C., **Wargo, A.R.**, and Kurath, G. 2008. *In vivo* virus growth competition assays demonstrate equal fitness of fish rhabdovirus strains that co-circulate in aquaculture. *Virus Research*, 137, 179 – 188.
- 6) **Wargo, A.R.**, Huijben, S., De Roode, J.C., Shephard, J., and Read, A.F. 2007. Competitive release and facilitation of drug-resistant parasites following therapeutic chemotherapy in a rodent malaria model. *Proceedings of the National Academy of Sciences of the United States of America*, 104, 19914 – 19919.
- 5) **Wargo, A.R.**, De Roode, J.C., Huijben, S., Drew, D.R., and Read, A.F. 2007. Transmission stage investment of malaria parasites in response to in-host competition. *Proceedings of the Royal Society of London, Series B -Biological Sciences*, 274, 2629 – 2638.
- 4) **Wargo, A.R.**, Randle, N., Chan, B.H.K., Thompson, J., Read, A.F., and Babiker, H.A. 2006. *Plasmodium chabaudi*: reverse transcription PCR (RT-PCR) for the detection and quantification of transmission stage malaria parasites. *Experimental Parasitology*, 112, 13 – 20.
- 3) De Roode, J.C., Pansini, R., Cheesman, S.J., Helinski, M.E.H., Huijben, S., **Wargo, A.R.**, Bell, A.S., Chan, B. H. K., Walliker, D., and Read, A. F. 2005. Virulence and competitive ability in genetically diverse malaria infections. *Proceedings of the National Academy of Sciences of the United States of America*, 102, 7624 – 7628.
- 2) Vardo, A.M., **Wargo, A.R.**, and Schall, J.J. 2005. PCR detection of lizard malaria parasites: prevalence of *Plasmodium* infections with low-level parasitemia differs by site and season. *Journal of Parasitology*, 91, 1509 – 1511.
- 1) Osgood, S.M., Eisen, R.J., **Wargo, A.R.**, and Schall, J.J. 2003. Manipulation of the vertebrate host's testosterone does not affect gametocyte sex ratio of a malaria parasite. *Journal of Parasitology*, 89, 190 – 192.

8e. Articles published in non-refereed conference proceedings (2)

- 6) Cipriano, C.R., Kohli, A.K., Brown, H.R., Wargo, A.R., Wogelbein, W.K., Gauthier, D.T. 2023. Genomic characterization of *Vibrio vulnificus* from red sore disease (RSD) in American eel (*Anguilla rostrata*). *ODU Digital Commons*.
- 5) Langwig, K.E., Wargo, A.R., Gomes, M.G.M., Lipsitch, M. 2018. The effects of vaccination and selection on heterogeneity in susceptibility and implications for population health management. *ESA Annual Meeting*.
- 4) Langwig, K.E., Wargo, A.R., Gomes, M.G.M., Lipsitch, M. 2016. Quantifying heterogeneity in susceptibility and vaccine protection. *ESA Annual Meeting*.
- 3) Wargo, A.R., Latour, R., Tuckey, T.D., Vogelbein, W.K. 2015. Impact of *Anguillicolides crassus* on American eels (*Anguilla rostrata*). W&M ScholarWorks.

2) Huijben, S., **Wargo, A.R.**, Drew, D., Sim, D. 2007. The effects of sub-curative drug treatment on the outcome of competition for drug resistant parasites in mixed-clone malaria infections. *Tropical Medicine & International Health*, 12, 69.

1) Nicole, J., **Wargo, A.R.**, Bishop-Rimmer, E., Segal, A.S. 2004. Membrane cholesterol content regulates the mechanosensitivity of a nonselective cation channel in renal proximal tubule. *Journal of General Physiology*, 124, 14A.

8f. Invited scholarly papers and talks (31)

