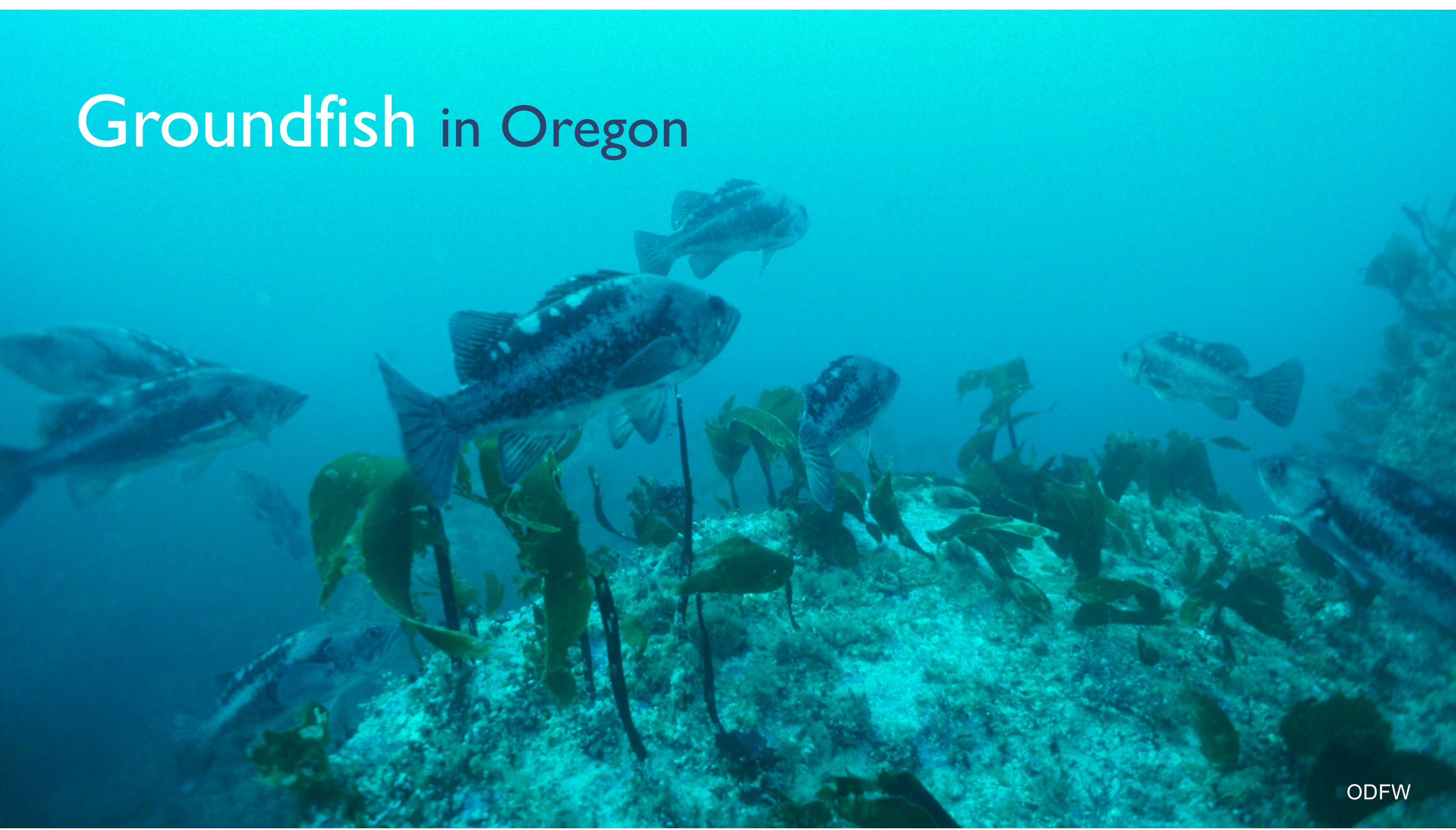
The missing link: Quantifying juvenile dynamics of key commercially, recreationally, and culturally important fishes along Oregon's nearshore

Kirsten Grorud-Colvert & Su Sponaugle (OSU)

