

# Wendel W. Raymond

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## Education

**University of Alaska Fairbanks**, Juneau, AK Aug. 2020  
PhD – Fisheries; Advisor: Dr. Ginny Eckert  
Dissertation: Sea otters in Southeast Alaska: subsistence harvest and ecological effects in seagrass communities

**Oregon State University**, Corvallis, OR 2012  
B.S. Biology – Marine Biology concentration, Chemistry minor; Advisor: Dr. Mark Hixon  
Cum Laude, Research Fellow

## Professional experience

**University of Washington – Friday Harbor Laboratories**, Friday Harbor, WA Feb. 2021 - Present  
*Nearshore Ecology Research Scientist*  
Designed and implemented research and monitoring plan on watershed – estuary connectivity, including research on biology, ecology, and habitat and how these related to changing ecological regimes.

**University of Alaska Fairbanks**, Juneau, AK  
*Graduate Research Assistant* Aug. 2019 – May 2020  
Trophic linkages in eelgrass ecosystems. Duties included project design and management, hiring, mentoring, and supervising undergraduate research assistants, permitting, field and lab work, small boat operations, coordination with project partners, data management and analysis. Analytical approaches included glm, PCA, NMDS, and PERMANOVA.

*NSF Graduate Research Fellow* 2015 – 2020  
Investigating sea otter – eelgrass relationships with a focus on field surveys and community biomarker analysis. See duties above.

*Alaska Sea Grant Graduate Student Research Fellow* Aug. 2014 – Aug. 2016  
Patterns and effects of subsistence sea otter harvest in Southeast Alaska. Duties included procurement, analysis, and management of USFWS subsistence sea otter harvest database, coordination with academic and USFWS collaborators. Analytical approaches included glm, glmm, and spatially explicit population growth model.

**University of Washington – Friday Harbor Laboratories**, Friday Harbor, WA  
*Research Technician* Jun. 2012 – Aug. 2014  
Impacts of shoreline armoring on Puget Sound beaches. Duties included intertidal fieldwork, processing on invertebrate samples, coordination of interdisciplinary team, data management and analysis of biological field and lab data.

*Research Technician* Jun. 2012 – Sept. 2013  
Spatial subsidy and trophic connectivity between nearshore macrophyte production and subtidal food webs. Duties included subtidal fieldwork, designing and maintaining lab and field experiments, data management and analysis.

*NSF Research Experience for Undergraduates* Jun. 2011 – Aug. 2011  
Independent research project on marcoalgal feeding preferences of sea urchins. Duties included assisting with multiple graduate student research projects, subtidal field work, maintaining lab and field experiments, data management and analysis.

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Oregon State University, Corvallis, OR

Research Technician

Oct. 2009 – Jun. 2012

Ecological effects of invasive lionfish. Duties included data quality control, remote field work, subtidal fish community surveys, care of aquarium animals. Conducted independent research project on competition for shelter between invasive lionfish and native Nassau grouper.

## Publications (†undergraduate mentees)

*In prep*

Borup M†, Eckert GL, **Raymond WW**. *In prep*. Sea otters reduce benthic mesopredator predation in Southeast Alaska seagrass communities. *J Exp Mar Biol Ecol*.

Stephens TA, Shields M†, Borup M†, Raymond WW, Eckert GL. *In prep*. Bioturbation by sea otters reduces the extent of intertidal seagrass in Southeast Alaska. *Proceedings of the National Academy of Sciences*.

*Published*

**Raymond WW**, Schram J, Eckert GL, Galloway AWE. *Accepted*. Effect of sea otters on the trophic structure of Southeast Alaska eelgrass beds. *Marine Ecology Progress Series*.

**Raymond WW**, Hughes B, Stephens TA, Mattson C†, Bolwerk A, Tinker MT, Eckert GL. *In review*. Testing the generality of apex predator mediated trophic cascades in seagrass meadows. *Oikos*. <https://doi.org/10.1111/oik.07681>

Whalen M, ... et al. **Raymond WW**,.. Duffy JE. 2020. Climate drives the geography of marine consumption by changing predator communities. *PNAS*. <https://doi.org/10.1073/pnas.2005255117>