- 31) **Wargo, A.R.**, “Drivers of Pathogen Virulence”
Emory University, Atlanta, GA 2023
- 30) **Wargo, A.R.**, “Why do vaccines fail?”
International Conference on Production Diseases, Madison, WI 2022
- 29) **Wargo, A.R.**, “An evolutionary approach to disease management”
University of Hawaii, Honolulu, HI 2022
- 28) Hale R. C., **Wargo A.R.**, Seeley M.* Microplastics: Synergistic Interactions with Disease in Finfish. Virginia Marine Debris Summit. 2022
- 27) **Wargo, A.R.**, Jones, D.R.*, Doumayrou, J.**, “Prevention efficacy of vaccines against transmission and virulence evolution of infectious hematopoietic necrosis virus in rainbow trout”
Aquaculture America Conference, Honolulu, HI 2020
- 26) **Wargo, A.R.** and Doumayrou, J.** “Can vaccination induce the evolution of increased virulence in infectious hematopoietic necrosis virus”
Virus Evolution Meeting, Penn State, PA 2019
- 25) **Wargo, A.R.** and Doumayrou, J.** “Prevention efficacy of vaccines against virulence evolution of infectious hematopoietic necrosis virus”
CRAWD, Chicago, IL 2018
- 24) **Wargo, A.R.** “Vaccine impacts on pathogen co-infection dynamics”
Ecology and Evolution of Infectious Disease Meeting, Edinburgh, Scotland 2018
- 23) **Wargo, A.R.** “Quantification of the prevention efficacy of vaccines against virulence evolution of infectious hematopoietic necrosis virus”
USDA NIFA Grant Holders Meeting, Chicago, IL 2017
- 22) **Wargo, A. R.** “Enhancing epidemiological inference through an integration of ecology and evolution”
Cornell University, Ithaca, NY 2016

- 21) **Wargo, A.R.** “Enhancing vaccination and selective breeding efficacy through an integration of ecology and evolution”
Clear Springs Inc., Clear Springs, ID 2016
- 20) **Wargo, A.R.** “Does vaccination induce virulence evolution”
Eastern Fish Health Workshop, Atlantic Beach, NC 2016
- 19) **Wargo, A.R.** “Virulence epidemiology: Harnessing evolution to manage disease”
SUNY Albany, Albany, NY 2016
- 18) **Wargo, A.R.** “Virus traits that drive emergence and displacement: Virus transmission fitness
Salmon Disease Stakeholder Meeting, Seattle, WA 2015
- 17) **Wargo, A.R.** “Evaluation of vaccine efficacy: moving beyond disease protection”
American Fisheries Society Fish Health Section Meeting, Cornell University, Ithaca, NY 2015
- 16) **Wargo, A.R.** “Virulence epidemiology: Harnessing evolution to manage disease”
Washington State University, Pullman, WA 2015
- 15) **Wargo, A.R.** “Evolutionary and Ecological Medicine 2014
Tidewater Microbiology Group, Old Dominion University, Norfolk, VA
- 14) **Wargo, A.R.** “Understanding the evolutionary arms race in marine infectious diseases”
VIMS After Hours Lecture, Gloucester Point, VA 2014
- 13) **Wargo, A.R.** “Virulence epidemiology: Harnessing evolution to manage disease”
Cornell University, Ithaca, NY 2014
- 12) **Wargo, A.R.** “Shedding kinetics of infectious hematopoietic necrosis virus isolates involved
in field displacement events”
Ecodrivers grant holder meeting, Seattle, WA 2014
- 11) **Wargo, A.R.** “Ecological and evolutionary drivers of aquatic infectious disease severity”
IMET University of Maryland, Baltimore, MD 2014
- 10) **Wargo, A.R.** “Drivers of virulence evolution in a fish virus”
Virginia Tech, Blacksburg, VA 2014
- 9) **Wargo, A.R.** “Shedding kinetics in viral displacement events”
USGS Western Fisheries Research Center, Seattle, WA 2013
- 8) **Wargo, A.R.** “A search for Virulence tradeoffs in IHNV”
RAPIDD Meeting, USGS Western Fisheries Research Center, Seattle, WA 2013
- 7) **Wargo, A.R.** “Testing the virulence evolution paradigm in a vertebrate virus system”

- Instituto Gulbenkian De Ciencia, Oeiras, Portugal 2013
- 6) **Wargo, A.R.** “Ecological drivers of infectious disease severity in aquatic hosts”
USDA NCCCWA, Leetown, WV 2013
- 5) **Wargo, A.R.** “Ecological drivers of aquatic infectious disease severity”
College of William and Mary, VIMS, Gloucester Point, VA 2012
- 4) **Wargo, A.R.** “How an understanding of the ecological principles governing infectious disease severity can assist in the management of fish pathogens”
USDA ARS Dairy Forage, Milwaukee, WI 2011
- 3) **Wargo, A.R.** “Anthropogenic impacts on animal infectious disease severity”
Oregon State University, Corvallis, OR 2011
- 2) **Wargo, A.R.** “Ecological drivers of animal infectious disease severity”
University of California, Davis, CA 2011
- 1) **Wargo, A.R.** “Does curative drug treatment accelerate the evolution of drug resistance in malaria?”
Co-infection Workshop, University of Edinburgh, Scotland 2006

