#### ELISE F. GRANEK

Professor, Environmental Science & Management; Portland State University, PO Box 751 Portland, OR 97207; (503) 725-4241; graneke@pdx.edu

#### Education

PhD	2006	Zoology (Marine Ecology), Oregon State University
MESc	1999	Forest Science and Conservation Biology, Yale University
BA	1993	Env. Studies & Nonwestern History, University of Pennsylvania

# **Employment**

RESEARCH AND TEACHING

Professor, Environmental Science & Management, Portland State University, September 2016 – present; Portland, OR;

Faculty Sustainability Fellow of the Institute for Sustainable Solutions,
January 2011-present

Associate Professor, Environmental Science & Management, Portland State University, June 2012 – August 2016; Portland, OR;

Assistant Professor, Environmental Science & Management, Portland State University, Jan 2007 – June 2012; Portland, OR;

Visiting Faculty, Department of Biology, Lewis and Clark College, September-December 2006; Portland, OR

Pre-doctoral Research Fellow (NSF GRFP), Oregon State University; September 2003 –August 2006; Corvallis, OR

**NSF GK-12 Science Fellow,** Oregon State University and Westland Middle School; July 2002 – June 2003; Corvallis, OR

**Teaching Assistant, Oregon State University**; 2001 –2004, Corvallis, OR

**Scientific Researcher,** Smithsonian Institution- Monitoring and Assessment of Biodiversity Program; September 2000- July 2001, Washington, D.C.

**Field Research Ecologist**, Action Comores and Yale School of Forestry and Environmental Studies; Jan-Dec 1998, Anjouan and Moheli, Comoros Islands

**Teaching Fellow**, Yale University; Jan.-May 1998 and 1999. New Haven, CT Sociology 180B: Development and Underdevelopment

**Environmental Educator,** United States Peace Corps Volunteer; Oct 1994- Dec 1996. Benin, West Africa and Comoros, East Africa

CONSERVATION AND EDUCATION

**Staff Ecologist**, Biodiversity Conservation and Sustainable Development of the Comoros – IUCN, UNDP, GEF, Comorian Ministry of the Environment; Sept 1999– Sept 2000, Comoros

**Biodiversity Education Coordinator**, **Intern**, The Wildlands Project; Jan- July 1994. Tucson. AZ

**Seasonal naturalist/interpreter**, Pinnacle Mountain Environmental Education State Park; September– November 1993. Little Rock, Arkansas

## **Dissertation and Theses**

- PhD Dissertation: Linkages between mangrove forests and coral reefs: quantifying organismal and energy flow between systems, June 2006; Co-advisors: Jane Lubchenco and Bruce Menge
- MESc Thesis: Habitat Characteristics of **Pteropus livingstonii** Bat Roost Sites on Anjouan and Moheli, Comoros Islands, May 1999;

Co-advisors: Oswald Schmitz and David Skelly

BA Thesis: Desertification of the Sudan: A History and a Possible Future, May 1993;
Advisor: Robert Giegengack

# <u>Refereed Publications</u> (\*graduate student author; \*\*undergraduate student author)

#### **BOOK AND REPORT CHAPTERS**

- van den Belt, M, **E Granek**, F Gaill, B Halpern, M Thorndyke. 2016. Chapter 3. Scientific understanding of ecosystem services. *United Nations Global Reporting and Assessment of the State of the Marine Environment First Assessment Report.* United Nations.
- Webber M, **E Granek**, M Soares. 2016. Chapter 48. Mangroves. Scientific understanding of ecosystem services. *United Nations Global Reporting and Assessment of the State of the Marine Environment First Assessment Report.* United Nations.
- Yeakley, J.A., Ervin, D. & **Granek, E.F**, Chang, H., Dujon, V., Shandas V, and Brown D. 2016. Ecosystem services of streams and rivers. In: D. Gilvear, M. Greenwood, M. Thoms & P. Wood (eds.) *River Science: Research and Applications for the 21st Century*. John Wiley and Sons, UK.
- Sewall, B. J., R. Young, W. J. Trewhella, K. M. Rodríguez-Clark, and **E. F. Granek**, 2016. Pteropus livingstonii. Invited submission to: IUCN 2014. *IUCN Red List of Threatened Species*. Version 2014. <u>www.iucnredlist.org</u>.
- United Nations. 2015. The oceans, seas, marine resources and human well-being nexus. In 2015 *Global Sustainable Development Report*. Department of Economic and Social Affairs, New York.
- Shandas, V., J.A. Yeakley, **E. Granek**, D. Ervin, V. Dujon, and H. Chang. 2014. Characterizing urban ecosystem services: integrating the biophysical and social dimensions of human-dominated landscapes. In: Ninan, K.N. *Valuing ecosystem services: Methodological issues and case studies*. Edward Elgar Publishing.
- **Granek, EF** 2006. *Linkages Between Mangrove Forests and Coral Reefs: Quantifying Disturbance Effects and Energy Flow Between Systems*. Oregon State University, PhD Dissertation.

#### **JOURNAL ARTICLES**

- Lewis\*, C.L. and E.F. Granek. **Accepted**. Drivers of zooplankton community composition in a novel ecosystem: Hawaii mangroves as a case study. *Journal of Applied Ecology.*
- Ehrhart AL and **EF Granek**. 2021. Pharmaceuticals and alkylphenols in transplanted Pacific oysters (*Crassostrea gigas*): Spatial variation and growth effects *Marine Pollution Bulletin* 170: 112584. <a href="https://doi.org/10.1016/j.marpolbul.2021.112584">https://doi.org/10.1016/j.marpolbul.2021.112584</a>

Scully-Engelmeyer, K.M.; **Granek, E.F.**; Nielsen-Pincus, M., Brown, G. 2021. Participatory GIS mapping highlights indirect use and existence values of coastal resources and marine conservation areas. *Ecosyst. Serv.* 50, 101301.