Collaborators: Lindsay Aylesworth (ODFW), Ali Whitman (ODFW), Jim Burke (OCA), Kathleen O'Malley (ODFW), Tom Calvanese (OSU), *and their teams*

Grad student: Cameron Royer

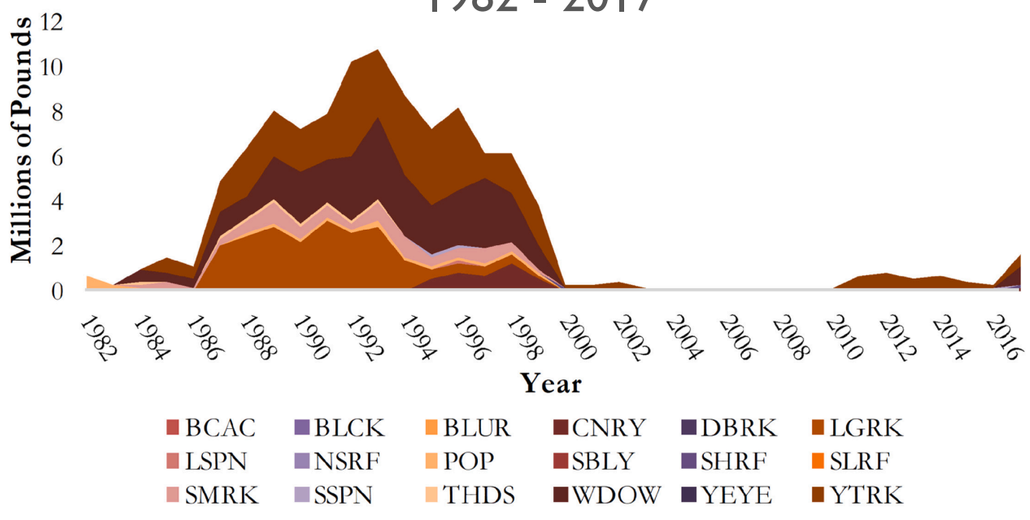
Groundfish in Oregon



ODFW

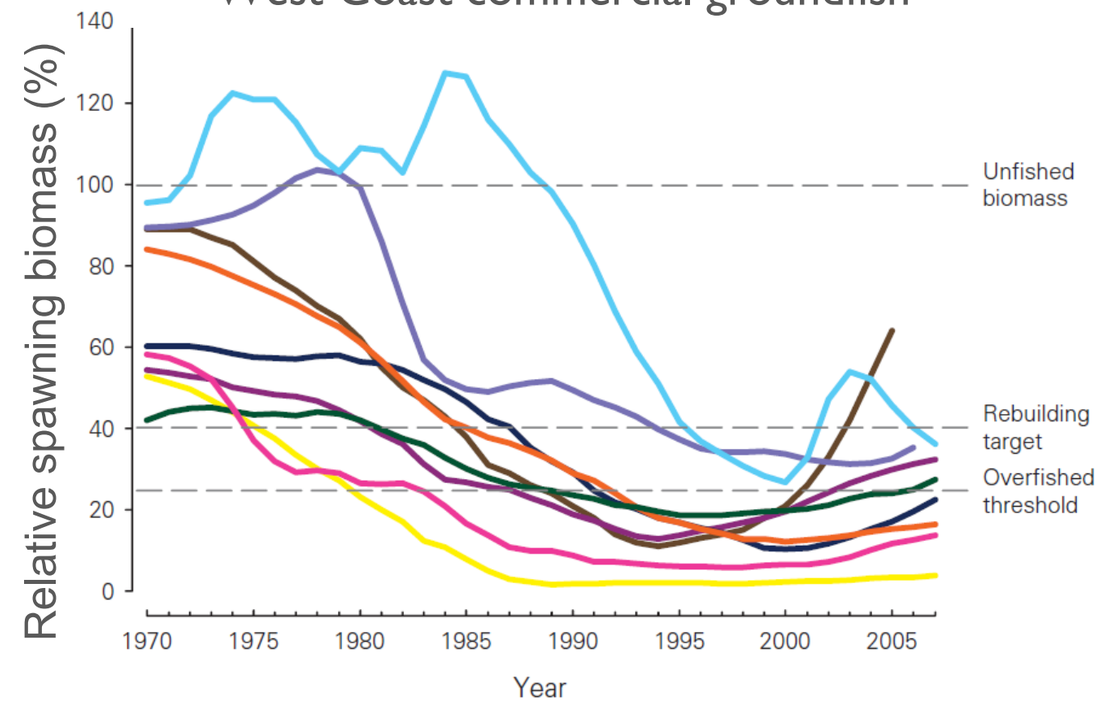
Nearshore fisheries are data poor and reliant on spawning biomass…