8g. Contributed scholarly papers and talks

8g.i. Talks delivered by A.R. Wargo (20)

- 20) **Wargo, A.R.** and Trushenski T. “Pathogen transmission resistance as a novel selective breeding target in rainbow trout”
American Fisheries Society, Honolulu, HI 2024
- 19) **Wargo, A.R.** “Fitness drivers of virulence evolution after a virus host jump”
Ecological Society of America, Long Beach, CA 2024
- 18) **Wargo, A.R.** “Infectious disease management: Are we missing something?”
Aquatic Health Sciences Departmental Seminar, VIMS, Gloucester Point, VA 2019
- 17) **Wargo, A.R.** “Ecological drivers of transmission, emergence, and displacement of an aquatic virus in fish hosts”
Aquatic Health Sciences Departmental Seminar, VIMS, Gloucester Point, VA 2016
- 16) **Wargo, A.R.** “A quest to unravel aquatic pathogen ecology and evolution”
EAAH Departmental Seminar, VIMS, Gloucester Point, VA 2013
- 15) **Wargo, A.R.** “Impacts of host culling on virulence evolution of Infectious hematopoietic necrosis virus”
Virus Evolution Meeting, Pennsylvania State University, State College, PA 2013

- 14) **Wargo, A.R.** “Drivers of pathogen burden variation”
Department of Biology Retreat, University of Washington, Friday Harbor, WA 2011

- 13) **Wargo, A.R.** “Shedding dynamics of two *Infectious hematopoietic necrosis virus* (IHNV) genotypes which differ in virulence in rainbow trout”
Virus Evolution Meeting, Noble Foundation, Ardmore, OK 2010

- 12) **Wargo, A.R.** “Is there an advantage to being a deadly virus”
Department of Biology Retreat, University of Washington, Friday Harbor, WA 2010

- 11) **Wargo, A.R.** “Virulence-fitness trait associations in a vertebrate virus”
Department of Biology Seminar Series, University of Washington, Seattle, WA 2010

- 10) **Wargo, A.R.** “Does IHNV virulence have a fitness tradeoff?”
WFRC Research Seminar Series, USGS WFRC, Seattle, WA 2009

- 9) **Wargo, A.R.** “Virulence trade-offs in a vertebrate virus”
Ecology and Evolution of Infectious Disease Meeting, University of Georgia, Athens, GA 2009

- 8) **Wargo, A.R.** “Investigating the virulence and fitness trait relationship in a vertebrate virus”
NSF Ecology of Infectious Disease Grant Holders Meeting, Park City, UT 2009

- 7) **Wargo, A.R.** “Virulence and fitness in IHNV”
Marrowstone Research Conference, USGS WFRC, Marrowstone, WA 2008

- 6) **Wargo, A.R.** “Are pathogens evolving towards becoming super-killers?”
Postdoctoral Mini-Symposium, University of Washington, Seattle, WA 2007

- 5) **Wargo, A.R.** “Low drug treatment dosage to curtail drug resistance evolution in malaria”
Ecology and Evolution of Infectious Disease Meeting, Pennsylvania State University, State College, PA 2006

- 4) **Wargo, A.R.** “Experimental evidence of accelerated drug resistance evolution in malaria”
American Society of Tropical Medicine and Hygiene Meeting, Washington, D.C. 2005

- 3) **Wargo, A.R.** “Competition, transmission, and drug resistance evolution in mixed malaria infections”
Protozoan Parasite Seminar Series, University of Edinburgh, Scotland 2005

- 2) **Wargo, A.R.** “Ecology and evolution of malaria parasite transmission”
Protozoan Parasite Seminar Series, University of Edinburgh, Scotland 2004

- 1) **Wargo, A.R.** “Quantification and detection of transmission stage malarial parasites”
European Evolution PhD Student Meeting, Shrewsbury, England 2004

8g.ii. Talks delivered by students and postdocs (33)

