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updated 1/10/2017

### **Research Interests**

Bioeconomics, natural resource economics, natural capital and natural liabilities, link between natural capital and non-market and market ecosystem services, microeconomic behavior as it relates to resource dynamics, populations and disease ecology, epidemiology, partial controllability of systems, feedbacks between humans and ecosystems, tradeoffs in natural resource management, the role of risk and approaches to managing risk in natural resource decision making, fisheries management and policy, invasive species, dynamic optimization.

### **Education**

Ph.D. in Fisheries and Wildlife; Ph.D. specialization in Resource and Environmental Economics, Michigan State University. 2007.  
Masters of Science in Agricultural Economics, Michigan State University, 2005  
Bachelors of Science in Wildlife Ecology, University of Maine, 1999

### **Positions Held**

Assistant Professor of Bioeconomics and Ecosystem Management, Yale School of Forestry & Environmental Studies. 7/12 – present.

Assistant Professor of Ecological and Bioeconomics, Arizona State University, School of Life Sciences. 8/08-7/12

Research Associate Quantitative Fisheries Center - Department of Fisheries and Wildlife, Michigan State University. 1/08 – 8/08.

Graduate Research Assistant Department of Agricultural Economics & Department of Fisheries and Wildlife, Michigan State University. 8/03 – 12/07.

Seasonal Biologist New Jersey Division of Fish and Wildlife. 4/03 – 8/03.

Special Projects Officer WWF/ PAN Parks Foundation. 8/02 – 2/03.

United States Peace Corps Volunteer Slovensky Raj National Park, Slovakia. 8/00 – 7/02.

### **Awards and Honors**

- Award of Professional Excellence, University of Maine Wildlife Ecology Program alumni award, 2016.
- Arizona State University, Faculty Achievement Award in Defining Edge Research: Young Investigator 2011. One award given per year to untenured faculty.
- Arizona State University, Nominated for the Zebulon Pearce Distinguished Teaching Award 2011.
- Top paper presentation award 8<sup>th</sup> Annual Heartland Environmental & Resource Economics Workshop at Iowa State University, Ames, IA. 9/17-9/18, 2006.
- Outstanding Master's Thesis of 2005, Michigan State University Dept. of Agricultural Economics.

## **RESEARCH**

**Publications (53)** (\*graduate student co-author, \*\*graduate student co-author for which I was a principal advisor, <sup>pd</sup>post-doc co-author, <sup>u</sup>undergraduate co-author)

Google scholar link, <http://scholar.google.com/citations?user=pzUym5gAAAAJ&hl=en>

### **Journal Articles (43)**

43. Fenichel, E.P. and Horan, R.D. 2016. Tinbergen and Tipping points: Could some thresholds be policy-induced? *Journal of Economic Behavior & Organization* **132 Part B**: 137-152.

42. Hunt, L.M., **E.P. Fenichel**, D.C. Fulton, R. Mendelsohn, J.W. Smith, T.D. Tunney, A.J. Lynch, C.P. Paukert, J. Whitney. 2016. Pathways for the climate change to impact inland fishers. *Fisheries* 41(7):362-373.
41. **Fenichel, E.P.** Abbott, J.K., Bayham, J.<sup>pd</sup>, Boon, W.<sup>\*</sup>, Haacker, E.M.K.<sup>\*</sup>, and Pfeiffer L. 2016. Measuring the value of groundwater and other forms of natural capital *Proceedings of the National Academy of Sciences* 113: 2382-2387  
**Press coverage**  
**Washington Post**, <https://www.washingtonpost.com/news/energy-environment/wp/2016/02/08/scientists-have-come-up-with-a-way-to-put-a-price-on-nature/>  
**Newsweek**, <http://www.newsweek.com/dollar-value-water-air-natural-resources-424668>
40. **Fenichel, E.P.** Levin, S.A., McCay, B., St. Martin, K., Abbott, J.K., and Pinsky, M.L. 2016. Wealth reallocation and sustainability under climate change *Nature Climate Change* 6:237-244  
**Press coverage**  
**Christian Science Monitor**, <http://www.csmonitor.com/Science/2016/0224/To-protect-natural-resources-put-a-price-tag-on-them-say-scientists>  
**The Weather Channel**, <https://weather.com/science/environment/news/climate-change-fish-study>  
**Newsweek**, <http://www.newsweek.com/climate-change-will-shift-natural-resources-creating-430910>  
**Wall Street Journal**, <http://www.wsj.com/articles/changing-migration-patterns-upend-east-coast-fishing-industry-1462982278>
39. Bayham, J.<sup>pd</sup>, Kuminoff, N., Gunn, Q.<sup>u</sup> and **Fenichel, E.P.** 2015. Measured voluntary avoidance behavior during the 2009 A/H1N1 epidemic. *Proceedings of the Royal Society B*: 282: 20150814
38. Stefanski, S.F.<sup>\*</sup>, Shi, X.<sup>\*</sup>, Hall, J.S., Hernandez, A. and **Fenichel, E.P.** 2015. Forest and cattle tradeoffs in production for small scale producers in the Panama Canal Watershed. *Forest Policy and Economics*, 56: 48-56 doi: 10.1016/j.forpol.2015.04.001
37. Cease, A.J.<sup>pd</sup>, Elser, J.J., **Fenichel, E.P.**, Hadrich, J.C., Harrison, J.F., and Robinson, B.E. 2015. Living with locusts: connecting soil nitrogen, locust outbreaks, livelihoods, and livestock markets, *BioScience* 65, 551-558.
36. Horan, R.D., **Fenichel, E.P.**, Finnoff, D, and Wolf, 2015. C.A. Arbitrage of Price and Quality Risks: An Integrated Model of Epidemiology and Trade, *Journal of Economic Dynamics and Control*. 53:192-207.
35. Salau<sup>\*\*</sup>, K and **E.P. Fenichel**. 2015. Bioeconomics analysis supports the endangered species act, *Journal of Mathematical Biology* 71: 817-846
34. **Fenichel, E.P.** and Zhao, J. 2015. Sustainability and substitutability, *Bulletin of Mathematical Biology* 77: 348-367
33. Springborn, M., Chowell, G., MacLaughlan, M.<sup>\*</sup> and **Fenichel, E.P.** 2015. Accounting for behavioral responses during a flu epidemic using home television viewing, *BMC Infectious Diseases* 15:21
32. Perrings, C, Castillo-Chavez, C., Chowell, G., Daszak, D., **Fenichel, E.P.**, Finnoff, D., Horan, R.D., Kilpatrick A.M., Kinzig, A., Kuminoff, N.V., Levin, S., Morin, B.<sup>pd</sup>, Smith, K.F., Springborn, M. 2014. Epidemiological Economics is Changing Infectious Disease Management, *EcoHealth* 11: 464-475