Nearshore Oregon Rockfish Landings
1982 - 2017



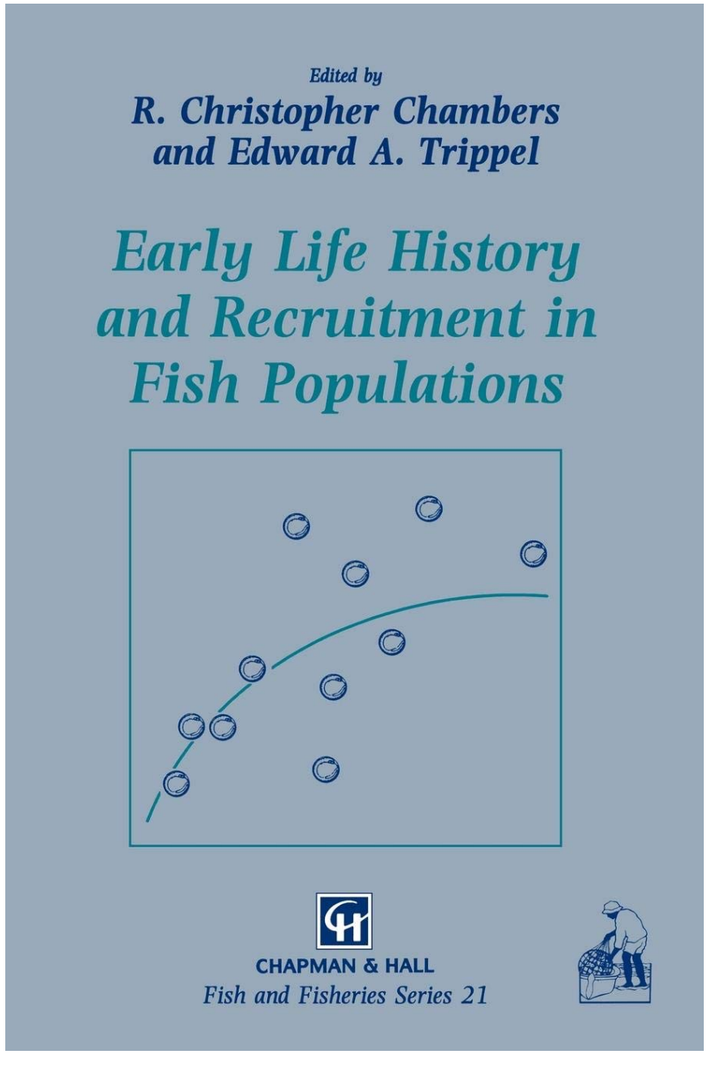
Sjostrom et al. 2021

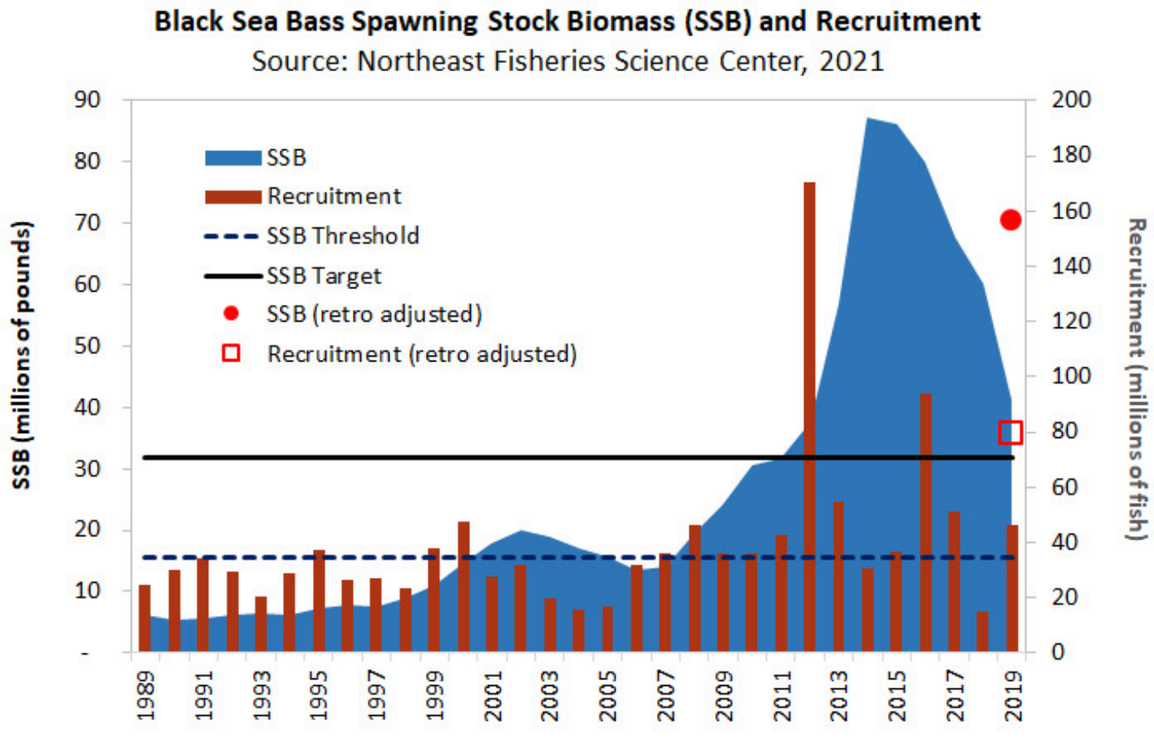