- 36) Loehner, M.*, Brown, H.***, Kurath, G., **Wargo, A.R.** “Virulence and Fitness of an Emergent Virus in Trout Aquaculture.”
American Fisheries Society Fish Health Section Summer Seminar Series (virtual) 2023
- 35) Loehner, M.*, Brown, H.***, Rutan, B.***, Kurath, G., **Wargo, A.R.** “Quantifying Transmission of an Emergent Virus over Time in Rainbow Trout.”
European Association of Fish Pathologists Student Conference (virtual) 2023
- 34) Loehner, M.*, Brown, H.***, Kurath, G., Kennedy, D., **Wargo, A.R.** “Fitness of an emergent virus in rainbow trout aquaculture.”
AHS Departmental Seminar, Gloucester Point, VA 2023
- 33) Loehner, M.*, Brown, H.***, Kurath, G., Kennedy, D., **Wargo, A.R.** “Fitness of an emergent virus in rainbow trout aquaculture.”
Aquaculture America Annual Meeting, New Orleans, LA 2023
- 32) Kohli, A.* and **Wargo, A.R.** “Red sore disease of American eels in Chesapeake Bay: Etiology and Epidemiology”
International Symposium on Aquatic Animal Health, Santiago, Chile 2022
Best student presentation award
- 31) Kohli, A.* and **Wargo, A.R.** “Red sore disease of American eels in Chesapeake Bay”
American Fisheries Society Tidewater Meeting, Nags Head, NC 2022
Best student presentation award
- 30) Loehner, M.* and **Wargo, A.R.** “IHN virus virulence evolution following a host jump in salmonids”
Ecology and Evolution of Infectious Disease Annual Meeting, Emory University, GA 2022
- 29) Loehner, M.* and **Wargo, A.R.** “Virulence evolution of a salmonid virus: IHN virus.” VIMS
AHS Departmental Seminar, Gloucester Point, VA 2022
- 28) Loehner, M.* and **Wargo, A.R.** “Virulence evolution of infectious hematopoietic necrosis virus post-host jump.”
Ecology and Evolution of Infectious Disease Annual Meeting, Montpellier, France (virtual). 2021
- 27) Loehner, M.* and **Wargo, A.R.** “Watching a virus evolve: quantifying pathogen fitness of IHN virus in sockeye salmon.” VIMS AHS Departmental Seminar. 2021
- 26) Kohli, A.*, Vogelbein, W., and **Wargo, A.R.** “Red Sore Disease of American Eels”.
American Fisheries Society, Southern Division (virtual).
2021
Awarded Best Student Oral Presentation

- 25) Loeher, M.* and **Wargo, A.R.** “Seafood sustainability”
Scientist Walks into a Bar Series, Gloucester, VA 2019
- 24) Kohli, A.* and **Wargo, A.R.** “Red disease in American eels”
AHS Departmental Seminar, Gloucester Point, VA 2018
- 23) Jones, D.* and **Wargo, A.R.** “Coinfection in Rainbow trout”
ISAAH, Prince Edward Island, Canada 2018
- 22) Doumayrou, J.** and **Wargo, A.R.** "How do vaccination and genetic resistance impact co-infection, transmission dynamics of Infectious hematopoietic necrosis virus and *Flavobacterium psychrophilum* in rainbow trout?"
AHS Departmental seminar, VIMS, Gloucester Point, VA 2017
- 21) Doumayrou, J.** and **Wargo, A.R.** "How do vaccination and genetic resistance impact co-infection and transmission dynamics of Infectious hematopoietic necrosis virus and *Flavobacterium psychrophilum* in rainbow trout?"
Virus Evolution Meeting, Pennsylvania State University, State College, PA 2017
- 20) Doumayrou, J.** and **Wargo, A.R.** "Impact of vaccination on disease in aquaculture"
2nd Southeastern Virginia Postdoc Symposium, VIMS, Gloucester Point, VA 2017
- 19) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of a parasitic nematode on Chesapeake Bay American eels”
AFS Tidewater Annual Meeting 2017
- 18) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “ASMFC American Eel Technical Committee Presentation”
Atlantic States Marine Fisheries Commission American eel Technical Committee 2017
- 17) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of a parasitic nematode on Chesapeake Bay American eels”
VIMS Fisheries Department Seminar, Gloucester Point, VA 2017
- 16) Jones, D.R.* and **Wargo, A.R.** “Impacts of vaccination on transmission and infection dynamics in rainbow trout”.
AFS Fish Health Meeting, Michigan State University, East Lansing, MI 2017
- 15) Jones, D.R.* and **Wargo, A.R.** “Impacts of vaccination on transmission and infection dynamics in rainbow trout”
Eastern Fish Health Workshop, Michigan State University, East Lansing, MI 2017

