Trophic Modeling of Oregon's Nearshore Reefs

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Key Questions:

- How will kelp forests will respond to urchin culling?
- How would kelp restoration affect urchin populations?
- How would 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 Schematic – based on work in Giant Kelp





Image from Hopf et al. (in review, Conservation Letters)

brating 20 years of ocean study

OCEAN

Model Schematic – updated for Oregon



Progress to date

- Graduate student started April 1, 2024
- Kelp-urchin model updated to represent bull kelp instead of giant kelp
- ORSO data files retrieved
- Meetings with Tom Calvanese & ORKA
- Presentations: State of the Coast, Western Society of Naturalists
- Leveraged additional funding from ODFW
- No-cost extension requested to complete work in 2025



What type of results to expect?



Efficacy of different levels of restoration?



Hopf, Giraldo Ospina, Caselle, Kroeker, Carr, Botsford, Hastings, & White. *Conservation Letters*, in review

Questions?