West Coast commercial groundfish



NMFS

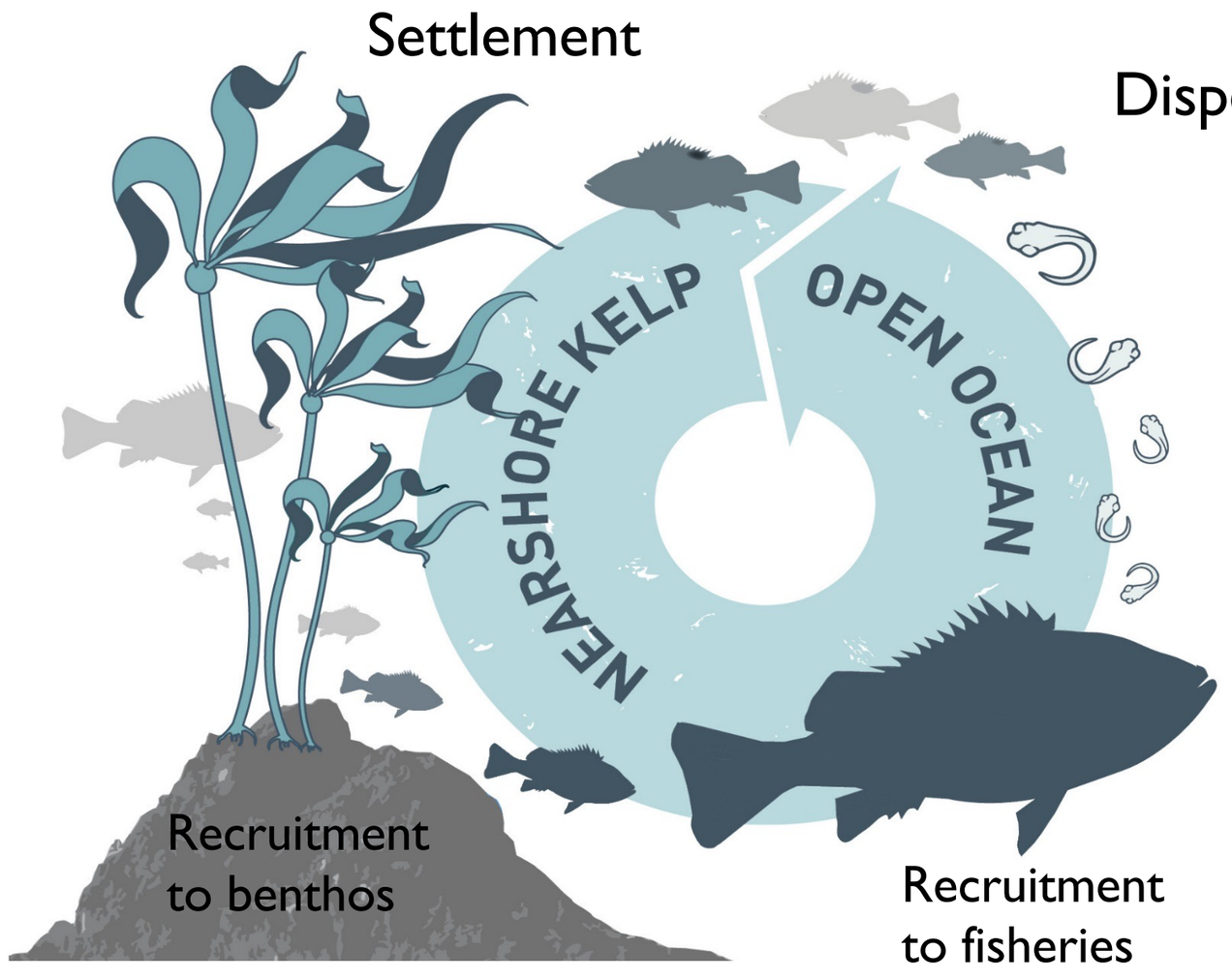
…and juvenile recruitment influences spawning biomass and stock dynamics