- 14) Jones, D.R.* and **Wargo, A.R.** “Transmission dynamics of two pathogens in rainbow trout”
Outbreak! Diseases in Aquatic Organisms Meeting, College of William and Mary, Williamsburg, VA 2017
- 13) Jones, D.R.* and **Wargo, A.R.** “Transmission experiments update”.
EEID Grant Holder Meeting, Virginia Institute of Marine Science, Gloucester Point, VA 2017
- 12) Warshafsky, Z.W.*, Latour, R., **Wargo, A.R.** “American eels and their nasty nematode parasites” Virginia Sea Grant Annual Participants Symposium, Richmond, VA 2016
- 11) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of the parasitic nematode *Anguillicoloides crassus* on Chesapeake Bay American eels (*Anguilla rostrata*)”
Atlantic States Marine Fisheries Commission American eel Technical Committee 2016
- 10) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of a parasitic nematode on Chesapeake Bay American eels.”
VIMS Fisheries Department Seminar, Gloucester Point, VA 2016
- 9) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “American eel's got 99 problems and a parasite's one”
William and Mary Journal Club, Williamsburg, VA 2016
- 8) Jones, D.R.* and **Wargo, A.R.** “Transmission experiments update”
EEID Grant Holder Meeting at Cornell University, Ithaca, NY 2016
- 7) Warshafsky, Z.W.*, Latour, R., **Wargo, A.R.** “An eel's gotta deal”
VIMS Three Minute Thesis Competition, Gloucester Point, VA 2015
- 6) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “American eel's got 99 problems and a parasite's one”
VIMS Aquatic Health Sciences Seminar, Gloucester Point, VA 2015
- 5) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of the parasitic nematode *Anguillicoloides crassus* on Chesapeake Bay American eels”
Atlantic States Marine Fisheries Commission American eel Technical Committee 2015
- 4) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Make eels great again: Using really, really good x-rays to study nasty nematodes”
VIMS Aquatic Health Sciences Seminar, Gloucester Point, VA 2015
- 3) Jones, D.R.* and **Wargo, A.R.** “Transmission experiments update”
EEID Grant Holder Meeting at NCCCA USDA, WV 2015
- 2) Jones, D.R.* and **Wargo, A.R.** “Shedding New Light on Vaccine Evaluation”

VIMS Three Minute Thesis Competition VIMS, Gloucester Point, VA 2015

1) Jones, D.R.* and **Wargo, A.R.** “Transmission experiments update”
EEID Grant Holder Meeting at VIMS, Gloucester Point, VA. 2015

8l. Research reports from grant or contract work (5)

5) Hale, R., Seeley, M.*, Zwollo, P., Vogelbein, W., **Wargo, A.R.** “Do Microplastic Increase Disease Susceptibility in a Commercially Important Salmonid Species”. NOAA grant final report. 2023

4) Naish, K., **Wargo, A.R.**, Purcell, M., Kurath, G., Ferguson, P., Kurath, G. “A Specialist Generalist Framework for Viral Transmission in Salmon of the Northwest”. USDA EEID grant final report. 2022

3) **Wargo, A.R.** “Quantification of the Prevention Efficacy of Vaccines Against Virulence Evolution of Infectious Hematopoietic Necrosis Virus in Aquaculture”. USDA NIFA grant final report. 2021

2) **Wargo, A.R.**, “The Impacts of Host Vaccination and Genetic Disease Resistance on Pathogen Transmission, Ecology, and Epidemiology”. NIH EEID grant final report. 2021

1) **Wargo, A.R.**, Kurath, G., Kerr, B. “Virulence tradeoffs in a vertebrate virus”. NSF EEID grant final report. 2012

8o. Works in progress (3)

3) Kohli, A.K.*, Vogelbein, W.K., **Wargo, A.R.**, Bacterial pathogens associated with red sore disease of American eels (*Anguilla rostrata*). In review *Aquaculture*

2) Loehner, M.M.*, Kurath, G., Kennedy D.A., Salzer, J.E., Batts, W.N., Breyta, R.B., **Wargo, A.R.** Virulence evolution of a salmonid virus following a host jump. Submitted *Plos Biology*

1) Doumayrou, J.***, Frasier, M.G.*, **Wargo, A.R.** Efficacy of three vaccines against infectious hematopoietic necrosis disease and viral shedding in rainbow trout.