Prentice C, Poppe KL, Lutz M, Murray M, Stephens TA, Spooner A, Helsing-Lewis M, Sanders-Smith R, Rybczyk JM, Apple J, Short F, Gaeckle J, Helms A, Mattson C†, **Raymond WW**, Klinger T. 2020. A synthesis of blue carbon stocks, sources and accumulation rates in eelgrass (*Zostera marina*) meadows in the Northeast Pacific. *Global Biogeochemical Cycles*. [doi.org/10.1029/2019GB006345](https://doi.org/10.1029/2019GB006345)

**Raymond WW**, Tinker MT, Benter B, Kissling M, Gill V, Eckert GL. (2019). Location specific factors influence patterns and effects of subsistence sea otter harvest in southeast Alaska. *Ecosphere*. [doi.org/10.1002/ecs2.2874](https://doi.org/10.1002/ecs2.2874).

Stephens TA, Hughes BB, Kroeker KJ, Helsing-Lewis M, Monteith Z, Morris M, **Raymond WW**. (2019). Between a rock and a soft place: surfgrass also colonizes sediments without attachment to rock. *Ecology*. [doi 10.1002/ecy.2791](https://doi.org/10.1002/ecy.2791)

Tinker MT, Gill V, Esslinger GG, Bodkin J, Monk M, Mangel M, Monson DH, **Raymond WW**, Kissling M.(2019). Trends and carrying capacity of sea otters in Southeast Alaska. *J Wildlife Manag*. 83:1-17.

Dethier MN, **Raymond WW**, McBride AN, Toft JD, Cordell JR, Ogston AS, Heerhartz SM, Berry HD (2016) Multiscale impacts of armoring on Salish Sea shorelines: Evidence for cumulative and threshold effects. *Estuar Coast Shelf Sci* 175:106–117

**Raymond WW**, Albins MA, Pusack TJ (2015) Competitive interactions for shelter between invasive Pacific red lionfish and native Nassau grouper. *Environ Biol Fishes* 98:57–65

**Raymond WW**, Lowe A, Galloway AWE (2014) Degradation state of algal diets affects fatty acid composition but not size of red urchin gonads. *Mar Ecol Prog Ser* 509:213–225

Dethier MN, Brown AS†, Burgess S†, Eisenlord ME, Galloway AWE, Kimber J†, Lowe AT, O’Neil CM†, **Raymond WW**, Sosik EA., Duggins DO (2014) Degrading detritus: Changes in food quality of aging kelp tissue varies with species. *J Exp Mar Bio Ecol* 460:72–79

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## Teaching

### **University of Alaska Fairbanks**, Juneau, AK

*Adjunct Instructor*

May 2019

FISH 414 Field Methods in Marine Ecology and Fisheries (3 crd). Two-week intensive course based in Juneau, AK. Instruction included fieldwork, lectures, laboratory techniques, and data management and analysis focused on field methods applicable to marine ecology and fisheries.

*Graduate Teaching Assistant*

May 2015

FISH 414 Field Methods in Marine Ecology and Fisheries (3 crd).

### **Oregon State University**, Corvallis, OR

*Undergraduate Teaching Assistant*

Sept. 2011 – Mar. 2012

BI 211 & BI 212 (4 crd each). Assisted graduate teaching assistant with laboratory section of general biology class. Prepared lab materials, assisted with instruction and student evaluation.

## Grants, Honors, Awards

- 2018 Goetz Instrument Support Program – Awarded use of ASD HandHeld 2: Hand-held VNIR spectroradiometer and \$500 towards publication/travel.
- 2018 University of Alaska Fairbanks – College of Fisheries and Ocean Sciences Outstanding Graduate Student
- 2017 North Pacific Research Board – Graduate Student Research Award. Sea otters and ecosystem function of eelgrass habitats in Southeast Alaska. \$25,000
- 2017 American Fisheries Society – Steven Berkley Marine Conservation Fellowship. A model for marine conservation: community structure and trophic mechanisms in Southeast Alaska eelgrass ecosystems. \$10,000
- 2017 Lerner-Gray Fund for Marine Research. Sea otters, seagrass, and fish communities in Southeast Alaska. \$1,000.
- 2017 Earthwatch Institute. The role of sea otters in seagrass in Southeast Alaska. PI Eckert GL, Co-PI Raymond WW. \$87,300
- 2015 NSF Graduate Research Fellowship Program. \$46,000/year for 3 years
- 2011 NSF Research Experience for Undergraduates (REU) summer internship. \$2000
- 2010 Oregon State University Undergraduate Research, Innovation, Scholarship & Creativity (URISC). \$2100.