- Baechler, BR, **EF Granek**, KA. Carlin-Morgan, TE Smith, and M Nielsen-Pincus. 2021. Aquarium visitor engagement with an ocean plastics exhibit: Effects on self-reported intended single-use plastic reductions and plastic-related environmental stewardship actions. *Journal of Interpretation Research* 25: 88 –117. DOI: 10.1177/10925872211021183
- Scully-Engelmeyer\*, K; **EF Granek**, M Nielsen-Pincus, A Lanier, S Rumrill, P Moran, E Nilsen, ML Hladik, and L Pillsbury. 2021. Exploring biophysical linkages between coastal forestry management practices and aquatic bivalve contaminant exposure. *Toxics 9*(3), 46; https://doi.org/10.3390/toxics9030046
- Baechler\*, BR, **EF Granek**, Scott J. Mazzone, Max Nielsen-Pincus, Susanne M. Brander. 2020. Microplastic exposure by razor clam recreational harvester-consumers along a sparsely populated coastline. *Frontiers to Marine Science*. https://doi.org/10.3389/fmars.2020.588481
- Manson\*, P, M Nielsen-Pincus, **EF Granek**, TC Swearingen. 2020. Public perceptions of ocean health and marine protection: drivers of support for Oregon's marine reserves. *Ocean and Coastal Management*. doi.org/10.1016/j.ocecoaman.2020.105480
- Ehrhart\*, A, Granek, EF, Nielsen-Pincus, M. Horn\*, D. 2020. Leftover drug disposal: customer behavior, pharmacist recommendations, and obstacles to drug take-back box implementation. *Waste Management*. 118: 416-425.
- Valine\*\*, A., Peterson\*\*, A., Scully-Engelmeyer\*, K, Horn\*, D. Granek, EF. 2020. Microplastic Prevalence in Four Oregon Rivers. *Environmental Toxicology*. http://dx.doi.org/10.1002/etc.4755
- Chang, H, EF Granek, D Ervin, A Yeakley, V Dujon, and V Shandas. 2020. A community-engaged approach to transdisciplinary doctoral training in urban ecosystem services. Sustainability Science 15: 699-715. https://doi.org/10.1007/s11625-020-00785-y
- Granek, EF, Brander SM, and Holland EB. 2020. Filling gaps in knowledge and understanding in aquatic ecosystems. *Limnology & Oceanography Letters* doi: 10.1002/lol2.10145
- Baechler\*, B, Granek, E., Hunter, M, and Conn, K. 2020. Microplastic concentrations in two Oregon bivalve species: Spatial, temporal, and species variability. *Limnology & Oceanography Letters*. <a href="https://doi.org/10.1002/lo12.10124">https://doi.org/10.1002/lo12.10124</a>
- Horn\*, D., Granek, E.F., Steele, C. 2020. Effects of environmentally-relevant concentrations of microplastic fibers on Pacific mole crab (*Emerita analoga*) mortality and reproduction. *Limnology & Oceanography Letters*.
- Baechler\*, BR; Stienbarger\*, C; Horn\*, DA; Joseph, J; Taylor, AR; **Granek, EF**; Brander, SM. 2020. Microplastic occurrence and effects in commercially harvested North American finfish and shellfish: current knowledge and future directions. *Limnology & Oceanography Letters*. <a href="https://doi.org/10.1002/lol2.10122">https://doi.org/10.1002/lol2.10122</a>
- Chiapella\*, A.M., Grabowski\*, Z., Rozance\*, M.A., Denton\*, A.D., Alattar\*, M.A., **Granek**, **E.F**. 2019. Toxic chemical governance failure in the United States: Key lessons and paths forward. *Bioscience* 69: 615-630. <a href="https://doi.org/10.1093/biosci/biz065">https://doi.org/10.1093/biosci/biz065</a>
- Lewis\*, C.L., **Granek, E.F.**, Nielsen-Pincus, M. 2018. Assessing local attitudes and perceptions of non-native species to inform management of novel ecosystems. *Biological Invasions*. https://doi.org/10.1007/s10530-018-1875-0

Grabowski\*, Z., Chang, H, and **Granek, E.F**. 2018. Fracturing Dams, Fractured Data: Empirical trends and characteristics of existing and removed dams in the USA. *River Research and Applications 34*. DOI: 10.1002/rra.3283

- Evers\*, C. R., Wardropper, C. B., Branoff\*, B., **Granek, E. F.**, Hirsch\*, S. L., Link, T. E., Olivero-Lora\*, S. & Wilson\*, C. 2018. The ecosystem services and biodiversity of novel ecosystems: A literature review. *Global Ecology and Conservation*, e00362.
- Peters\*, J, E Granek, C de Rivera, and M Rollins\*. 2017. Prozac in the water: Chronic fluoxetine exposure and predation risk interact to shape behaviors in an estuarine crab. *Ecology and Evolution*. DOI: 10.1002/ece3.3453
- Teixeira\*, JR and **EF Granek**. 2017. Effects of environmentally-relevant antibiotic mixtures on marine microalgal growth. *Science of the Total Environment* 580: 43-49.
- van Riper, CJ, A Landon, S Kidd\*, D Toledo, P Bitterman, L Fitzgerald, **EF Granek**, S Ibarra\*, and D Iwaniec. **2017.** The role of socio-cultural phenomena in ecosystem services valuation: the importance of critical pluralism. *Bioscience*. https://doi.org/10.1093/biosci/biw170
- Prichard, E\*\* and **EF Granek**. 2016. Effects of pharmaceuticals and personal care products on marine organisms: from single-species studies to an ecosystem-based approach. *Environmental Science and Pollution Research. DOI 10.1007/s11356-016-7282-0*
- Goldsmith\* K, **Granek E**, Lubitow A., Papenfus M. 2016. Bridge over troubled waters: A synthesis session to connect scientific and decision making sectors. *Marine Policy* 70: 30-39.
- **Granek, EF,** K Conn, B Fish, E Nilsen, L Pillsbury, A Strecker, and S Rumrill. 2016. Emerging contaminants in Oregon's native oysters: spatial and temporal variability. *Science of the Total Environment* 557-558: 869-879.
- Peters\*, JR and **EF Granek**. 2016. Long term exposure to fluoxetine reduces growth and reproductive potential in the dominant rocky intertidal mussel, *Mytilus californianus*. *Science of the Total Environment* 545-546: 621-628.
- Freed\*, SJ, **EF Granek**, V Dujon, J Mouhhidine. 2016. Enhancing small-scale fisheries management through community engagement and multi-community partnerships: Comoros Case Study. *Journal of Marine Policy* 63: 81-91. http://dx.doi.org/10.1016/j.marpol.2015.10.004
- Hayden\*, H, **EF Granek**. 2015. Coastal sediment elevation change following anthropogenic mangrove clearing. *Estuarine Coastal & Shelf Science* 165: 70-74.
- Goldsmith\* K, Granek E, Lubitow A. 2015. Information Needs Assessment for Coastal and Marine Management and Policy: Ecosystem services under changing climatic, land use, and demographic conditions. *Environmental Management*. DOI 10.1007/s00267-015-0576-z
- Truitt\*, A.M, **E.F. Granek**, M,J. Duveneck\*, K.A. Goldsmith\*, M.P. Jordan\*, and K.C. Yazzie\*. 2015. What is novel about novel ecosystems: managing change in an ever-changing world. *Environmental Management*. Doi 10.1007/s00267-015-0465-5
- Freed\*, SJ and **EF Granek**. 2014. Effects of human activities on the world's most vulnerable coral reefs: Comoros case study. *Coastal Management* 42: 280-296.
- Mongeon\*, C, **EF Granek**, R Arauz. 2013. Hook selectivity in an artisanal spotted rose snapper (Lutjanus guttatus) fishery on the Nicoya peninsula, Costa Rica. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 5: 270-280
- Rodriguez del Rey\*, Z, **EF Granek**, S Sylvester. 2012. Occurrence and concentration of caffeine in Oregon's coastal waters. *Marine Pollution Bulletin* 64: 1417-1424.

