



PHD DISSERTATION DEFENSE

UNCERTAINTY ANALYSIS IN FISHERIES SCIENCE: AN INTERDISCIPLINARY APPROACH



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MSI Auditorium (MSRB 1302)

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ABSTRACT My dissertation is an interdisciplinary approach that combines fisheries science, ecological theory, and applied statistics. My first chapter is a meta-analysis on transfer efficiency that describes and quantifies the variation in transfer efficiency. My second chapter assesses uncertainty in food web models by creating multiple Monte Carlo simulations to test various ecological assumptions about net primary production and transfer efficiency. My final chapter is a comparative analysis of two Bayesian models: a classic Bayesian surplus production model and a Bayesian surplus production model that incorporates ecological information. This chapter examines if the inclusion of ecological information informs and alters fisheries assessment models, with a focus on data-limited fisheries. Ultimately, my work bridges the gap between applied statistics and ecological theory and encourages the use of uncertainty analysis to make more robust predictions in food web models.

BIO Laura is a PhD candidate at the University of California, Santa Barbara with a MA in Applied Statistics. Prior to graduate school, Laura interned at NOAA's Southwest Fisheries Science Center in La Jolla, CA where she worked on population assessments of swordfish, short fin mako sharks, blue sharks, and common thresher sharks. During her time at UCSB, Laura received the Dr. Vapnek Fellowship and Award and the NMFS-Sea Grant Fellowship in Population and Ecosystem Dynamics. She has been very active in the UCSB community – in the Bren PhD community she ran coffee hour her first year and planned multiple retreats and BBQs. She has also been a statistics tutor for the Probability and Statistics Department for over three years and was the Bren Quantitative Consultant. She has been a mentor for a Bren masters student group project, the Women in Stem Program, and the Graduate Scholars Program (GSP). Through her involvement in the GSP, Laura has been recognized by Dean Carol Genetti for contribution to UCSB's Diversity Initiative. After completing her PhD, Laura will participate in the Insight Data Science Fellowship Program in San Francisco, CA.

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