

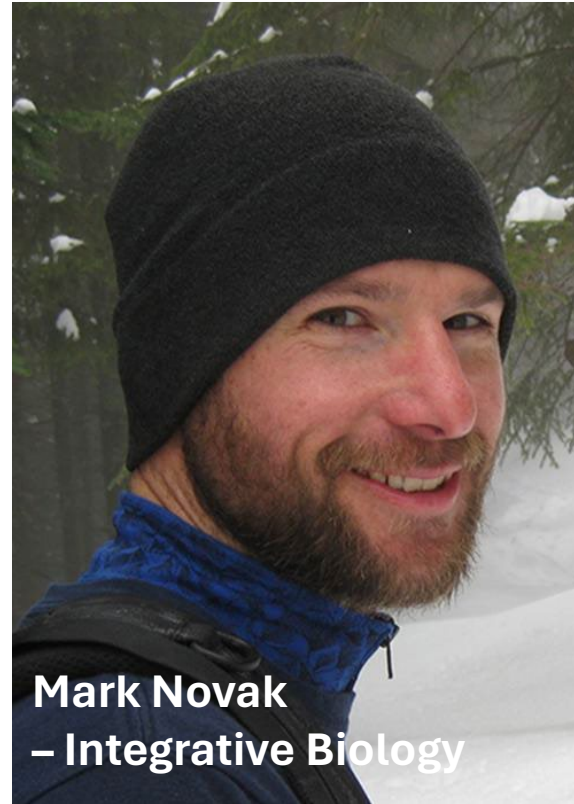
Trophic Modeling of Oregon's Nearshore Reefs

Will White
Mark Novak
Leif Rasmuson



OREGON OCEAN
SCIENCE TRUST

Project Personnel



Key Questions:

- How will kelp forests will respond to urchin culling?
- How would kelp restoration affect urchin and abalone populations?
- How will otter reintroduction affect urchin, kelp, and crab populations?
- How might regional oceanographic differences lead to different outcomes for kelp forests?
- What are physical indicators of the potential for kelp restoration success?



Expected Outcomes:

- Predicted consequences of management actions in different environmental/climate contexts
- Identify key uncertainties in model structure and/or data needs for future monitoring & experiments