Aswani, S, P Christie, NA Muthiga, R Mahon, JH Primavera, LA Cramer, EB Barbier, **EF Granek**, C Kennedy\*, E Wolanski, S Hacker. 2012. The way forward with ecosystem-based management in tropical contexts: reconciling with existing management systems. *Marine Policy* 36: 1-10.

- Ervin, D, D Brown, H Chang, V Dujon, **E Granek**, V Shandas, A Yeakley. 2011. Managing ecosystem services supporting urbanizing areas. *Solutions* 6: 74-86.
- Costanza, R, I Kubiszewski, D Ervin, R Bluffstone, J Boyd, D Brown, H Chang, V Dujon, **E Granek**, S Polasky, V Shandas, A Yeakley. 2011. Valuing ecological systems and services. *F1000 Biology Reports* 3:14.
- Rodriguez del Rey\*, Z, **EF Granek**, BA Buckley. 2011. Expression of HSP70 in *Mytilus californianus* following exposure to caffeine. *Ecotoxicology* 20: 855-861.
- Ruttenberg, BI and **EF Granek**. 2011. Bridging the marine-terrestrial disconnect in coastal zone science and management. *Marine Ecology Progress Series* 434:203-212.
- **Granek, EF**, S Polasky, CV Kappel, DM Stoms, DJ Reed, J Primavera, EW Koch, C Kennedy\*, LA Cramer, SD Hacker, GME Perillo, S Aswani, B Silliman, D Bael\*, N Muthiga, EB Barbier, E Wolanski. 2010. Ecosystem services as a common language for coastal ecosystem-based management. *Conservation Biology* 24: 207-216.
- Koch, EW, ED Barbier, BR Silliman, DJ Reed, GME Perillo, SD Hacker, **EF Granek**, JH Primavera, N Muthiga, S Polasky, BS Halpern, CJ Kennedy\*, E Wolanski, CV Kappel. 2009. Non-linearity in ecosystem services: temporal and spatial variability in coastal protection. *Frontiers in Ecology and the Environment* 7: 29–37.
- **Granek, EF**, JE Compton, and D Phillips. 2009. Mangrove-exported nutrient incorporation by sessile invertebrates on adjacent coral reefs. *Ecosystems*, 12: 462-472.
- **Granek, EF,** EMP Madin\*, MA Brown, W Figueira, D Cameron, Z Hogan, G Kristianson, P de Villiers, JE Williams, J Post, S Zahn and R Arlinghaus. 2008. Engaging recreational fishers in management and conservation: global case studies. *Conservation Biology*, 22(5): 1125-1134.
- Barbier EB, EW Koch, BR Silliman, SD Hacker, E Wolanski, J Primavera, **E Granek,** S Polasky, S Aswani, LA Cramer, D Stoms, C Kennedy\*, D Bael\*, C Kappel, GME Perillo and DJ Reed. 2008. Ecological Quality Changes Precede Changes in Quantity in Mangrove Forests Response. *Science*.
- Barbier, EB, EW Koch, B Silliman, SD Hacker, E Wolanski, J Primavera, **E Granek**, S Polasky, S Aswani, LA Cramer, D Stoms, C Kennedy\*, D Bael\*, C Kappel, GME Perillo and DJ Reed. 2008. Vegetation's role in coastal protection: Reply. *Science* 320: 176-177.
- Barbier, EB, EW Koch, B Silliman, SD Hacker, E Wolanski, J Primavera, **E Granek**, S Polasky, S Aswani, LA Cramer, D Stoms, C Kennedy\*, D Bael\*, C Kappel, GME Perillo and DJ Reed. 2008. Coastal ecosystem-based management with non-linear ecological functions and values. *Science* 319: 321-323.
- **Granek**, **EF** and BI Ruttenberg. 2008. Changes in biotic and abiotic processes following mangrove removal. *Estuarine*, *Coastal & Shelf Science* 80: 555-562.
- **Granek, EF** and BI Ruttenberg. 2007. Protective capacity of mangroves during tropical storms: a case study from 'Wilma' and 'Gamma' in Belize. *Marine Ecology Progress Series* 343: 101–105.
- **Granek, EF** and K Frasier\*\*. 2007. The impacts of red mangrove (*Rhizophora mangle*) deforestation on zooplankton communities in Bocas del Toro, Panama. *Bulletin of Marine Science* 80(3): 905–914.

Lundquist, CJ and **EF Granek**. 2005. Strategies for successful marine conservation: integrating socio-economic, political, and scientific factors. *Conservation Biology* 19(6): 1771-1778.

- Lundquist, CJ **EF Granek**, and RH Bustamante. 2005. Special Section: Implementation and Management of Marine Protected Areas. *Conservation Biology* 19(6): 1699-1700.
- **Granek**, **EF** and MA Brown. 2005. Co-management approach to marine conservation in Moheli, Comoros Islands. *Conservation Biology* 19(6): 1724-1736.
- **Granek, EF**, DR Brumbaugh, SA Heppell, SS Heppell, and D Secord. 2005. A blueprint for the oceans: implications of two national commission reports for conservation practitioners. *Conservation Biology* 19(4): 1008-1018
- Trewhella, WJ, KM Rodriguez-Clark, N Corp, A Entwistle, SRT Garrett, **E Granek**, KL Lengel, MJ Raboude, PF Reason, & BJ Sewall 2005. Environmental education as a component of multidisciplinary conservation programs: lessons from conservation initiatives for Critically Endangered fruit bats in the Western Indian Ocean. *Conservation Biology* 19(1): 75-85.
- **Granek, EF** 2002. Conservation of *Pteropus livingstonii* based on Habitat Characteristics on Anjouan and Moheli, Comoros. *Biological Conservation* 108(1): 93-100.
- **Granek, EF** 2000. Conservation des habitats de Roussettes de Livingstone Les Massifs Forestiers d'Anjouan et Moheli, Comores: Utilisation d'Indicateurs sociaux et ecologiques. *Ya Mkobe.* 5-6: 131-137.
- Sewall, BJ, **EF Granek**, and WJ Trewhella. 2003. Ecology and conservation of the Comoros rousette, *Rousettus obliviosus*. *Oryx* 37(3): 344-352.