31. Seppelt, R., Manceur, A.M., Liu, J., **Fenichel, E.P.**, and Klotz, S. 2014. Synchronized peak rates of global resource use, *Ecology & Society* 19(4):50 – **Highlighted in Nature News section 1/15/2015**, <http://www.nature.com/nature/journal/v517/n7534/full/517246e.html>
30. **Fenichel, E.P.**, Richards, T.J., and Shanafelt\*\*, D. 2014. The control of invasive species on private property with neighbor-to-neighbor spillovers. *Environmental and Resource Economics* 59: 231-255
29. **Fenichel, E.P.** and J.K. Abbott. 2014. Natural capital: from metaphor to measurement. *Journal of the Association of Environmental and Resource Economists* 1:1-27– **inaugural issue, lead article**
28. Richards, T.J., D. Shanafelt\*\*, and **E.P. Fenichel**. 2014. Foreclosures and invasive insect spread: the case of Asian Citrus Psyllid. *American Journal of Agricultural Economics* 96: 615-630 doi:10.1093/ajae/aat099 **lead article**
27. **Fenichel, E.P.** and Abbott, J.K. 2014. Heterogeneity and the fragility of the first best: Putting the “micro” in bioeconomic models of recreational resources. *Resource and Energy Economics* 36: 351-369
26. Morin, B.R.<sup>\*pd</sup>, **Fenichel, E.P.**, and Castillo-Chavez, C. 2013. Epidemics with adaptive human behavior, *Natural Resource Modeling*, 26: 505-525 doi: 10.1111/nrm.12011
25. Abbott, J.K. and **Fenichel, E.P.** 2013. Anticipating adaptation: An Empirical Economic Approach for Linking Policy and Stock Status to Recreational Angler Behavior, *Canadian Journal of Fisheries and Aquatic Sciences* 70: 1190-1208 doi: 10.1139/cjfas-2012-0517
24. **Fenichel, E.P.**, Abbott, J.K., and Huang, B.\*\* 2013. Modelling angler behaviour as a part of the management system: Synthesizing a multi-disciplinary literature. *Fish and Fisheries*, 14: 137-157 doi: 10.1111/j.1467-2979.2012.00456.x
23. **Fenichel, E.P.** N.V. Kuminoff, and G. Chowell. 2013. Skip the trip: Air travelers’ behavioral responses to pandemic influenza. *PLoS One* 8: e58249.
22. **Fenichel, E.P.**, Arlinghaus, R., Gentner, B. 2013. Normative considerations for recreational fishery management: a bioeconomic framework for linking positive science and normative fisheries policy decisions. *Fisheries Ecology and Management* 20: 223-233.
21. **Fenichel, E.P.** 2013. Economic considerations for social distancing and behavioral based policies during an epidemic *Journal of Health Economics* 32: 440-451.
20. Fujitani, M.L.\*\* , **Fenichel, E.P.**, Torre, J., and Gerber, L.R. 2012. Implementation of a marine reserve has a rapid but short-term effect on recreational angling use. *Ecological Applications*. 22(2): 597-605.
19. Hughes, Z.D.\*\* , **Fenichel, E.P.**, Gerber, L.R. 2011. The potential impact of labor choices on the efficacy of marine conservation strategies. *PLoS One*, 6(8): e23722 doi:10.1371/journal.pone.0023722.
18. Švajda, J. and **Fenichel, E.P.** 2011. Evaluation of integrated protected area management in Slovak national parks. *Polish Journal of Environmental Studies*, 20;1053-1060.
17. Horan, R.D., **Fenichel, E.P.** and Melstrom, R.T.\* 2011. Wildlife Disease Bioeconomics. *International Review of Environmental and Resource Economics*, 5:23-61, doi.org/10.1561/101.00000038
16. Horan, R.D., **Fenichel, E.P.**, Drury, K.L.S., and Lodge, D.M. 2011. Managing ecological thresholds in coupled environmental-human systems. *Proceedings of the National Academy of Sciences*, 108:7333-7338, doi/10.1073/pnas.1005431108

15. **Fenichel, E.P.** Castillo-Chavez, C., Ceddia, M.G., Chowell, G., Gonzalez Parra, P.A. \*, Hickling, G.J., Holloway, G., Horan, R.D., Morin, B. \*, Perrings, C.A., Springborn, M., Velazquez, L., and Villalobos, C. 2011. Adaptive human behavior in epidemiological models. *Proceedings of the National Academy of Sciences*, 108:6306-6311, doi:10.1073/pnas.1011250108
14. **Fenichel, E.P.**, Horan R.D., and Bence, J.R. 2010. Indirect management of invasive species with bio-control: a bioeconomic model of salmon and alewife in Lake Michigan. *Resource and Energy Economics* 32:500-518, doi:10.1016/j.reseneeco.2010.04.002
13. Horan, R.D., **Fenichel, E.P.**, Wolf, C.A., and Gramig, B.M. 2010. Managing infectious animal disease systems. *Annual Review of Resource Economics* 2:101-124, doi:10.1146/annurev.resource.012809.103859
12. **Fenichel, E.P.**, Horan, R.D., and Hickling, G.J. 2010. Bioeconomic Management of Invasive Insect-Vectored Diseases. *Biological Invasions*, 12: 2877-2893. doi:10.1007/s10530-010-9734-7
11. **Fenichel, E.P.**, Horan, R.D., and Hickling G.J. 2010. Management of Infectious Wildlife Diseases: Bridging Conventional and Bioeconomic Approaches. *Ecological Applications* 20:903-314.
10. **Fenichel, E.P.** and Hansen G.A.J.\* 2010. The opportunity cost of information: An economic framework for understanding the balance between assessment and control in sea lamprey management. *Canadian Journal of Fisheries and Aquatic Sciences* 67:209-216.
9. **Fenichel, E.P.**, Tsao, J.I., and Jones, M., 2009. Modeling fish health to inform research and management: *Renibacterium salmoninarum* dynamics in Lake Michigan. *Ecological Applications*: 19: 747-760.
8. **Fenichel, E.P.**, Lupi, F., Hoehn, J., and Kaplowitz, M. 2009. Split-sample Tests of “No Opinion” Responses in an Attribute Based Choice Model. *Land Economics* 85: 349-363.
7. Horan, R.D, Wolf, C.A., **Fenichel, E.P.**, and Matthews, K. H. Jr. 2008. Joint Management of Wildlife and Livestock Disease. *Environmental and Resource Economics*. 41: 47-70.
6. **Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G. 2008. Real Options for Precautionary Fisheries Management. *Fish and Fisheries*. 9: 121-137.
5. **Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G. 2008. Fish Pathogen Screening and its Influence on the Likelihood of Accidental Pathogen Introduction during Fish Translocations. *Journal of Aquatic Animal Health*. 20: 19-28.
4. Horan, R.D. and **Fenichel, E.P.** 2007. Economics and Ecology of Managing Emerging Infectious Animal Diseases. *American Journal of Agricultural Economics* 89: 1232-1238.
3. **Fenichel, E.P.** and Horan, R.D. 2007. Gender-Based Harvesting in Wildlife Disease Management. *American Journal of Agricultural Economics* 89: 904-920.
2. **Fenichel, E.P.** and Horan, R.D. 2007. Jointly-Determined Ecological Thresholds and Economic Trade-Offs In Wildlife Disease Management. *Natural Resource Modeling* 20: 511-547.
1. Horan, R.D, Wolf, C.A., **Fenichel, E.P.**, and Matthews, K. H. Jr. 2005. Spatial Management of Wildlife Disease. *Review of Agricultural Economics* 27: 475-482. (journal now called Applied Economic Perspectives and Policy)