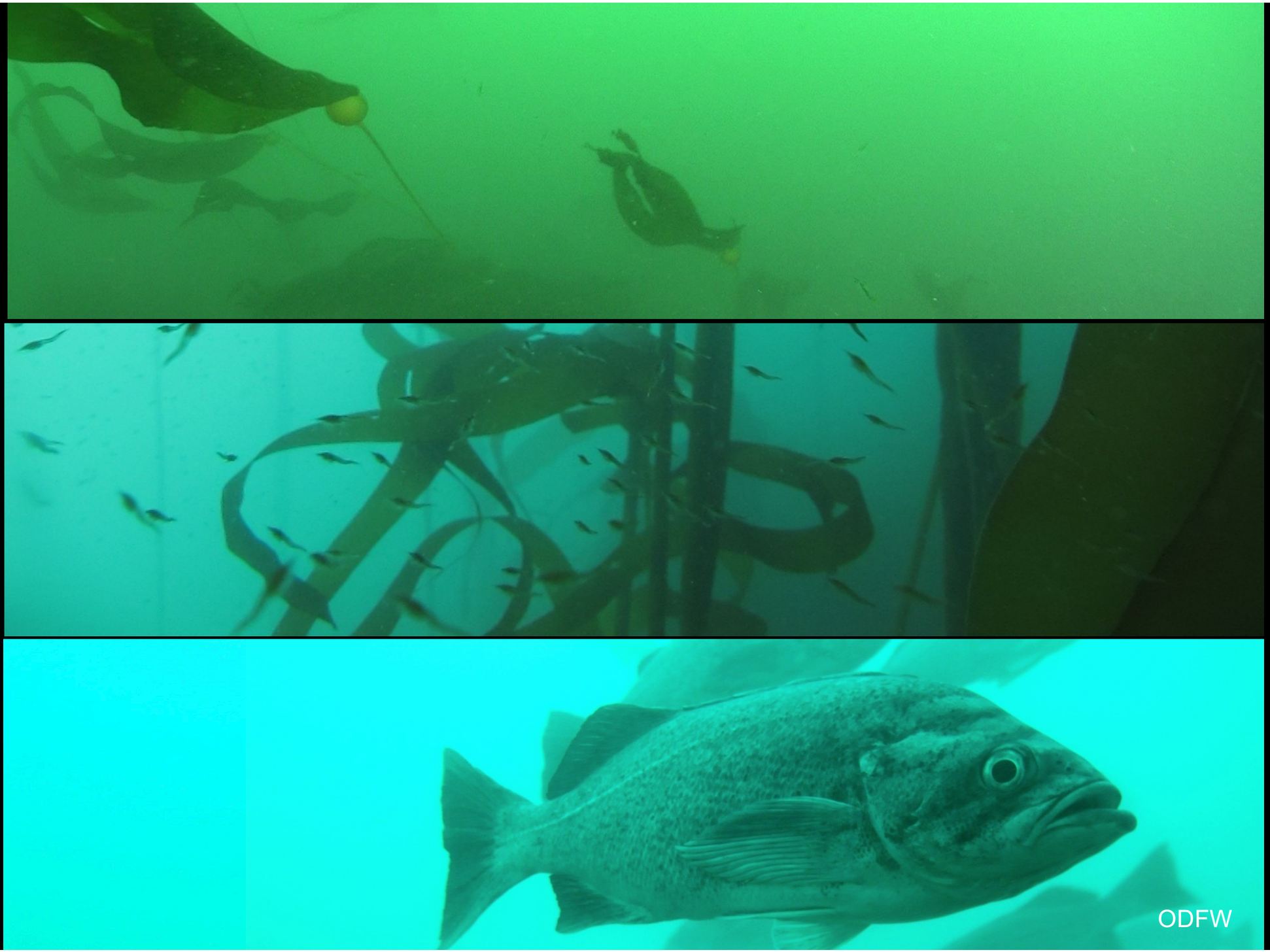


Atlantic States Marine Fisheries Commission

Juvenile recruitment is a key step in understanding important species and stocks



Schematic: ODFW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