# **Non-Refereed Publications and Other Creative Achievements**

- Sewall, B.J., Granek, E.F., Moutui, M.F.E., Trewhella, W.J., Reason, P.F., Rodríguez-Clark, K.M., Saïd, I. Carroll, J.B., Masefield, W., Toilibou, N., Vély, M., ben Mohadji, F., Feistner, A.T.C. and Wells, S. 2007. Conservation Action Plan for Livingstone's Flying Fox: A Strategy for an Endangered Species, a Diverse Forest, and the Comorian People. Union of the Comoros. 52 pp. UNDP 2013. Human Development Report 2013: The Rise of the South: Human Progress in a Diverse World. United Nations Development Programme: New York. i ix; 1 203.
- Alonso, A., F. Dallmeier, E. Granek, P. Raven. 2001. *Biodiversity: Connecting with the Tapestry of Life*. Smithsonian Institution, Monitoring and Assessment of Biodiversity and the President's Advisory Committee on Science and Technology. Washington, D.C.
- Granek, Elise. 2003. *Marine Reserves and Protected Areas: the State of the Science*. Oregon Coast Conference, Newport, OR
- Granek, Elise and Chris Krenz. 2003. *Life in Oregon's Coastal Environment*. Presented at the Coastal Zone Symposium at Haystack Rock, Cannon Beach, Oregon.
- Granek, E.F. 2000. *Ecologie du Milieu Forestier*. Module de Formation. Projet Conservation de la Biodiversité et Développement Durable aux Comores (DGE/FEM/PNUD), Fomboni, Comores.
- Granek, E.F. 2000. *Ecologie du Milieu Marin*. Module de Formation. Projet Conservation de la Biodiversité et Développement Durable aux Comores. Fomboni, Comores.
- Granek, E.F. 2000. An analysis of Pteropus livingstonii roost habitat: Indicators for forest conservation on Anjouan and Moheli. Tropical Resources Institute Newsletter. Yale University.

Sewall, B.J. and Granek, E.F. 2000. Les roussettes des Comores. Annex in Roby, D. and M.B. Dossar, Stratégie Nationale et Plan d'Action pour la Conservation de la Diversité Biologique. Ministère de la Production et de l'Environnement and Projet PNUD/FEM/COI/97/GEF31. Moroni, République Fédérale Islamique des Comores (In French).

Granek, Elise, Brent Sewall, Chris Moser, Jennifer Talbot, JoEllen McGann, and Melissa Myers (editors). 1999. *Guide a l'Education Environnementale: Une ressource pour les enseignants de tous niveaux*. U.S. Peace Corps-Benin, U.S. Agency for International Development-Benin, Ministere de l'Education du Benin, Ministere de l'Environnement du Benin. Publications Pedagogiques du Ministere de l'Education, Cotonou: Benin (W. Africa). 255 pages. In French.

# **Presentations** (\*student author)

#### INVITED

- Granek, E.F., Baechler\*, B. 2020. *Microplastics in Oregon and Washington bivalves:* examining spatio-temporal differences and human exposure risk. **Salish Sea Ecosystem Conference**, Virtual. April 2020.
- Granek, E.F., Baechler\*, B, Hunter, M, and Conn, K. 2019. *Microplastic concentrations in two Oregon bivalve species: Spatial, temporal, and species variability*. **Microplastics Monitoring Workshop,** Seattle Aquarium. October 2019.
- Granek, E.F. 2017. Emerging contaminants in our oceans: where, what and why does it matter? Oregon Department of Environmental Quality.
- Granek, EF. 2016. Emerging contaminants in our oceans: where, what and why does it matter? Oregon Health & Science University's Institute for Environmental Health Seminar.
- Granek, E.F. 2014. Caffeine and other emerging contaminants in Oregon's marine waters and bivalves. **Oregon Institute of Marine Biology**. Spring 2014 OIMB Seminar Series.
- Granek, E.F. and Ruckelshaus M. March 2011. Ecosystem services as a common language for coastal management: a case study of the Puget Sound Partnership. Invited symposium speaker at Resilience 2011: Resilience, Innovation and Sustainability: Navigating the complexities of global change. Tempe Arizona.
- Granek, E.F. October 2009. *Marine Reserves and Mangroves: The land sea connection between tropical coral reefs and the coast.* Invited symposium speaker at the **Coastal and Estuarine Research Federation 20**<sup>th</sup> **Biennial Conference**. Portland, OR.
- Granek, E.F. June 2006. Anthropogenic mangrove removal: resulting biotic and abiotic changes to coastal and marine systems. Invited symposium speaker at the 20<sup>th</sup> Annual Society for Conservation Biology Meeting, San Jose, CA.
- SELECTED CONTRIBUTED PRESENTATIONS (PRESENTER IN **BOLD + ITALICS**)
- *Granek, E.F.*, Baechler\*, B.R., Stienbarger\*, C.D., Horn\*, D.A., Joseph, J., Taylor, A.R., Brander, S.M. 2020. Occurrence and Effects of Microplastics in Commercially Harvested Finfish and Shellfish in North America: Research Needs and Future Directions. Ocean Sciences Meeting 2020. San Diego, CA. February 2020.
- Baechler\*, B.R., Horn\*, D.A., Joseph, J., Stienbarger\*, C.D., Taylor, A.R., *Granek, E.F.*, Brander, S.M. 2019. Current knowledge and future directions: microplastics