### **Book Chapters (6)**

6. Bayham, J.<sup>pd</sup> and **E.P. Fenichel**. Capturing household transmission compartmental models of infectious disease. *Mathematical and Statistical Modeling for Emerging and Re-emerging Infectious Disease*. Eds. Chowell, G. and Hyman, J.M., Springer, in press.
5. **Fenichel, E.P.**, Gopalakrishnan, S., Bayasgaian, O.\* Chapter 7 Bioeconomics – nature as capital. 2015. *Handbook on the Economics of Natural Resources*. Eds. Halvorsen, R. and Layton, D.F. Edward Elgar Publishing. 165-205.
4. **Fenichel, E.P.** and X. Wang<sup>pd</sup>. 2013. The mechanism and phenomenon of adaptive human behavior during an epidemic and the role of information. In d’Onofrio, A and P Manfredi (eds). *Modeling the Interplay between Human Behavior and Spread of Infectious Diseases*, Springer, 153-169
3. Wang, Q.\* , **Fenichel, E.P.**, and Perrings, C.A. 2012. Border inspection and trade diversion: risk reduction versus risk substitution. In Zilberman, O. Joachim, D. Roland-Host, D. Pfeiffer (eds). *Health and Animal Agriculture in Developing Countries*, Springer, 119-134,
2. Horan, R.D., Wolf, C.A., and **Fenichel, E.P.** 2012. Dynamic Perspectives on the Control of Animal Disease: Merging Epidemiology and Economics. In Zilberman, O. Joachim, D. Roland-Host, D. Pfeiffer (eds). *Health and Animal Agriculture in Developing Countries*, Springer, 135-143
1. Perrings, C., **Fenichel, E.**, and Kinzig, A. 2010. Globalization and the invasive alien species: trade, pests and pathogens. in Perrings, C., H. Mooney and M. Williamson (eds). *Bioinvasions and Globalization: Ecology, Economics, Management, and Policy*, Oxford University Press.

#### ***Other Types of Publication (4)***

4. Seppelt, R., Manceur, A.M., Liu, J., **Fenichel, E.P.**, and Klotz, S. 2015. Synchrony of peak-rate years suggests challenges to sustainable development: A response to O’Sullivan (2015). *Ecology & Society* 20: 33
3. **Fenichel, E.P.** and D. Skelly. 2015. Why should data be free, don’t you get what you pay for? *BioScience*, 65, 541-542
2. Tallis, H. et al. (including **Fenichel, E.P.**) 2014. Working together: a call for inclusive conservation. *Nature* 515, 27-28.
1. **Fenichel, E. P.** 2013. Review of “Capitalizing on Nature: Ecosystems as Natural Assets” by Edward B. Barbier, book review, *Journal of Economic Literature*, 51: 570-572

#### **Reports and Unpublished manuscripts (10)**

##### ***Reports (3)***

3. **Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G.J. 2010. Real Options Analysis of the Risks and Benefits of Sterile Male Sea Lamprey Transfers from Lake Ontario. Unpublished completion report to the Great Lakes Fishery Commission.
2. **Fenichel, E.P.**, Tsao, J.I., and Jones, M. G. 2007. A model of *Renibacterium salmoninarum* dynamics in Great Lakes fish populations: Implications for bacterial kidney disease management and research in Lake Michigan. Unpublished completion report to the Great Lakes Fishery Trust.
1. **Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G. 2006. Managing Fish Translocation Risk Using Real Options: sea lamprey pathogen screening as a case study. Unpublished completion report to the Great Lakes Fishery Commission.

**Manuscripts nearing completion**

55. **Fenichel, E.P.**, Adamowicz, W.L. Ashton, M. and Hall, J.S. Incentives systems for forest-based ecosystem services when capital markets are missing. *Revised and Resubmitted Journal of the Association of Environmental and Resource Economists*
56. Huang, B<sup>\*</sup>, J.K. Abbott, **EP Fenichel**, R Muneeppeerakul, C Perrings, G Leah. Thinking Beyond the Moratorium: Forecasting a Whaling-Conservation Permit Market. *Conservation Biology. Revised and resubmitted*
57. Berry. K.<sup>pd</sup>, J. Bayham<sup>pd</sup>, S. Meyer<sup>pd</sup>, **E.P. Fenichel**. The allocation of time and risk of Lyme: a case of ecosystem service income and substitution effects. *Revised and resubmitted Environmental and Resource Economics*.
58. Yun, S.D.<sup>pd</sup>, B. Hutniczak, B.<sup>pd</sup>, J.K. Abbott, and **E.P. Fenichel**. The wealth of ecosystems: valuing natural capital in the context of ecosystem based management. *Revise and resubmit. Proceedings of the National Academy of Sciences*
59. **Fenichel, E.P.**, J.K. Abbott, and S.D. Yun<sup>pd</sup>. The nature of natural capital and ecosystem income. *In review for the Handbook of Environmental Economics ed. Smith, V.K. Dasgupta, P. Pattanayak, S.*
60. Horan, R.D., **E.P. Fenichel**, D. Finnoff, and C. Reeling. A portfolio-trade approach to livestock and wildlife management in the face of disease risk. *Revised and Resubmit Environmental and Resource Economics*.
61. **Fenichel, E.P.**, Kotchen, M., and Addicott, E.<sup>FES</sup> The representative agent must die: Social utility discount rates and population distribution *In prep*,
62. Morin, B.<sup>pd</sup>, F. Zhang<sup>high school</sup>, G. Chowell, **E.P. Fenichel**. Learning (NOT) to vaccinate: repeat vaccination decisions and partially effective vaccines. *In prep*.
63. Anderson, J.E.<sup>FES</sup>, J. Bayham<sup>pd</sup>, K. Berry<sup>pd</sup>, **E.P Fenichel**. What can activity time-use data tell us about influenza vaccination? *In prep*.
64. Reed, B.<sup>fes</sup>, S.D. Yun<sup>pd</sup>, M.L. Pinsky, and **E.P. Fenichel**. Increasing sea surface temperature reduces US scallop growth rates. *In prep*
65. Berry, K<sup>pd</sup>, **E.P. Fenichel**, A. Cease, and J.J. Elser. Modeling stoichiometric-ecological dynamics and rangeland management. *In prep*
66. Berry, K<sup>pd</sup> and **E.P. Fenichel**. The Environmental Insurance Trap. *In prep*
67. Fujitani, M.L.<sup>\*\*</sup>, **Fenichel, E.P.**, Torre, J., and Gerber, L.R. Monitoring for Success versus Monitoring to Succeed: Informed Management for Marine Reserves. *Marine Policy, Revise and resubmit*
68. Salau, K.R.<sup>\*\*</sup>, Baggio, J.A.<sup>pd</sup>, **Fenichel, E.P.**, Janssen, M.A., Abbott, J.K.. Hierarchical measurement of networks, *in prep*
69. Fujitani, M.L.L.<sup>\*\*</sup> **Fenichel, E.P**, and Abbott, J.K., Breaking the law: Empirically linking fees and compliance for marine reserves. *In prep*,
70. Bayham, J.<sup>pd</sup>, Kuminoff, N., Chowell, G. and **Fenichel, E.P**. Where the wild things go: reallocation of time during school closures and other social distancing policies and effects on epidemiological dynamics *In prep*
71. Abbott, J.K. and **E.P. Fenichel**. Following the golden rule: Negishi welfare weights without apology. *Working paper*