8p. Other scholarly activity

8p.i. Poster presentations (31)

31) **Wargo, A.R.**, Seeley, M.*, Hale, R. “Microplastics and disease ecology: Evidence of exacerbated viral virulence and transmission”
Ecology and Evolution of Infectious Diseases Meeting, Penn. State, State College, PA 2023

30) Cipriano, K., Kohli, A.*, Brown, H.***, **Wargo A.R.**, Vogelbein W., and Gauthier, D. “Genomic characterization of *Vibrio vulnificus* from Red Sore Disease (RSD) in American eel (*Anguilla rostrata*)”.
Eastern Fish Health Workshop, Atlantic Beach, NC 2023

- 29) Loeher, M.* and **Wargo, A.R.** “Quantifying transmission of an emergent virus over time in rainbow trout”
Ecology and Evolution of Infectious Diseases Meeting, Penn. State, State College, PA 2023
- 28) Loeher, M.* and **Wargo, A.R.** “Virulence evolution of a pathogen following a host jump in salmonid aquaculture”
Ecology Society of America Meeting, Montreal, Canada 2022
- 27) Loeher, M.*, Wargo, A.R. “Virulence evolution of infectious hematopoietic necrosis virus post-host jump.” Ecology and Evolution of Infectious Disease Annual Meeting, Montpelier, France (Virtual) 2021
- 26) Wargo, A.R., “Sustainable Disease Management in Aquaculture”
International Conference on Sustainability, Energy, and the Environment, Honolulu, HI 2020
- 25) Kohli, A.K.*, Wargo, A.R., Vogelbein, W.K., “Emerging red disease of American Eels in Chesapeake Bay”
Virginia Seagrass Symposium, Richmond, VA 2020
- 24) **Wargo, A.R.**, Jones, D.R.*, Taylor, A.**, Everson, J., Leeds, T., Gomes, G.M.G, Lipsitch, M., Wiens, G.D., and Langwig, K.E.** “Are susceptible hosts also more infectious?”
Ecology and Evolution of Infectious Disease Meeting, Princeton, NJ 2019
- 23) Kohli, A.*, and **Wargo, A.R.** “Emerging disease in American eels”
Ecology and Evolution of Infectious Disease Meeting, Princeton, NJ 2019
- 22) **Wargo, A.R.**, Lipsitch, M., Gomes, G.M.G., Wiens, G.D., Kurath, G., Langwig, K.E.**,
Doumayrou, J.**, Jones, D.R.*, Leeds, T.E., Everson, J. “The missing dimensions in vaccine efficacy inference”
Ecology and Evolution of Infectious Disease Meeting, Santa Barbara, CA 2017
- 21) Jones, D.R.* and **Wargo, A.R.** “Impacts of vaccination and genetic disease resistance on transmission of IHNV and *Flavobacterium psychrophilum* in rainbow trout”
William and Mary Graduate Research Symposium, College of William and Mary, Williamsburg, VA 2017
- 20) Jones, D.R.* and **Wargo, A.R.** “Impacts of vaccination and genetic disease resistance on transmission of IHNV and *Flavobacterium psychrophilum* in rainbow trout”
VIMS Post-Doctoral Symposium, Gloucester Point, VA 2017
- 19) Langwig, K.E.**, **Wargo, A.R.**, Gomes, G.M.G., Lipsitch, M. “Quantifying heterogeneity in susceptibility and vaccine protection”
Ecology and Evolution of Infectious Disease Meeting, Ithaca, NY 2016

