

LILIAN MICHELLE ENGEL

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EDUCATION

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| PhD | Civil and Environmental Engineering
University of California, Berkeley
Dissertation: <i>Into the Plankter-Verse: Physical-Biological Interactions in Estuaries</i>
UC San Diego Scripps Institution of Oceanography, inter-campus exchange | August 2023 |
| MS | Civil and Environmental Engineering
University of California, Berkeley | May 2019 |
| BS | Biosystems Engineering | May 2018 |
| BS | Mathematics
University of Arizona
Honors and Summa Cum Laude
Minors in Spanish and Mechanical Engineering
University of Queensland, study abroad | May 2018 |

RESEARCH EXPERIENCE

Postdoctoral Researcher, Pacific Northwest National Lab Mentor: Dr. Lysel Garavelli	2023-Present
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- Developed a larval dispersal biophysical model using the Salish Sea Model for an invasive crab species, the European Green Crab.
- Interacted with Tribal Nations and Federal/State agencies for data organization.
- Implemented a larval dispersal biophysical model to analyze the effects of offshore wind on three commercial US fish species.
- Evaluated the spread of PCBs in the Puget Sound using the Salish Sea Model.
- Participated in two field campaigns to collect eDNA of the European Green Crab in different parts of the Salish Sea.

Dissertation, UC Berkeley Civil and Environmental Engineering Advisor: Dr. Mark Stacey	2023
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- Investigated how time variable exchange between a channel and shoal in San Francisco Bay influences biomass with an interacting water columns model.
- Explored the interaction of sinking particles and estuarine exchange flow to recreate the estuarine turbidity maximum in a simplified longitudinal model.
- Developed The Peter-Parker Model: an ecophysical model which combined estuarine physics with a NPZD ecosystem model to explore how human impacts and other climate change scenarios affect the interaction of estuarine flow with ecosystem processes in an estuary.

- Participated/presented work in the UC Berkeley EFMH lab group, the Franks lab group at Scripps, the COMPASS-GLM team meetings, the University of Washington EFM group, and the MacCready group at UW.

TEACHING EXPERIENCE

Graduate Student Instructor, UC Berkeley CEE	Spring 2021
Advisor: Dr. Mark Stacey	
<ul style="list-style-type: none"> • Graduate level course titled <i>Environmental Fluid Mechanics II</i>. • Explored application of a water column model to various environmental scenarios. • Led a discussion section once every two weeks, held regular office hours, and helped prepare the coursework. 	

SERVICE/AFFILIATIONS

Washington Ocean Acidification Center Research Cruise	Summer 2023
Western Coastal Collaboratorium (WCC) Seminar Planning Committee	2022-2023
Environmental Engineering Graduate Student Admissions Committee	Spring 2022
Civil and Environmental Engineers for Anti-Racism	2020-2022
Environmental Engineering Seminar Planning Committee	Fall 2019
Environmental Engineering Advocacy Team	2018-2022

HONORS AND AWARDS

Student Poster Award	2023
Gordon Research Conference: Coastal Ocean Dynamics	
National Science Foundation Graduate Research Fellowship Program	2018
Awarded 2018, on tenure 2019, 2021, and 2022.	
Department Award	2018
Financial assistantship for MS degree.	

SKILLS

Programming: Python, MATLAB, C, Julia, Java
Applications: Solidworks, Excel/VBA
Other: Passed FE Exam, Intermediate Spanish, Beginner French

CONFERENCE PRESENTATIONS

American Fisheries Society Meeting (Honolulu, HI – talk)	2024
<i>Influence of offshore wind on larval dispersal of US commercial species</i>	

Ocean Sciences Meeting (New Orleans, LA - talk) 2024
 1. *Coastal ecosystem vulnerability to an invasive species – the European Green Crab*
 2. *The Peter-Parker Model vs The Sandman: How does the interaction of particle sinking and estuarine flow lead to Estuarine Turbidity Maxima (ETM)?*

Coastal & Estuarine Research Federation 2023 Conference (Virtual - talk) 2023
The Peter-Parker Model: Breaking Apart Physical and Biological Contributions which Lead to Estuarine Phytoplankton Blooms

Gordon Research Conference: Coastal Ocean Dynamics (Smithfield, RI - poster) 2023
The Peter-Parker Model: Breaking Apart Physical and Biological Contributions which Lead to Estuarine Phytoplankton Blooms

American Geophysical Union Fall Meeting (Chicago, IL - talk) 2022
How Does Intermittency in Channel-Shoal Exchange Influence Biomass in an Estuarine Ecosystem?

Ocean Sciences Meeting (Virtual - talk) 2022
The Peter-Parker Model: Particle sinking and estuarine flow dynamics lead to estuarine phytoplankton blooms.

INVITED SPEAKER/LECTURER

UW Tacoma Environmental Modeling Class Guest Lecture (Tacoma, WA) 2024
Environmental Modeling for European Green Crab Management

European Green Crab Larval Identification Workshop (Padilla Bay, WA) 2024
European Green Crab Larval Dispersal Modeling

Gordon Research Seminar: Coastal Ocean Dynamics (Smithfield, RI) 2023
The Peter-Parker Model: Breaking Apart Physical and Biological Contributions which Lead to Estuarine Phytoplankton Blooms

Western Coastal Collaboratorium (University of Washington Seattle, WA) 2023
The Peter-Parker Model: Breaking Apart Physical and Biological Contributions which Lead to Estuarine Phytoplankton Blooms

IN PREPARATION PUBLICATION LIST

Engel, L., Lucas, L., & Stacey, M. (In review). Intermittency in channel-shoal exchange influences biomass in an estuarine ecosystem.

Engel, L., Premathilake, L., Barrier, N., Khangaonkar, T., Garavelli, L. (In review). Connect-a-Crab: Larval Connectivity for European Green Crab Management in the Salish Sea

Garavelli, L., Engel, L., Hemery, L., Day, E., Georgas, N. (In prep). Effects of Offshore Wind Farms on Larval Connectivity.

Engel, L. & Stacey, M. (In preparation). The Peter-Parker Model: How do human impacts and other climate change scenarios affect the interaction of estuarine flow with ecosystem processes in an estuary?

PUBLICATION LIST

Engel, L.; Stacey, M. Timescales of Ecological Processes, Settling, and Estuarine Transport to Create Estuarine Turbidity Maxima: An Application of the Peter–Parker Model. *Water* 2024, 16, 2084. <https://doi.org/10.3390/w16152084>

JOURNAL REVIEW

Reviewed manuscripts for *Estuaries and Coasts*, *PLOS ONE*.