**Grants (14 as PI or Co-PI for a total of \$7.0+ million)**

- Phaneuf, D., L. Hunt, J. Abbott, and **E.P. Fenichel**. Enabling predictions of the economic consequences of aquatic invasive species establishment to recreational fishers on the Ontario side of the Great Lakes. Great Lakes Fishery Commission, **\$238,272** (July 2016 – Dec 2017).
- Fenichel, E.P.** Valuing Natural Capital Project. Knobloch Family Foundation. **\$360,000** (FY 2015-2017)
- Pinsky, M.; **E.P. Fenichel**; S. Levine; B. McCay; K. St. Martin. Coastal SEES Collaborative Research: Adaptations of fish and fisheries to rapid climate velocities. NSF Coastal SEES **Yale only \$150,514** (2014-2018).
- Ogden, F.L., **E.P. Fenichel**, J. Hall, B. Ewers, H. R. Barnard. WSC-Category 2 Collaborative Research: Planning And Land Management-Tropical REsearch in Ecosystem Services (PALM-TREES). NSF-Water, Climate, and Sustainability, **\$2,819,213 (Yale \$412,661)** (2014-2017) + Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) supplement at approximately **\$320,000** (money through UWYO and STRI partners).
- Perrings, C.P. et al. (including **E.P. Fenichel**) Collaborative Proposal: Risks Of Animal And Plant Infectious Diseases Through Trade (RAPID Trade), NSF Ecology of Emerging Infectious Diseases **\$1.45 million** (2014-2017).
- A.J. Cease, J.J. Elser, J. Hadrach, **E.P. Fenichel**, J. F. Harrison. CNH: Linking Livestock Markets and Grazing Practices with the Nutritional Ecology of Grasses and Locusts Under Alternative Property Rights Regimes NSF Coupled Human-Natural Systems **\$955,001** (2013-2017).
- Fenichel, E.P.** and M. Ashton with J. Hall. Investing in timber production through tropical reforestation and interactions with capital market access. F.K. Weyerhaeuser Memorial Fund, Faculty Research Grant, **\$54,435** (2013-2014).
- Fenichel, E.P.** and T.J. Richards. The Robustness of Current Approaches to Estimating Spread of Invasive Species to Individual Insect Behavior and Adaptive Human Behavior, ASU High Performance Computing Center, Saguaro award 200,000 CPU hours, **\$5,000**. (2012)
- Fenichel, E.P.** Human Adaptive Behavior and Invasive Insect Pests, ASU High Performance Computing Center, Saguaro award 110,000 CPU hours, **\$2,750**. (2012)
- Perrings, C.P., **E.P. Fenichel**, C. Castillo-Chaves, G. Chowell, P. Daszak, M. Kilpartick, K. Smith, A. Kinzig, S. Levin, R. Horan, S. Springborn, and N. Kuminoff. "Modeling anthropogenic effects in the spread of infectious diseases," NSF/NIH **\$1.6 million** (2011-2015).
- Richards, T.J. and **E.P. Fenichel**, "Asian Citrus Psyllid in California: an Economic Analysis of Efficient Management and Control Strategies," SCRI-USDA, **\$312,471** (2010-2012).
- Fenichel, E.P.** and J.K. Abbott, "The Joint Modeling of Seasonal Recreational Demand, Entry-Exit Decisions, and Fish Stocks over Time with an Application to Great Lakes Sportsfishing," NOAA, Saltonstall-Kennedy, **\$190,806** (2009-2011).
- Fenichel, E.P.**, Castillo-Chaves, C., Dazsak, P., Horan, R.D., and Perrings, C. "Working group for Synthesizing and Predicting Infectious Disease while accounting for Endogenous Risk, SPIDER," National Institute for Mathematical and Biological Synthesis, funding for 4 workshops and other support (2009-2010).



Tsao, J., **E. Fenichel**, M. Jones, and G. Hickling. "Real options analysis of Lake Ontario sterile sea lamprey transfers." Great Lakes Fishery Commission: sea lamprey research program, **\$66,418** (2008-09).

Collaborated with J.I. Tsao and G. Hickling on the following funded project:

- Great Lakes Fishery Commission, "A Framework for Evaluation of Great Lakes Disease Introduction Risks Associated with the Sterile Male Lamprey Release Program", **\$8,400**.

Collaborated with R.D. Horan and C.A. Wolf on the following funded projects:

- USDA-ERS, Program of Research on the Economics of Invasive Species Management (PREISM), cooperative agreement #58-7000-6-0084, "Bioeconomics of Managing Multi-Host Diseases", **\$117,000**.
- NRI-USDA-CSREES, Grant #2006-55204-17459, "Bioeconomics of Managing Pathogens in Multi-Host, Livestock-Wildlife Systems", **\$231,886**.

Michigan State University Dept. of Fisheries and Wildlife Graduate Student Organization travel grant 2006.

American Agricultural Economics Association travel grant 2006.

Saginaw Bay Walleye Club Fellowship 2006.

A variety of **\$5,000 - \$20,000** grants for small community based conservation projects, species conservation, and research projects (2000-2003).

### **Invited Presentations, and Seminars**

Human economic behavior and infectious disease. Yale School of School of Public Health, 12/12/2016

Groundwater as a capital asset. Keynote Panel, Governor's Conference on the Future of Water in Kansas, Manhattan, KS 11/14/2016.