- occurrence and effects in commercially harvested North American finfish and shellfish. PNW Society of Environmental Toxicology and Ecology. Vancouver, WA. April 2019.
- Hudson\*, B., *Granek, E.F.*, Nielsen-Pincus, M., Swearingen, T. 2018. Climate and culture drive fishing effort shifts in Oregon's nearshore fisheries. 99th Annual Meeting is the Western Society of Naturalists, Tacoma, WA, Nov. 2018
- *Granek, E.F.*, Peters\*. J., Teixeira\*, J., Conn, K., Nilsen, E., Pillsbury, L., Rumrill, S., Strecker, A. and Fish, W. 2018. Where, what, and why: emerging contaminants in the coastal ocean. **2018 Ocean Sciences Meeting**, Portland, OR, February, 2018.
- **Ehrhart\***, **A**. and Granek, E.F. Testing the Waters: a field investigation of pharmaceuitical contaminants and their effects on Pacific oysters. **2018 Ocean Sciences Meeting**, Portland, OR, February, 2018.
- Baechler\*, B. and Granek, E.F. Microplastics in our food? Providing a baseline of microplastic concentrations in Oregon's commercially and recreationally importante Pacific oysters and razor clams. 2018 Ocean Sciences Meeting, Portland, OR, February, 2018.
- Horn\*, D.A., and Granek, E.F. Impacts of microplastic on reproductive development in Pacific mole crabs on the Oregon coast. 2018 Ocean Sciences Meeting, Portland, OR, February, 2018.
- *Granek, E.F.*, Peters\*. J., Teixeira\*, J., Conn, K., Nilsen, E., Strecker, A. Pillsbury, L., Rumrill, S., Fish, W., and Prichard, E. Emerging contaminants in our ocean: where, what, and why does it matter? **2017 Ecological Society of America Meeting**, Portland, OR., August 6-11, 2017.
- **Granek, EF**, K Conn, E Nilsen, L Pillsbury, A Strecker, B Fish, S Rumrill. 2016. Contaminants in Oregon's native oysters and sediments: spatial and temporal variability. **100th Annual Meeting of the Western Society of Naturalists**.
- Granek, EF, K Conn, E Nilsen, L Pillsbury, A Strecker, B Fish, S Rumrill. 2015. Spatial and temporal variability in contaminants in Oregon's native oysters and their estuarine sediments. 2015 CERF (Coastal and Estuarine Research Federation) Meeting, Portland, OR. November 2015.
- Peters\*, J and EF Granek. 2015. Prozac in the water: How does long term exposure affect mussel physiology? 2015 CERF (Coastal and Estuarine Research Federation) Meeting, Portland, OR. November 2015.
- **Teixeira\*, J.** and and EF Granek. 2015. Effects of environmentally-relevant concentrations of antibiotics mixtures on intertidal trophic dynamics. **2015 CERF (Coastal and Estuarine Research Federation) Meeting**, Portland, OR. November 2015.
- **Galen\*, Dominic,** EF Granek, and B. Fish. 2015. Groundwater transport of caffeine from a coastal state park OWTS into a nearby stream. 2015 **CERF (Coastal and Estuarine Research Federation) Meeting**, Portland, OR. November 2015.
- Prichard\*, E and EF Granek (co-presenters). 2014. Concentrations and effects of emerging contaminants in marine invertebrates. 2014 Annual Meeting of the Western Society of Naturalists, Tacoma, WA.
- Granek, E and K Goldsmith\* (co-presenters). 2014. Information needs assessment for coastal and marine management and policy in the Pacific Northwest (INACaMMP): Ecosystem services under changing climatic, land use, and demographic conditions. Institute for Sustainable Solutions Research to Action Symposium: Ecosystem Services, Portland State University, Portland, OR.
- **Granek, E**. 2013. Emerging contaminants in Oregon coastal waters: Landscape drivers and synergistic effects on native oysters. **Institute for Sustainable Solutions Research**

- **to Action Symposium: Ecosystem Services**, Portland State University, Portland, OR.
- Harwood\*, H and E Granek (co-presenters) 2013. Ecosystem services provided by nonnative mangroves in Hawaii: examining socio-ecological tradeoffs between management and eradication, Institute for Sustainable Solutions Research to Action Symposium: Ecosystem Services, Portland State University, Portland, OR.
- Rodriguez del Rey\*, Z and *Granek, E.F.*. 2012. Occurrence and concentration of caffeine in Oregon coastal waters. **97**<sup>th</sup> Annual Ecological Society of America Meeting, Portland, OR.
- *Granek, EF*, Ervin D, Brown D, Chang H, Dujon V, Shandas V, Yeakley A. 2012. Growing cities depend on ecosystem services. **2012 NSF IGERT PI Meeting.**
- Freed\*, Sarah, Elise Granek, Veronica Dujon. 2012. Influence of resource use and management on coral reef health in the Comoros. Ecological Society of America's 97th Annual Meeting 5-10 August 2012 Portland, Oregon, USA.
- Freed\*, Sarah, Elise Granek. 2011. Global success of coral reef management strategies in social-ecological outcomes. Society for Conservation Biology's 25th International Congress for Conservation Biology 5-9 December 2011 Auckland, New Zealand.
- Freed\*, Sarah, Elise Granek, Veronica Dujon. 2011. Investigating social and ecological outcomes of governance using a mixed methods approach. 2011 Colorado Conference on Earth System Governance: Crossing Boundaries and Building Bridges 17-20 May 2011 Fort Collins, Colorado, USA.
- Rodriguez del Rey\*, Z and *Granek, E.F.* 2011. Occurrence and concentration of caffeine in Oregon coastal waters. 92<sup>nd</sup> Annual Western Society of Naturalists Meeting, Vancouver, WA
- Granek, E.F. 2008. Mangrove exported nutrient incorporation by sessile invertebrates on adjacent coral reefs. Paper presented at the 11<sup>th</sup> International Coral Reef Symposium, Ft. Lauderdale, FL.
- Granek, E.F. 2007. The protective capacity of mangroves during tropical storms: a case study from Wilma and Gamma in Belize. Paper presented at the 88<sup>th</sup> Annual Western Society of Naturalists Meeting, Ventura, CA.
- Granek, E.F. and K.E. Frasier\*. 2006 and 2005. Larval and zooplankton communities:

  Comparing intact and cleared mangrove areas in Bocas del Toro, Panama. Paper presented at the 1<sup>st</sup> International Symposium on Mangroves as Fish Habitat, Miami, FL (2006) and the 86<sup>th</sup> Annual Western Society of Naturalists Meeting, Seaside, CA (2005).
- Granek, E.F. 2005 and 2004. Effects of mangrove removal on algal growth: abiotic and biotic changes and potential implications for adjacent coral reefs. Paper presented at Ecological Society of America, Montreal, Canada and at the 85<sup>th</sup> Annual Western Society of Naturalists Meeting, Sonoma, CA.
- Granek, Elise and Brent Sewell. 2003. Conservation Action for an African Indicator Species:

  Developing a conservation framework for the critically endangered Livingstone's flying fox (Pteropus livingstonii). Paper presented at the 17<sup>th</sup> Annual Society for Conservation Biology Meeting, Duluth, MN.
- Granek, E.F. and M.A. Brown. 2002. Marine Conservation in Moheli, Comoros Islads: A Comanagement Approach. Paper presented at the Western Society of Naturalists Meeting, Monterey, CA.
- Granek, E.F. 2000 and 2001. Conservation of Pteropus livingstonii Based on Bat Roost Site Habitat Characteristics on Anjouan and Moheli, Comoros Islands. Paper presented at

the **30<sup>th</sup> Annual North American Symposium on Bat Research**, Miami, FL and at the **Western Society of Naturalists**, Ventura, CA.

#### **POSTERS**

- Scully-Engelmeyer, K.M. and Granek, E.F. Biophysical linkages between forestry practices and Oregon's estuarine shellfish. **2018 Ocean Sciences Meeting**, Portland, OR, February, 2018.
- Ehrhart\*, A. and Granek, E.F. Testing the Waters: investigating effects of wastewater contaminants on a commercially harvested bivalve. **2017 Ecological Society of America Meeting**, Portland, OR, August, 2017.
- Manson\*, P; Granek, EF; Nielsen-Pincus M. 2016. *Marine Reserves for all Oregonians:*Statewide Survey of Social Values, Attitudes, and Opinions. **2016 State of the Coast Conference**.
- Peters\*, J and E Granek. 2015. Long term exposure to fluoxetine reduces growth and reproductive potential in the mussel, Mytilus californianus. Poster presented at the **2015 Oregon Coast Conference**, Coos Bay, OR.
- Teixeira\*, J and E Granek. 2015. Effects of antibiotic combinations across intertidal trophic levels: examining environmentally relevant concentrations. Poster presented at the **2015 Oregon Coast Conference**, Coos Bay, OR.
- Comet\*, Sabra Marie TallChief, M Nielsen-Pincus, E Granek. 2015. *Informing Oregon's MPA Baseline: Past and present tribal uses of marine resources*. Poster presented at the **2015 Oregon Coast Conference**, Coos Bay, OR.
- Hayden\*, H. and E Granek. 2014. Factors impacting regeneration of and coastal protection by Rhizopora mangle. Poster presented at the **2nd International Mangroves as Fish Habitat Symposium**, Mazatlan, Mexico.
- Freed\*, Sarah and Elise Granek. 2009. Examining reef use and reef health in the Comoros Islands, Western Indian Ocean. Poster presentation at Coastal and Estuarine Research Federation 20th Biennial Conference, 1-5 November 2009 Portland, Oregon, USA.
- Granek, E.F. and B.J. Sewall 2001. *Fruit Bat Conservation in the Comoros Islands: Past Efforts, Current Challenges, and Future Steps.* Poster presented at the 31<sup>st</sup> Annual North American Symposium on Bat Research, Victoria, BC and the **15<sup>th</sup> Annual Society for Conservation Biology Meeting**, Hilo, HI.
- Sewall, B. J. and E. F. Granek. 2000. A Natural History of the Comoros Rousette, Roussettus obliviosus. Poster presented at the **30<sup>th</sup> Annual North American Symposium on Bat Research**, Miami, FL.

#### **Honors, Grants and Fellowships**

# FACULTY

**EXTERNALLY FUNDED** 

- Oregon Sea Grant SEED Grant Microplastics in Oregon's waters: connecting seafood studies to policy solutions. Lead PI, Funded 2021. \$35,380.
- Fulbright Scholars Program Establishing a microplastics baseline: training student citizen scientists to identify sources and concentrations in Chile's aquatic and marine ecosystems. Lead PI, Funded for 2020.

 National Science Foundation S-STEM: Engagement Achievement and Graduation for Low-incomE Students (EAGLES): A Partnership in STEM Education. Co-Pl. 2019-2024. \$4,998,656

- Oregon Department of Fish and Wildlife; Marine Reserves for All Oregonians;
   Lead PI, July-December 2019, \$8757;
   Supplemental Agreement Jan-Aug 2020 \$8694
- Oregon Sea Grant Biennial Grants Competition: Examining linkages between forestry practices and marine invertebrate contamination, **Lead PI** 2018-2021, \$220,000.
- **Oregon Department of Fish and Wildlife**; *Fishing Effort Shift in Oregon Nearshore Fisheries.* **Lead PI**. 2016-2018, \$13,256.
- Oregon Sea Grant Program Development Grant: Developing a micro-plastics baseline in marine organisms, Lead Pl. 2017-2019, \$10,000.
- Oregon Department of Fish and Wildlife; Marine Reserves for All Oregonians;
   Lead PI, April 2015- April 2017, \$7598
- OR Sea Grant Program Development Grant; Marine Reserves for All of Oregon: Statewide Survey of Social Values, Attitudes, and Opinions. Lead PI, February 2015-January 2017; \$19,998
- NOAA RISA Proposal; CIRC INACaMMP Information Needs Assessment for Coastal and Marine Management and Policy in the Pacific Northwest; Lead PI on subaward, 2014- September 2018; \$103,560
- Oregon Community Foundation's 2013-14 Katherine Bisbee II Grant, Emerging Contaminants in Oregon Estuaries, Lead PI, 2013-2014; \$6,000
- Oregon Sea Grant Contaminants in Oregon's Waters Proposal, Emerging Contaminants in Oregon Coastal Waters: landscape drivers and levels in native oysters; Lead PI, 2013-2014; \$26,000
- NSF IGERT Supplemental Proposal: 3rd Conference for Sustainability IGERTs;
   Lead PI; Thad Miller Co-PI; 2012-2013; \$95,000
- NSF IGERT Proposal: IGERT: Ecosystem services supporting urbanizing regions, Co-director and co-PI; July 2010-2015; \$2,990,000
- NSF GK-12 Proposal: Cascades to the Coast GK-12: Enhancing STEM Education through Environmental Sustainability, Co-PI; June 2010-2015; \$2,800,000
- M.J. Murdock Partners in Science Grant, PI; April 2009-March 2011; \$15,000
- NSF ADVANCE Workshop, Women Evolving Biological Sciences. Selected participant. 2008.
- Sea World/Busch Garden's Conservation Fund, PI; Awarded September 2008present; \$25,000
- National Geographic Society Conservation Trust Grant, PI; Supplemental grant awarded September 2008-2010; \$5000
- M.J. Murdock Partners in Science Grant, PI; April 2008-March 2010; \$15,000
- National Geographic Society Conservation Trust Grant, PI; January 2008-November 2010; \$20,000
- OR SeaGrant Program Development Grant, PI; February 2008-February 2009; \$32,594
- NCEAS Working Group: Measuring ecological, economic and social values of coastal habitats to inform ecosystem-based management of land-sea interfaces, Lead PI; January 2007- June 2009; \$112, 300