Model Modules

+ climate feedbacks on demography and species interactions

kelp-urchin

Kelp-forest dynamics controlled by substrate complexity

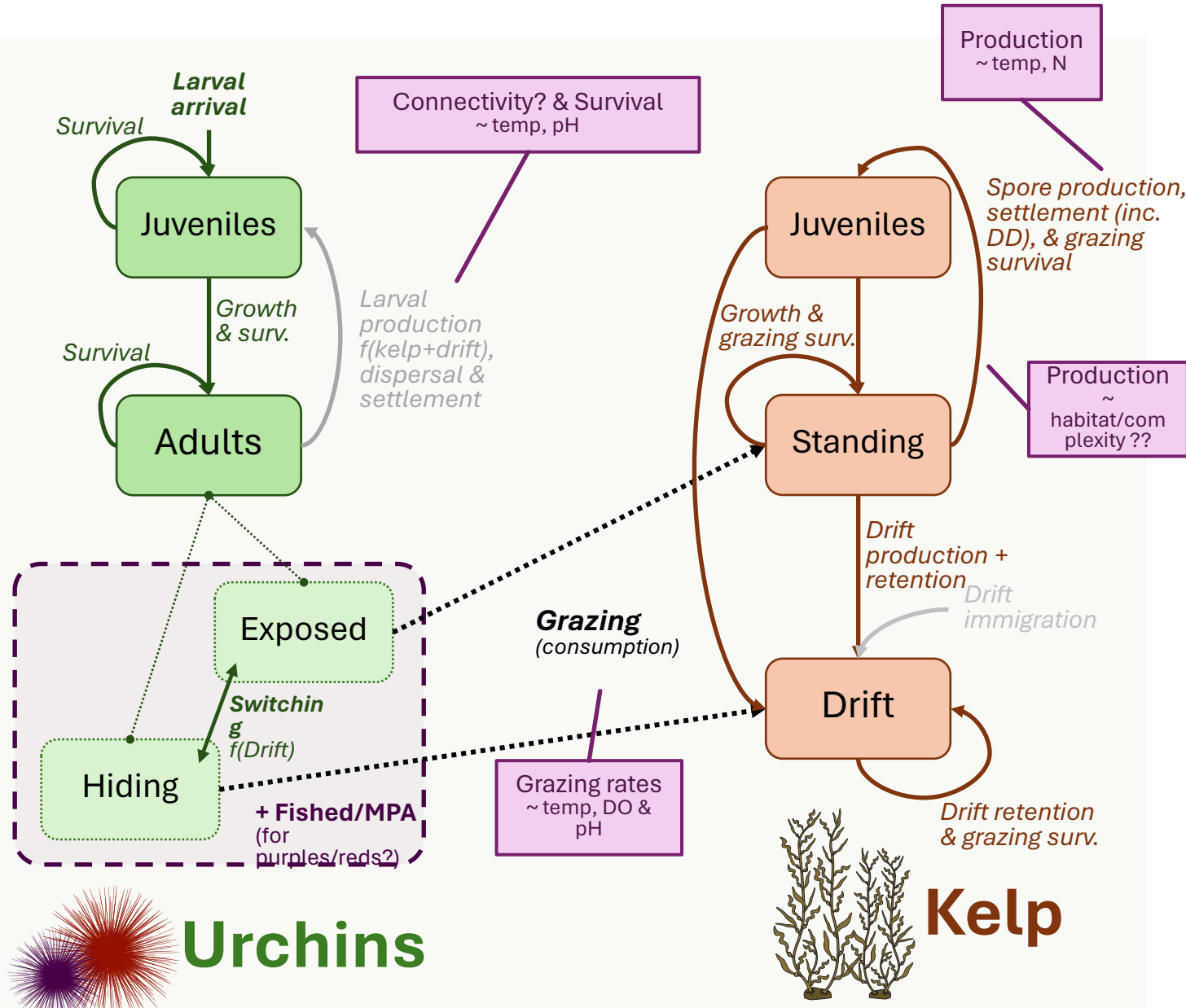
Zachary Randell^{a,1}, Michael Kenner^b, Joseph Tomoleoni^b, Julie Yee^b, and Mark Novak^a

LETTER

ECOLOGY LETTERS WILEY

Grazer behaviour can regulate large-scale patterning of community states

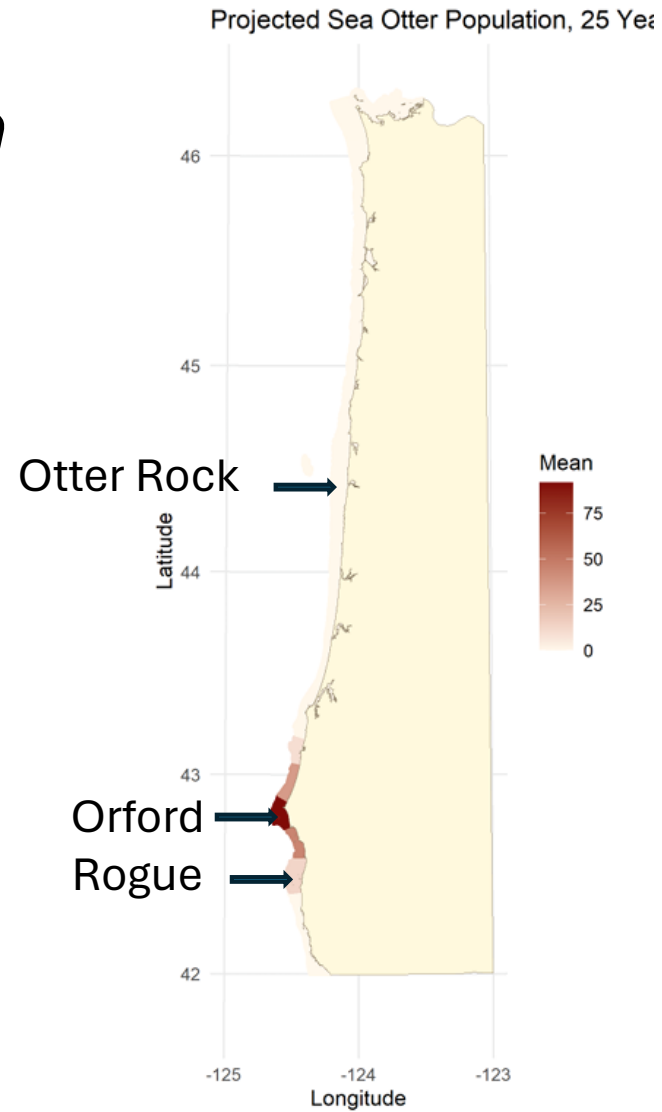
Vadim A. Karatayev^{1,2} | Marissa L. Baskett¹ | David J. Kushner³ | Nick T. Shears⁴ | Jennifer E. Caselle⁵ | Carl Boettiger⁶