The Wealth of Ecosystems. The Ohio State University, Department of Agricultural, Environmental and Development Economics, 10/28, 2016

The Wealth of Ecosystems: Measuring Natural Capital Asset Prices, Carey Institute of Ecosystem Studies 10/13/2016

The Wealth of Ecosystems: Measuring Natural Capital Asset Prices, University of Wyoming, Department of Economics and Finance 9/29/2016

The Wealth of Ecosystems: Measuring Natural Capital Asset Prices, Marine Ecosystem Service Partnership webinar 9/8/2016

Measuring natural capital from Rhetoric to Reality, The True Cost of American Food, Sustainable Food Trust, San Francisco 4/16/2016

Valuing natural capital from Rhetoric to Reality, NOAA webinar 4/5/2016

Measuring shadow prices for natural capital. Yale Environmental Economics Day. Yale Dept. of Economics. 2/19/2016

Beyond the metaphor: Advances in natural capital measurement for groundwater (and fisheries & ecosystems). The World Bank. 10/22/2015

Measured voluntary avoidance behavior during the 2009 A/H1N1 epidemic. Cambridge University, Clare College. Symposium on Contagion. 4/23 – 4/24/2015



- Economic behavior, infectious disease dynamics, and targeting: theory and empirical application. RAPIDD workshop on targeted control of vector-borne pathogens. Notre Dame, 3/12-13/2015
- Sustainability, Investing, and Corporate Social Responsibility Panel Event Panelist. New York City Hedge Fund Round Table, New York, New York, 10/21/2014
- Slovenský raj ako prírodný kapitál (Slovak Paradise as Natural Capital), 50th Anniversary of Slovensky Raj National Park Conference (poster), Spisska Nova Ves, Slovakia 9/25/2014
- Design incentives systems for forest-based ecosystem services when financial service markets are missing: Easting a Faustmann cake, University of Southern Denmark, 9/18/2014
- Mechanistic models of angler behavior. SESYNC Recreational fishing as a Coupled-Human Natural System workshop June 18-20, 2014
- The locust liability: the ecological economics of grasslands, Invited Symposium Speaker, Lanzhou University, China June 13, 2014
- Natural capital from metaphor to measurement. Invited seminar, Peking University, China, June 5, 2014
- Natural capital from metaphor to measurement. Invited symposium seminar, Nanyang Technical University, Singapore, May 27-28, 2014
- Natural capital from metaphor to measurement. Invited seminar, Arizona State University, Department of Economics environmental economics seminar, 1/30/2014
- Natural capital from metaphor to measurement. Invited seminar, TREE – Triangle Resource and Environmental Economics (joint among Duke, North Carolina State, and University of North Carolina), Department of Economics, 1/16/2014
- Natural capital from metaphor to measurement. Invited seminar, University of Connecticut, Department of Economics, 11/1/2013
- Natural capital from metaphor to measurement. Invited seminar, Michigan State University Department of Agricultural, Food, and Resource Economics, 1/31/2013
- Anticipating adaptation: modeling the link between environmental policy and anthropogenic impact. Invited seminar Yale School of Forestry & Environmental Studies, 1/23/2013
- A coupled human-natural systems approach to valuing natural capital. Invited Speaker at the fall meeting of the American Geophysical Union conference, San Francisco, CA 12/7/2012
- Anticipating the unanticipated: modeling the link between environmental policy and anthropogenic impact. Invited seminar at the Yale Institute for Biospheric Studies, 10/19/2012
- Linking economics, ecology, and institutions to provide a structural understanding of coupled human natural systems. Invited seminar at the Yale School of Forestry and Environment Studies, 2/9/2012
- Managing ecological thresholds in coupled environmental-human systems. Math Biology Seminar, William and Mary College, 11/11/2011.
- Risk and making natural resource related decisions. Arizona Department of Environmental Quality. Phoenix, AZ 7/21/2011
- Managing ecological thresholds in coupled environmental-human systems. Tupper talk. Smithsonian Tropical Research Institute, Panama, 7/12/2011.

- Coupled Economic-Ecological Systems and Regime Shifts. Invited Speaker. Ecology and Environmental Biology Seminar. South Dakota State University, 4/5/2011.
- A bioeconomic model of recreational angling. Organizer and speaker, Workshop on modeling recreational angling behavior, Arizona State University, 2/17-2/18/2011.
- Managing ecological thresholds in coupled human environmental systems. Invited Speaker. Consortium for Biosocial Complex Systems, Arizona State University 2/7/2011
- A Consistent Framework for Integrating Non-Market Demand and Bioeconomic Models. Invited speaker. Departmental seminar, Department of Economics and Finance, University of Wyoming 9/28/2010
- Managing Ecological Threshold in Coupled Human-ecological Systems. Invited Speaker. Dynamic Discussions, Center for Social Dynamics and Complexity, Arizona State University 4/8/2010.
- The Mathematics of Managing for Ecosystem Services. Invited speaker. Math Colloquium series. Arizona State University. 10/8/09.
- Economics of Emerging Infectious Diseases. Invited speaker. NY Times Foundation workshop on environmental journalism. Punta Cana, Dominican Republic 3/19/09.
- Bioeconomic Management of Invasive Insect-vectored Diseases. Invited seminar. USDA, Arid-Land Agricultural Research Center, Maricopa AZ, 2/2/09.
- Epidemiological models to guide fish health research and management: bacterial kidney disease in free-swimming fish in Lake Michigan. Invited speaker. Great Lakes Fishery Commission Fish Health and Ecosystem Dysfunction Workshop. 11/5-11/6 2008, Ann Arbor, MI
- Fish population health and aquatic pathogens as a bioeconomic question. Invited speaker. Great Lakes Fishery Commission Fish Health and Ecosystem Dysfunction Workshop. 11/5-11/6 2008, Ann Arbor, MI
- The bioeconomics of wildlife disease management. BESTnet, DIVERSITAS, AgTrans Workshop on Analyzing the Role of Agricultural Transformation and Invasive Species in Disease Emergence. 5/28-5/30, 2008, Arizona State University, Tempe Arizona.
- Balancing the Benefits, Costs, and Risk of Sterile Male Sea Lamprey Transfers: The Need For A Systematic Approach. Invited presentation. Sea Lamprey Integration Committee, Great Lakes Fishery Commission. 4/24/2007.
- The 'Real Options' Framework for Evaluating Benefits, Costs, and Risks associated with Fish Transfers. Invited presentation. Council of Lake Committees, Great Lakes Fishery Commission. 4/18/07.
- Modeling in Fisheries and Wildlife: Applications in Ecology, Economics, and Disease Management. Michigan State University Fisheries and Wildlife Undergraduate Club. 2/22/07.
- Fish Pathogen Screening and its Influence on the Likelihood of Accidental Pathogen Introduction during Fish Translocation. Great Lakes Fish Health Committee, Great Lakes Fishery Commission. 1/31/07.
- Real Options for Risk Management in Fisheries and Wildlife. Michigan State University Fisheries and Wildlife Graduate Student Seminar Series, 11/17/06.
- Balancing the benefits, costs, and risk of fish translocation programs: the case of the sterile male sea lamprey release. Invited presentation. Saginaw Bay Walleye Club. 5/22/06.