• **OR Seagrant Program Development Grant 2006, PI**; February 2007- February 2008; \$12,701

• NOAA Restoration Center, In-kind support; 2007, \$9272

#### INTERNALLY FUNDED

- USGS-PSU Partnership Microplastics and fire-associated pollutants generated by Western wildfires affecting sensitive riverine ecosystems, \$7425, April-Oct 2021
- USGS-PSU Partnership Examining pharmaceutical and microplastic pollution cooccurrence: a tool for pinpointing microplastic sources in Oregon waters, \$19,750, Jan-Oct 2021
- PSU Institute for Sustainable Solutions: Pilot project: Addressing improper disposal of pharmaceuticals and personal care products, \$10,800, March-June 2018
- PSU- Institute for Sustainable Solutions NRT Proposal Development Funding, \$5000 per year, 2015, 2016, 2017
- **PSU Travel Grant**, PI, Fall 2015; \$775
- PSU Faculty Enhancement Grant, PI; Winter 2013; \$14,900
- PSU Research Stimulus Grant; PI; 2012; \$5000
- Institute for Sustainable Solutions Travel and Conference Grant, PI; for March 2011; \$1,100
- PSU Faculty Enhancement Grant, PI; Winter 2008; \$9995
- PSI Professional Travel Award, PI; for May 2009; \$1165
- Miller Sustainability Grant Ecosystem Services and Sustainability: Analyzing Changes from the Marmot Dam Removal, co-PI; January-December 2008; \$122,100
- Miller Sustainability Grant- Columbia River Basin Sustainable Water Resources,
   Energy and Climate Initiative, co-PI; January-June 2008; \$299,392

#### PhD Fellowships

- National Science Foundation Graduate Research Fellowship; Sept '03 Aug '06
- National Science Foundation GK-12 Fellowship, Oregon State University; Jun 02-03
- U.S. Fulbright Fellowship, Panama; Awarded May 2003
- National Fish and Wildlife Foundation's Budweiser Conservation Scholarship Program – 2003 awardee
- Smithsonian Tropical Research Institute Supplemental Research Award, 2004
- Aquaculture Collaborative Research Support Program (ACRSP) Fellowship at OSU, 2005-2006
- Sigma Xi Grant-in-Aid of Research and Member 2005
- PADI Project AWARE Foundation Grant 2005
- Zoology Research Fund (ZoRF), Oregon State University, 2005
- International Undergraduate Research Program, Oregon State University -Graduate Student Mentoring Award; 2004
- Anchor Environmental Scholarship, awarded 2004
- Croasdale Fellowship; Phycological Society of America, May, 2002

#### MASTERS FELLOWSHIPS

Tropical Resources Institute Research Grant, Yale University; April 1998

 Agrarian Studies Department Graduate Research Grant, Yale University, April 1998

# **Teaching/Curricular Development and Mentoring**

Developed/co-developed 10 new courses:

**Methods in Ecological Field Research - ESM 342** 

Belize Capstone - ESM 450

Coastal Marine Ecology - ESM 480/580 (co-developed with C. de Rivera)

Marine Conservation Science and Management - ESM 483/583

**Ecosystem Services and Sustainability: Toolbox - ESM 590/690** 

**Ecosystem Services and Sustainability: Field Methods - ESM 591** 

Ecological processes underlying ecosystem services – ESM 592/692

Introduction to Environmental Management – ESM 335 (co-developed with J. Gerwing;

redeveloped as a hybrid course with M. Nielsen-Pincus and J. Mueller)

Foundations of ecosystem services – ESR692/Soc 692 (co-developed with V. Dujon)

Science, Values, and Politics – ESM510/ESR610 (co-developed with A. Sager)

# Assisted in restructuring 2 course:

**Environmental Sustainability 588** 

Selling your science: perspective taking to engage diverse audiences, 557/657

Primary advisor to (\*\*denotes undergraduate students):

\*\*Kaitlin Frasier (2005; Oregon State University)

Amanda Hillman (MS 2009)

Zoe Rodriguez del Rey (MS 2010)

Chris Mongeon (MEM 2012)

Choo Chee Kuang (PhD student, deceased)

Sarah J Freed (PhD 2013)

Emma Prichard (BS, Honors College, 2014)

**Kaity Goldsmith (MEM 2014)** 

Heather Hayden (MS 2015)

Joseph (Joey) Peters (MS 2015)

Jaclyn Teixeira (MS 2016)

Casey Lewis (MS 2017)

\*\*Mia Jauregui (BS, Honors College, Fall 2017)

Sabra Comet (co-advised; MEM 2017)

Zbigniew Grabowski (co-advised; PhD 2018)

Bryn Hudson (PSM, 2018)

Dorothy Horn (PhD, advised 2017-2019)

\*\*Amy Valine (BS, Honors College, 2019)

Ashley Peterson (BS, ESM Honors Project, 2019)

\*\*Rosemary Wood (BS, Honors College, 2020)

Amy Ehrhart (PhD, 2020)

Britta Baechler (PhD, 2020)

Amy Hemingway (MEM, expected 2020)

Kaegen Scully-Engelmeyer (PhD, expected 2021)

Ali Tissot (PhD, expected 2024)

Paul Hurst (PhD, expected 2025)

Maya Hurst (co-advised; MEM, expected 2022) Geoff Szfranski (co-advised; MEM, expected 2022) Summer Traylor (co-advised; MEM, expected 2022)

MS/PhD committee member to:

Sadie Waddington, San Francisco State University 2008
Rachel Kutschera, MEM, ESM, Portland State University 2010
Tim Davidson, PhD, ESM, Portland State University 2011
Todd Stevenson, PhD, WSU (Washington State University) Vancouver 2012
Manar Alattar, MS, Biology, Portland State University 2012
Molly Bogeberg, MS, WSU Vancouver 2014
Brittany Cummings, MS, OHSU (Oregon Health and Science University) 2018
Eleanor Gaines, PhD, Biology, Portland State University 2019
Ariana Chiapella, PhD, ESM, Portland State University In progress
Rebecca Talbot, MS, Geography, Portland State University In progress

## **Community Outreach Achievements**

KGW, OPB, interviewed on forestry pesticides and estuarine bivalves research, 2021 KGW, KOIN television; Jefferson radio – interviewed on microplastics research, 2018-2020

**Oregon Public Broadcast, Oregon Field Guide,** collaborative field sampling involving two OPB reporters, two undergraduate students, and one graduate student, 2018-19.