Model Modules

kelp-urchin

sea otter



Appendix A: Oregon Sea Otter Population Model, User Interface App ("ORSO" v 1.0)



Dr. M. Tim Tinker

Research Biologist, Nhydra Ecological Consulting, Head of St. Margaret's Bay, NS

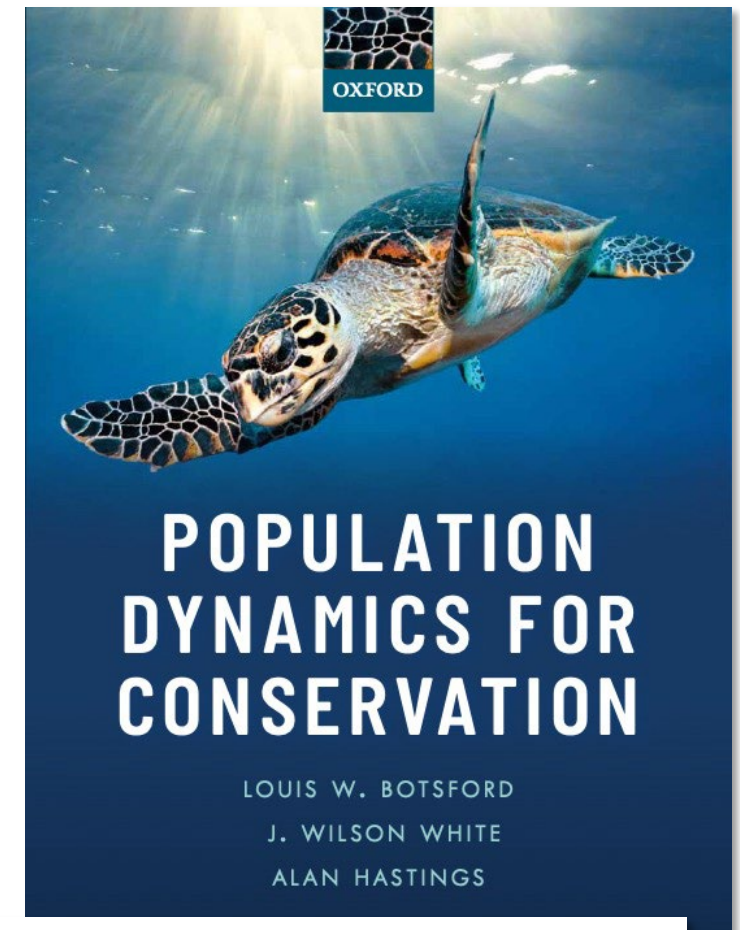
Adjunct Professor, Department of Ecology and Evolutionary Biology, University of California Santa Cruz

Model Modules

kelp-urchin

sea otter

*Dungeness
crab*



CHAPTER 7

**Age-structured models with
density-dependent recruitment**

Timeline

- Delays in recruiting (international) graduate student to complete modeling work
- Officially started April 1



Andrés Pinos Sánchez
– MS student