- 18) Kurath, G., Breyta, R., McKenney, D.**, Kell, A., **Wargo, A.R.**, Tesfaye, T., Purcell, M., Briec, M., Ferguson, P., LaDeau, S., Naish, K. “Virulence evolution as a driver of viral emergence and displacement in salmonid fish”
Ecology and Evolution of Infectious Disease Meeting, Ithaca, NY 2016
- 17) Breyta, R., Ferguson, P., LaDeau, S., Brito, I., Kurath, G., Mckenney, D.**, **Wargo, A.R.**, Tesfaye, T., Purcell, M., Briec, M., Naish, K. “Modeling transmission dynamics of an acute viral pathogen of Pacific salmon in a complex aquatic system”
Ecology and Evolution of Infectious Disease Meeting, Ithaca, NY 2016
- 16) Carnegie, R.B., Ford, S.E., **Wargo, A.R.**, Crockett, R.K., Huey, L.I.*, Mann, R., Reece, K.S., La Peyre, J.F. “Oyster-Parasite system as a model for evolutionary ecology in marine disease”
Ecology and Evolution of Infectious Disease Meeting, Ithaca, NY 2016
- 15) Jones, D.R.*, **Wargo, A.R.** “Impacts of vaccination and genetic disease resistance on transmission and infection dynamics in rainbow trout”
Ecology and Evolution of Infectious Disease Meeting, Ithaca, NY 2016
- 14) **Wargo, A.R.** “Quantification of the prevention efficacy of vaccines against virulence evolution of infectious hematopoietic necrosis virus in aquaculture”
USDA NIFA Grant Holders Meeting, Chicago 2016
- 13) Naish, K., Kurath, G., Purcell, M., LaDeau, S., Breyta, R., Briec, M., Ferguson, P., McKenney, D.**, Powers, R., **Wargo, A.R.** “Drivers of transmission, emergence, and displacement of an aquatic virus in fish hosts”
USDA NIFA Grant Holders Meeting, Chicago 2016
- 12) **Wargo, A.R.** “Quantification of the prevention efficacy of vaccines against virulence evolution of infectious hematopoietic necrosis virus in aquaculture”
USDA NIFA Grant Holders Meeting, Chicago 2015
- 11) **Wargo, A.R.**, Lipsitch, M., Sá Guimarães, P., Wiens, G., Leeds, T., Kurath, G., Gomes, G. “In vivo quantification of vaccine protection heterogeneity”
Ecology and Evolution of Infectious Disease Meeting, Athens, GA 2015
- 10) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of an invasive parasitic nematode *Anguillacolooides crassus* on Chesapeake Bay American eels (*Anguilla rostrata*)”
VIMS 75th Anniversary Symposium, Gloucester Point, VA 2015
- 9) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of an invasive parasitic nematode *Anguillacolooides crassus* on Chesapeake Bay American eels (*Anguilla rostrata*)”
American Fisheries Society Annual Conference 2015

- 8) Warshafsky, Z.W.*, Tuckey, T., Vogelbein, W., Latour, R., **Wargo, A.R.** “Impact of an invasive parasitic nematode *Anguillacolooides crassus* on Chesapeake Bay American eels (*Anguilla rostrata*).
Ecology and Evolution of Infectious Disease Conference, Athens, GA 2015
- 7) Jones, D.R.* and **Wargo, A.R.** “Characterization of Pathogen Epidemiology in Vaccinated and Genetically Resistant Rainbow Trout”.
VIMS 75th Anniversary Conference, Gloucester Point, VA 2015
- 6) **Wargo, A.R.** “Potential impacts host culling on virulence evolution”
Ecology and Evolution of Infectious Disease Meeting, Colorado State University 2014
- 5) **Wargo, A.R.** “Potential impacts of host culling on the virulence evolution of a virus in fish aquaculture”
Ecology and Evolution of Infectious Disease Meeting, Penn. State University 2013
- 4) **Wargo, A.R.** “Is there a trade-off between transmission potential and virulence in an aquatic vertebrate virus?” 2011
Ecology and Evolution of Infectious Disease Meeting, University of California, Santa Barbara, CA
- 3) **Wargo, A.R.** “Transmission stage dynamics of vertebrate virus genotypes that differ in virulence”
Ecology and Evolution of Infectious Disease Meeting, Cornell University, Ithaca, NY 2010
- 2) **Wargo, A.R.** “Virulence trade-offs in an acute vertebrate virus”
Ecology and Evolution of Infectious Disease Meeting, Colorado State University, Ft. Collins, CO 2008
- 1) **Wargo, A.R.** “Intra-specific competition and transmission dynamics of malaria”
European Society for Evolutionary Biology Meeting, Krakow, Poland 2005

9. PROFESSIONAL SERVICE

9a. University (W&M) Service

- 7) Plumeri Awards Committee 2024
- 6) Inclusive Teaching Course, developer and facilitator 2023-2024
- 5) STLI Online Course Development Workshop 2023
- 4) Provost’s Mid-Level Academic Leadership Course 2022
- 3) Inclusive Teaching Strategies Course 2021
- 2) Hybrid Teaching Workshop 2018, 2020
- 1) Implicit Bias & Microaggression Workshop 2019