**Conference and Workshop Presentations**

**Fenichel, E.P.**, Kotchen, M., and Addicott, E. The representative agent must die: Social utility discount rates and population distribution. BioECON, 9/14-9/16/2016, King's College, Cambridge, UK

**Fenichel, E.P.**, Kotchen, M., and Addicott, E. The representative agent must die: Social utility discount rates and population distribution. European Association of Environmental and Resource Economists annual meeting, Zurich June 2016

**Fenichel, E.P.** Thoughts on accounting for natural capital and ecosystem services, The Natural Capital Symposium, 3/24/2016, Stanford University, Palo Alto, CA

**Fenichel, E.P.** Valuing natural capital from Rhetoric to Reality, The Natural Capital Symposium, 3/21/2016, Stanford University, Palo Alto, CA

**Fenichel E.P.** Beyond the Metaphor: Advances in Natural Capital Measurement for Groundwater (and Fisheries & Ecosystems). Yale Environmental Sustainability Summit 2015. 11/6/2015, New Haven, CT

Horan, R.D., **E.P. Fenichel**, D. Finnoff, and C. Reeling. A portfolio-trade approach to livestock and wildlife management in the face of disease risk. BioECON, 9/13-9/15/2015, King's College, Cambridge, UK

**Fenichel E.P.** Beyond the metaphor: Natural capital as a foundation for integrating ecological and economic research, measuring sustainability, and accounting for what matters. Ecological Society of America, 8/10/2015 Baltimore, MD

Bayham, J.<sup>pd</sup>, Kuminoff, N., Chowell, G. and **Fenichel, E.P.** Where the wild things go: reallocation of time during school closures and other social distancing policies and effects on epidemiological dynamics. BioECON, 9/13-9/15/2015, King's College, Cambridge, UK

**Fenichel, E.P.** and R.D. Horan. Tipping points and Tinbergen: Could some thresholds be a policy artifact. Thresholds, Tipping Points & Random Events in Dynamics Economics Systems. Howard H. Baker Jr Center for Public Policy, University of Tennessee, Knoxville, July 27-28, 2005, Knoxville, TN

**Fenichel, E.P.** and J.K. Abbott. Natural Capital: From Metaphor to Measurement. BioECON, 9/22-9/23/2014, King's College, Cambridge, UK

**Fenichel, E.P.**, JS. Hall, M. Ashton, and W.L. Adamowicz. Eating a Faustmann cake: Designing incentive systems for forest-based ecosystem services when capital markets are missing. 5<sup>th</sup> World Congress of Environmental and Resource Economics, 6/28-7/2/2014, Istanbul, Turkey

**Fenichel, E.P.** and J.K. Abbott. Natural Capital: From Metaphor to Measurement. Association of Environmental and Resource Economics 3<sup>rd</sup> Annual Meeting, 6/7 – 6/8/2013, Banff, Canada

**Fenichel, E.P.**, Richards, T, and Shanafelt, D. The microeconomic origins of spatial externalities and a starting point for market-based control of invasive species. European Association of Environmental and Resource Economics Annual Meeting, 6/28 – 6/30/2012, Prague, Czech Republic

**Fenichel, E.P.**, Richards, T, and Shanafelt, D. The microeconomic origins of spatial externalities and a starting point for market-based control of invasive species. Association of Environmental and Resource Economics 2<sup>nd</sup> Annual Meeting, 6/4 – 6/5/2012, Asheville, NC

- Fenichel, E.P.**, Abbott, J.A., Huang, B. Modeling angler behavior as a part of the management system: Synthesizing a multi-disciplinary literature. Contributed Paper. 2012 Joint Annual Meeting of the Arizona and New Mexico Wildlife Society and American Fisheries Society, 2/3-2/4/2012, Phoenix, AZ
- Horan, R.D., **Fenichel, E.P.**, Drury, D.L.S., and Lodge, D.M. Managing ecological thresholds in coupled environmental-human systems. Contributed Paper. 6<sup>th</sup> World Recreational Fisheries Conference, 8/1-8/4/2011, Berlin Germany.
- Fenichel, E.P.** and Abbott, J.A. Economic theory for regulating the human predator in a recreational fishery: integrating positive and normative frameworks. Contributed Paper. 6<sup>th</sup> World Recreational Fisheries Conference, 8/1-8/4/2011, Berlin Germany.
- Fenichel, E.P.** Dynamic optimization as a model of human behavior, applications to epidemiology. Casablanca Workshop on Mathematical Biology, 6/20-24/2011, Casablanca, Morocco.
- Fenichel, E.P.** and Abbott, J.A. Putting the “Micro” in bioeconomics: the case of recreational nonmarket goods. Contributed Paper. Association of Environmental and Resource Economics 1<sup>st</sup> Annual Meeting, 6/9 – 6/10/2011, Seattle, WA.
- Horan, R.D., **Fenichel, E.P.**, Drury, D.L.S., and Lodge, D.M. Managing ecological thresholds in coupled environmental-human systems. SIAM Conference, Symposium on Recent Application of Dynamical Systems in Ecology, 5/24/2011, Snowbird, UT.
- Fenichel, E.P.** and Abbott, J.K. A Consistent Framework for Integrating Non-Market Demand and Bioeconomic Models. Heartland Environmental Economics Workshop, 10/17-18, 2010, Champaign, IL.
- Fenichel, E.P.** et al. Epidemiological Models with Human Economic Behavior. Organized Session Paper. World Congress on Environmental and Resource Economics. 6/28 -7/2, 2010, Montreal, CA.
- Fenichel, E.P.** Tsao, J.I., Jones, M., and Hickling, G. Risks are not always what they seem, the case of sterile male sea lamprey transfers. Contributed paper. American Fisheries Society Annual Meeting. 9/1-9/4, 2009, Nashville, TN.
- Fenichel, E.P.** Heterogeneity among user types and second-best management for non-market ecological services. Selected Paper. Agriculture and Applied Economics Association Annual Meeting. 7/26-7/29 2009, Milwaukee, WI.
- Fenichel, E.P.** Heterogeneity among user types and second-best management for non-market ecological services. Selected Paper. European Association of Environmental and Resource Economics Annual Meeting. 6/24-6/27 2009, Amsterdam, NL
- Fenichel, E.P.** Tsao, J.I., Jones, M., and Hickling, G. Risks are not always what they seem, the case of sterile male sea lamprey transfers. Invasive Species Symposium. International Association of Great Lakes Research. 5/22, 2009, Toledo, OH.
- Fenichel, E.P.**, Horan, R.D., and Hickling, G. Managing invasive wildlife pathogens on the margin: reconciling bioeconomic analysis and disease ecology. Entomological Society of America Meeting, Invited Program Symposium: Global Impact of Biological Invasions: Transformation in Pest Management Approaches. 11/16-19/2008, Reno, NV.
- Fenichel, E.P.** Ecological-economic modeling of livestock-wildlife disease: where we are and where we can go. Invited panelist. Pathways to Success: Integrating Human Dimensions into Fish and Wildlife Management. 9/28-10/2/2008, Estes Park, CO