## Selected presentations (†undergraduate mentees)

**Raymond WW**, Schram J, Galloway AWE, Eckert GL. Trophic mysteries of the shallows: Unraveling eelgrass ecosystems in Southeast Alaska. Presentation at Coastal and Estuarine Research Federation. Mobile, AL. Nov. 2019.

**Raymond WW**, Tinker MT, Kissling M, Benter B, Gill VA, Eckert GL. Patterns and effects of sea otter harvest in Southeast Alaska. Presentation at Southeast Environmental Conference. Craig, AK. Sept. 2019.

**Raymond WW**. ShoreZone as a tool for nearshore ecology in Southeast Alaska. Presentation at ShoreZone Partners Meeting, Portland, OR. July 2019.

**Raymond WW**, Bell T. Using reflectance to estimate condition of giant kelp (*Macrosystis pyrifera*) and its relationship to environmental variability. Poster at International Seaweed Symposium, Jeju South Korea. April 2019.

**Raymond WW**, Hughes B, Stephens TA, Mattson C†, Bolwerk A, Eckert GL. Ecological relationships between recovering sea otters and eelgrass communities in southeast Alaska. Presentation at Alaska Marine Science Symposium. Anchorage, AK. Jan. 2019.

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**Raymond WW**, Hughes B, Stephens TA, Mattson C†, Bolwerk A, Eckert GL. Eelgrass community relationships across a gradient of sea otter population recovery. Presentation at Western Society of Naturalists. Tacoma, WA. Nov. 2018

**Raymond WW**, Tinker MT, Kissling M, Benter B, Gill VA, Eckert GL. Sea otter harvest and population dynamics in Southeast Alaska. Presentation at Sea Otter Conservation Workshop X. Seattle, WA. Mar. 2017.

## **Outreach and invited talks** (\*distance delivery)

- Nov. 2020 Guest lecture\*: Trophic cascades in Southeast Alaska. UAF FISH UAF FISH 676 Aquatic Food Web Ecology. Instructor: Dr. Anne Beaudreau
- May 2020 Guest Speaker\*: Sea otters and Southeast Alaska. Second grade class at Trinity Basin Preparatory, Fort Worth TX.
- Oct. 2018 Guest lecture: Competition and resource partitioning. UAF FISH 676 Aquatic Food Web Ecology. Instructor: Dr. Anne Beaudreau.
- Sep. 2018 Guest lecture: Introduction to git and GitHub. UAF FISH 692 Data Wrangling Case Studies. Instructor: Dr. Franz Mueter.
- Aug. 2018 Co-led “Eelgrass walk” at Hydaburg Culture Camp. Hydaburg, AK.
- Apr. 2018 “Field gear” at University of Alaska Fisheries Days at Juneau UAF Lena Point facility.
- Apr. 2015 Identifying ecological roles of sea otters in Southeast Alaska. Ted Steven Marine Research Institute, Juneau Alaska. Hiram College Alaska Fisheries Course. Juneau, AK.
- Apr. 2014 Data management and analysis. Jefferson Community School. Port Townsend, WA.
- Aug. 2013 Effects of fresh and aged kelp diets on red urchins. Friday Harbor Laboratories, Friday Harbor, WA.

## **Service**

2019: Member CFOS Student Advisory Committee

2018 – 2019: Member UAF Graduate Academic and Advisory Committee

2017 – 2019: President of American Fisheries Society Juneau student subunit

2014 – 2017: Graduate student health insurance coordinator, American Fisheries Society Juneau student subunit.

Journal reviewer for:

*Deep Sea Research II, Marine Biology Progress Series, Marine Biology, Marine Biology Research, Journal of Experimental Marine Biology and Ecology, Estuaries and Coasts, Hydrobiologia.*

## **Skills and certifications**

Software: R/RStudio, git/GitHub, ArcMap, ArcGIS Pro, Drone2Map, MS Office suite, Adobe Premier Pro, Adobe Illustrator.

Certifications: AMSEA small boat operator with over 360 sea days, FAA Remote Pilot small unmanned aircraft system (sUAS), PADI Divemaster, DAN O2 provider, Wilderness First Aid, CPR/AED/First Aid.