9b. SMS/VIMS Service

12) Research and Academic Inclusion (RAISE) Postdoc Fellowship Committee	2023-present
11) Quantitative Skills Committee	2015-present
10) SRL freshwater BSLII+ system, designer and maintenance,	2012-present
9) Faculty Cluster Hire Search Committee	2022-2023
8) Faculty Council	2020-2023
7) Diversity and Inclusion Committee	
-Department rep	2017-2022
-Vice chair	2017-2020
6) Postdoctoral Program Coordinator	2012-2021
5) Staff Salaries Steering Committee	2020-2021
4) Physical Facilities Steering Committee	2020-2021
3) Admission Committee, Aquatic Health Sciences	2012-2020
2) Generalized Linear Models in SAS course	2014
1) Graduate Defense Moderator	2013-2014

9c. Editorial Board Services, Review Panels, Program Reviews

3) Subject Editor: Ecosphere (~1 article/month) 2017 – present

2) Journal Manuscript Reviewer (1-2 articles/month) 2008-present

Microorganism, Evolutionary Applications, Journal of Aquatic Animal Health, Frontiers in Immunology, Viruses, Fisheries, Zoological Research, Infection and Immunity, Virus Evolution, Transboundry and Emerging Diseases, Aquaculture, Ecological Research, ISME Journal, Scientific Reports, Diseases of Aquatic Organisms, Virus Evolution, ICES Journal of Marine, Science, Proceedings of the Royal Society B, Virological Methods, Virus Research, Ecology and Evolution, Emerging Microbes and Infection, Philosophical Transactions, Fish and Shellfish Immunology, Ecology Letters, Plos Computational Biology, Plos Pathogens, BMC Evolutionary Biology, Evolution, Veterinary Microbiology, American Naturalist, Ecological Monographs, Trends in Parasitology, Journal of Virology

1) Grant Reviewer

-NSF	2014-2024 (20 total panels)
-BBSRC	2020
-USDA	2014, 2018(2), 2020(2), 2024
-Austrian Science Fund	2019
-NOAA SEAGRANT program	2013
-Agency of National Research France	2012, 2024

9d. Other Professional Service

5) Invited Participant: International collaboration building workshop on the ecology and evolution of infectious diseases, Wellcome Trust, UK 2024

4) Consultant: Disease diagnostics, epidemiology, and management for major international salmonid aquaculture companies (Riverence, Troutlodge) and federal agencies (USDA, USGS) 2017-present

- 3) **Consultant:** Disease surveillance Pacific Island tilapia aquaculture 2019-present
- 2) **Organizer:** Southeastern Virginia Postdoctoral Symposium 2015, 2017, 2019
- 1) **Participant:** Advanced R Programming workshop, RStudio, Tysons Corners, VA 2013

10. ADVISORY SERVICE

10a. Service to State Agencies

- Researcher and Consultant:** Virginia Marine Diseases initiative “Aqua-D” 2021-present
- Heavily focused on capacity building and personnel training for emerging and problematic infectious disease in Chesapeake Bay
 - Enhancement of Vibrio and general virology detection and diagnostics
 - American eel disease surveillance

10b. Service to Legislature

Facilities and aquatic health research presentations to Virginia State Legislators. 2015-2021

10c. Service to Industry

Consultant: American eel disease management in aquaculture and fisheries for Chesapeake Bay companies (2 Barrel Baits, Chesapeake Star Seafood). 2015-present

10d. Regional, National, or International Management Programs

- 2) **Consultant:** Aquatic health and disease management for agencies such as VSMFC and NOAA Sea grant 2012-present
- 1) **Participant:** Virginia Sea Grant workshop and strategic planning meeting. 2016

10e. Public Outreach

- 3) **Wargo, A.R.,** Warshafsky, Z.*, Rutan, B.**, Jones, D.R.*, Taylor, A.**, Brown, H.**,
Kohli.A.* “American eels and their parasites”
Exhibit, VIMS Marine Science Day, Gloucester Point, VA 2015-2019, 2023-2024
- 2) **Wargo, A.R.** “Meet an Aquatic Health Scientist”.
Career Day presenter, Hookele Elementary and Seagull Schools, Kapolei, HI 2020
- 1) **Wargo, A.R.** “Understanding the evolutionary arms race in marine infectious diseases”
VIMS After Hours Lecture, Gloucester Point, VA 2014