- Fenichel, E.P.** Tsao, J.I., Jones, M., and Hickling, G. How many fish to screen – No easy answer. Fish disease ecology in the Great Lakes Symposium at the International Association of Great Lakes Research. 5/20-5/23, 2008, Peterborough Ontario.
- Fenichel, E.P.** Non-native species and non-convexities: imperfect controls in invaded ecosystems. Workshop on Invasive Species Management. 10/8-10/9, 2007, Michigan State University, East Lansing Michigan.
- Fenichel, E.P.**, Tsao, J.I., and Jones, M. A Multiple-host Model of *Renibacterium salmoninarum* Dynamics in Lake Michigan: Implications for Disease Management and Assessment. Contributed Paper to the American Fisheries Society Annual Meeting, 9/2-9/6, 2007, San Francisco, California.
- Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G. Managing Risk Rather than Running from It: How does the precautionary approach fit? Performance of Alternative Harvest Policies Symposium at the American Fisheries Society Annual Meeting, 9/2-9/6, 2007, San Francisco, California.
- Horan, R.D. and **Fenichel, E.P.** Managing Infectious Wildlife Diseases Based on Marginal Analysis. Contributed paper to the Ecological Society of America's Annual Conference, 8/6-8/10, 2007, San Jose, California.
- Fenichel, E.P.**, Lupi, F., Hoehn, J., and Kaplowitz, M. Split-sample Tests of 'Don't Know' and 'Indifferent' Responses in Attribute Based Choice Models. Contributed paper to 8<sup>th</sup> Annual Heartland Environmental & Resource Economics Workshop, 9/17-9/18, 2006, Iowa State University, Ames, IA. – **Winner of top paper presentation award**
- Fenichel, E.P.**, Tsao, J.I., Jones, M., and Hickling, G. Balancing the benefits, costs, and risk of fish translocation programs: the case of the sterile male sea lamprey release. The Ecological, Social and Political Challenges of Managing Landlocked Sea Lamprey Populations in the Great Lakes-St. Lawrence Basin Symposium at the American Fisheries Society Annual Meeting, 9/10-9/14, 2006, Lake Placid, New York.
- Fenichel, E.P.**, Lupi, F., Hoehn, J., and Kaplowitz, M. Split-sample Tests of 'Don't Know' and 'Indifferent' Responses in Attribute Based Choice Models. Selected paper to The Annual Conference of the American Agricultural Economics Association, 7/23-7/26, 2006. Long Beach, California.
- Fenichel, E.P.** and Horan, R.D. Understanding Ecological and Economic Interactions in Wildlife Disease Management. Contributed paper to the Midwest Fish and Wildlife Conference. 12/11-12/14, 2005, Grand Rapids, MI
- Fenichel, E.P.** and Horan, R.D. Jointly-Determined Ecological Thresholds and Economic Trade-Offs in Wildlife Disease Management. Contributed paper to 7<sup>th</sup> Annual Heartland Environmental & Resource Economics Workshop at Iowa State University, Ames, IA. 9/18-9/19, 2005.
- Fenichel E. P.**, Horan, R. D., and Wolf, C.A. The Economics of Sex-based Wildlife Disease Management. Contributed paper to The Annual Conference of the Wildlife Society, 9/18-9/22, 2004. Calgary, Canada.
- Fenichel E. P.**, Horan, R. D., and Wolf, C.A. The Role of Sexual Dimorphism in the Economics of Wildlife Disease Management. Selected paper to The Annual Conference of the American Agricultural Economics Association, 8/1-8/4, 2004. Denver, Colorado.

## TEACHING

**Courses Taught**

F&ES 765 (3cr) – Applied Math for Environmental Studies (Fall 2013, 2015-16)  
 F&ES 795 (3cr) – Nature as Capital (Spring 2013-14, 2016)  
 F&ES 794 1 (1cr) – Making Better Decisions Seminar, Yale University (Fall 2012)  
 F&ES 794 1 (1cr) – Confronting Models with Data, Yale University (Spring 2015)  
 F&ES 805 (1cr) – Environmental & Natural Resource Economics Seminar (AY14-15,16-17)  
 BIO 591 (1cr) – EcoServices lab mentoring, Arizona State University (Spring 2010-Spring 2012 every semester)  
 BIO 591 (1cr) – Math for Life and Sustainability Science, Arizona State University (Fall 2009)  
 BIO 591 (2cr) – Math for Life and Sustainability Science, Arizona State University (Fall 2010-2011)  
 BIO 411 (3cr) – Quantitative Conservation Biology, Arizona State University (Spring 2009-2012)  
 BIO/ECN/AMLSS/SOS 691 (3cr) – Mathematical Natural Resource Economics, taught with Perrings and Abbott (Fall 2010)  
 BIO 591/ HON 494 (1cr) – The Ecological Detective, Arizona State University (Spring 2011)  
 BIO 591/ HON 494 (1cr) – Theoretical Ecology (Spring 2012)  
 BIO 189 (1cr) – Freshmen seminar, careers in natural resource management (Fall 2011)  
 Various guest lectures Arizona State University and Michigan State University

**Workshops and Short Courses**

Four-part video series for Yale's online MBA course "Natural Capital: Managing Risks and Capturing Opportunities in Global Resource Systems," recorded 12/11/2013  
 Modeling Adaptive Behavior and the Envelope Theorem, Arizona State University Summer MTBI program, 6/18/2012  
 Bioeconomic – mathematical approaches to merging economics and biological systems, Arizona State University Summer MTBI program, 7/5/2011  
 Bioeconomic – mathematical approaches to merging economics and biological systems, Arizona State University Summer Mini-workshop in applied mathematics, 6/27/2011  
 Bioeconomic – mathematical approaches to merging economics and biological systems, Casablanca workshop on Mathematical Biology, Casablanca, Morocco 6/24/2011