Oregon Scientific and Technology Advisory Committee (STAC) Member, advises Oregon's Ocean Policy Advisory Council, appointed December 2010-present

**KGW, KOIN television –** interviewed on Olympia oyster contaminants research findings, Spring 2016

Daily Astoria/Radio Astoria – Interviewed on Marine Reserves program, May 2008 Common Ground II Panel, served as panel scientist, July and August 2008 Scientific reviewer for proposed Oregon marine reserves sites, September 2008

# Scholarly Works in Progress (\*graduate/\*\*undergraduate student author)

Oliver, S., EF Granek, K Goldsmith. **Under revision.** Barriers and opportunities to bridge the science-policy divide in the Pacific Northwest. *Environmental Science and Policy*.

Teixeira\*, J, and EFG. **In Prep**. Environmentally-relevant concentrations of antibiotic mixtures and marine mussel growth, feeding, and reproduction health. *Marine Pollution Bulletin*. TBD.

Hayden\*, HL and EF Granek. **Under revision.** Nutrient enrichment of *Rhizophora mangle* seedlings facilitate regeneration in mangrove removal areas. *Restoration Ecology.* 

Granek, EF, K Cheruvelil, E Fleishman. **Under revision**. Connectivity and conservation of nutrient flows within and among terrestrial, freshwater, and marine ecosystems. *Ecosphere*. Expected submission TBD.

# Significant Professional Development Activities

2017 OMSI (Oregon Museum of Science & Industry) Science Communications Fellow – selected from application process

2016-17 Power of Peers (POP) Circles - Zoom meetings.

2008 Women Evolving the Biological Sciences (WEBS) - invited symposium participant

# Governance Activities for the University, College, Department^

ESM Graduate Committee, Co-chair, 2019-present

PSU Work-Life Balance Committee, Co-chair, 2018-present

Senior Instructor and MEM/PSM Program Coordinator Hire, Search Committee member, Spring 2019

Environmental Justice/Freshman Inquiry Hire, Search Committee member. 2016-17.

**PSU Work-Life Balance Committee**, Fall 2015-present

**ESM P&T Committee**, Fall 2015-present

**ESM Space Committee,** chair September 2011-2013; 2014-present

PSU College of Liberal Arts and Science Indirect Costs Work Group, Spring 2015-2016

PSU- Peace Corps Masters International, ESM Department Coordinator, Fall 2014-2016

**PSU Family Friendly Task Force**, Fall 2014-June 2015

PSU Graduate Council, member September 2012-2013

PSU College of Liberal Arts and Science Strategic Planning Phase II: Diversity Task Force, member 2013

School of the Environment Graduate Admissions Committee, member January 2011-present; chair 2012-2013;

PSU Academically-Controlled Auxiliary Activities Committee, member Nov 2007-2012

**ESM Graduate Admissions Committee**, member January 2008-present **Graduate Certificate in Sustainability**, teaching faculty, September 2007- present

^on Sabbatical Academic Year 2013-14

### **Professional Service**

### 2020 CSU COAST Panel Reviewer

#### 2020 Ocean Sciences Meeting

 Session co-organizer: Impacts of Microplastics on Marine Organisms and Ecosystem Health

Limnology & Oceanography Letters, Marine microplastics Special Issue Associate Editor, 2018-2019

Limnology and Oceanography Letters, Editorial Board, Associate Editor, January 2016- present

## 2018 Ocean Sciences Meeting

• Session co-organizer: *Emerging contaminants in coastal and marine ecosystems*, February 2018, Portland, OR

2015, 2016, 2017, 2019 State of the Coast Planning Committee, Invited.

# Oregon Coastal and Ocean Information Network, Co-founder and Executive Committee Member, 2016-present

## **Coastal and Estuarine Research Federation**

• Symposium co-coordinator: *Emerging and legacy contaminants in coastal and estuarine systems*, upcoming-November 2015, Portland, OR

Appointed to Oregon's Scientific and Technical Advisory Committee to the Ocean Policy Advisory Council, December 2010-present

Reviewer for: Aquatic Biology, Bulletin of Marine Science, Coastal Management,
Conservation Biology, Ecology Letters, Estuarine Coastal and Shelf Science,
Ecological Applications, Environmental Conservation, Environmental Management,
Environmental Research Letters, Global Change Biology, International Journal of
Turtle and Tortoise Research, Journal of Environmental Management, Landscape
Ecology, Marine Biology, Marine Biology Research, Marine Ecology Progress Series,
Nature, PLOS ONE.

# Society for Conservation Biology (SCB)

## Marine Section, Governing board member:

September 2008- December 2010

- Education committee representative; Student affairs representative
   January 2002 December 2004
- Co-editor of Special Section in Conservation Biology, December 2005
- Symposium co-coordinator: Marine Reserves: A global perspective, SCB Annual Meeting, Duluth, MN, 2003

# Education Committee member, June 2006-Present

## **2006 Annual Meeting Steering Committee member,** August 2004 – present

- Member of review panel for submitted symposia and contributed talks
- Co-organizing Symposium: The role of recreational fishers in conservation and management: Lessons from freshwater systems for marine practitioners for 2006 meeting
- Invited Symposium speaker: A new conservation continuum: connecting land and sea

# **Membership in Professional Societies**

Association for the Sciences of Limnology & Oceanography, member 2016-present Coastal and Estuarine Research Federation- member 2009-present Sigma Xi – Student member 2005-2008; Full member July 2008 – present Society for Conservation Biology (SCB) – member January 2001 - 2012 Western Society of Naturalists (WSN) - member, November 2001 – 2018 Ecological Society of America (ESA) – member, November 2004 – 2017