**Graduate Students Advised*****Completed***

Zachary Hughes, M.S. Arizona State University, sustainability, 2009 – went to USGS  
 Marie Fujitani M.S. Arizona State University, biology, 2010 – went to PhD program at ASU  
 Marie Fujitani PhD Arizona State University, environmental life science, May 2014 (NOAA Knauss Fellow 2013), - Post doc with Robert Arlinghaus, Berlin, Germany  
 David Shanafelt M.S. Arizona State University, biology 2012 – went to PhD program at ASU  
 Kehinde "Kenny" Salau PhD, applied math in life and social science, 2013 – Alliance Postdoctoral Fellow

***Current***

Ethan Addicott, MEd, Yale FES

**Undergraduate Honor's Theses Advised**

Andrea Sylvia, Arizona State University, 5/2012 – graduate fellow University of Maryland  
 Lucy Wang, Yale University, graduation 5/2015

**Committees*****Completed***

Shikha Gupta M.S. Arizona State University, biology (2010)

Erica Warkus, undergraduate honor's thesis, Arizona State University (2012) – awarded Fulbright fellowship

Patrick Dockens M.S., Arizona State University, biology (2012)

Bray Beltran M.S. Arizona State University, biology (2012)

Darren Sversold M.S. biology, Arizona State University summer (2012)

David Shanafelt Ph.D. Biology, Arizona State University

Quentin Gunn undergraduate honor's thesis, Arizona State University (successful defense of thesis 2013)

***Outside reader for dissertations (Yale)***

David Keiser (2014), Laura Bakkensen (2014), Nathan Chan (2014), Namrata Kala (2015), Jeff Chow (2016)

**SERVICE**

**Service Internal to University**

Yale University Wide Teaching and Learning Committee 2015-2016

Organizer of the Yale Environmental Economics Seminar AY 2013 – 2014, 2015-present

Yale Forestry & Environmental Studies PhD admissions committee 2013 - 2014

Special project to develop efficient allocation of ASU's School of Life Sciences resources, developed software to efficiently allocate teaching effort and structure conversations about teaching responsibilities. 2010-2012.

Organizer of the Environmental and Resource Economics Seminar series at ASU 2009-present.

Member of ad-hoc committee conservation biology and ecology undergraduate curriculum, 2009-2010.

Research and Training Initiatives Committee, School of Life Sciences, Arizona State University, 2009-present.

Panel member for Mentoring to Advance Post-docs and Students program (MAPS) on the job search. 2010

Faculty advisor to the Central Arizona Chapter of the Society of Conservation Biology (student chapter) 2010-present.

Global Change Biology faculty search committee, 2009-2010.

**Service External to University and Outreach**

Program review committee, BIOECON conference 2016, Cambridge, UK.

Review panel for the World Bank WAVES (Wealth Accounting and Valuing Ecosystem Services) on paper series to advance the System of Experimental Environmental Accounts (SEEA)

International Advisory Board, 2017 World Recreational Fisheries Conference, Victoria, CA

Editorial Council for the Journal of the Association of Environmental and Resource Economists, 2014 - current

Member of the board of advisors for The National Institute of Mathematical and Biological Synthesis (NIMBioS) 9/2012 – 9/2015

Member of the Scientific Review Committee for The National Socio-Environmental Synthesis Center (SESYNC) 4/2012 – 9/2015.

Organized symposium at the American Fisheries Society Meeting on connecting economic models of angler behavior with population biology models of fish, Seattle 9/2011.

Panelist for Advance Mathematical Biology at the Casablanca Workshop on Mathematical Biology, 6/20-24/2011, Casablanca, Morocco.



- Participant in “Partnering for Conservation & Professional Development: Developing a more effective wildlife/fisheries college curriculum” meetings series with Arizona Game and Fish, University of Arizona, Northern Arizona University, Arizona State University PolyTech, Arizona State University, U.S. Forest Service – Tempe. 3/24/2011, 8/11/2011.
- Organized workshop on modeling recreational fishing behavior at Arizona State University, 2/17-2/18/2011
- Session organizer at the 2010 World Congress on Environmental and Resource Economics; The economics of epidemics and infectious disease. 6/29/2010.
- Invited participant to Sonoran pronghorn recovery taskforce meeting, Ajo, AZ, 06/10/2010.
- Technical participant in the National Institute for Mathematical and Biological Synthesis bovine tuberculosis and livestock movement workshops 7/6-7/8/2009.
- Organized and facilitated real options for sterile male sea lamprey transfers workshop with Lake Huron Managers, 4/17-4/18/2008.
- Technical participant at “Developing Science Strategies to Address VHS and Similar Emerging Diseases in the Great Lakes Basin.” held by the Great Lakes Fishery Commission, International Joint Commission – Council of Great Lakes Research Managers, and Ontario Ministry of Natural Resources, Toronto, Canada 3/12-3/13/2008.
- Organizing committee for the “Workshop on Invasive Species Management” Michigan State University, East Lansing, Michigan, 10/8 – 10/9, 2007.
- Technical participant to the Great Lakes Fish Health Committee (2006-2007).
- Organized and facilitate two fish health modeling workshops
- Bacterial kidney disease modeling workshop I, East Lansing Michigan 2/6-2/7/2006
  - Bacterial kidney disease modeling workshop II, Traverse City Michigan 7/26/2006.

**Journal referee:**

**Economics:** *American Journal of Agricultural Economics, Climate Change Economics, Ecological Economics, Environment and Development Economics, Environment and Resource Economics, European Review of Agricultural Economics, Journal of the Association of Environmental and Resource Economists, Journal of Environmental Economics and Management, Journal of Health Economics, Journal of Public Economics, Land Economics, Marine Resource Economics, Resource and Energy Economics, Water Economics and Policy*

**Ecology, Fisheries, Wildlife:** *Canadian Journal of Fisheries and Aquatic Sciences, Conservation Biology, Conservation Letters, Ecological Applications, Ecology Letters, Fish and Fisheries, Fisheries Management and Ecology, Fisheries Research, Journal of Wildlife Management, North American Journal of Fisheries Management, Oxford Bibliographies in Ecology*

**Other:** *BioScience, Cahiers d'économie et Sociologie Rurales, Epidemics, Journal of Mathematical Biology, Journal of Theoretical Biology, International Journal of Engineering, Nature Climate Change, Science and Technology, PLoS One, Proceedings of the National Academy of Sciences.*

**Grant reviewer:** NSF-Decision, Risk, Management Science Program, NOAA-Saltonstall-Kennedy Program, Great Lakes Fishery Commission – fishery research program, Montclair State University PSEG ISS grant program, Ohio Sea Grant

**Funding agency panels:** NSF/NOAA CAMEO Review Panel, 2/2010

**Book proposal reviewer:** Elsevier

**Current Professional Affiliations** Association of Environmental and Resource Economists

**Foreign Language ability:** *Fluent* Slovak *Passive* Czech, Polish, Croatian, Slovenian