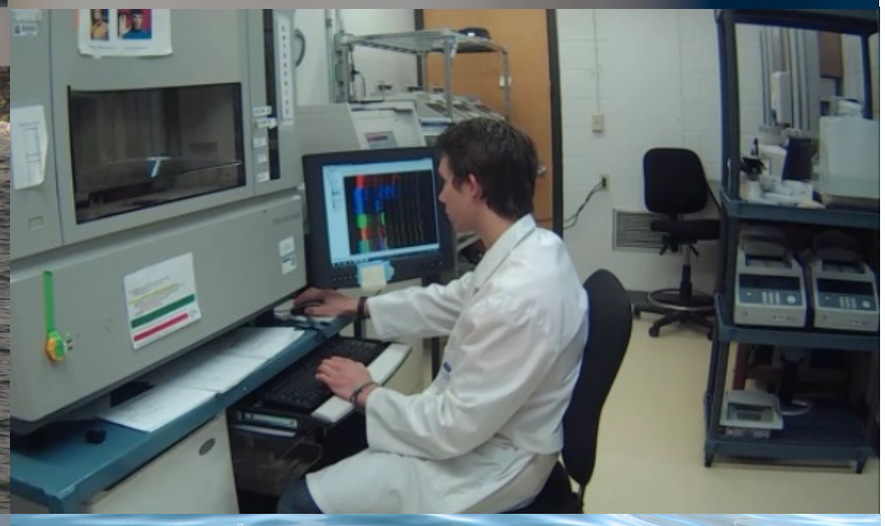
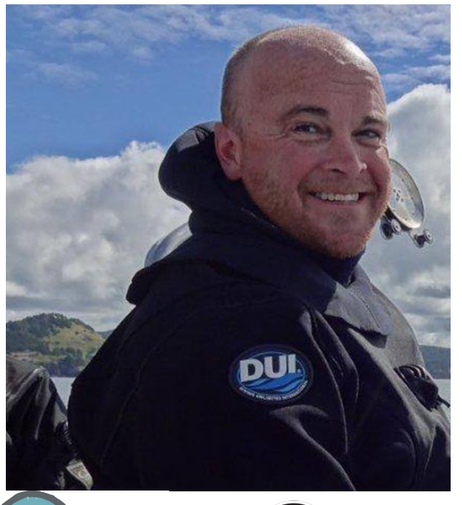


The SMURF Project

Understanding juvenile dynamics of commercially, recreationally, and culturally important fishes



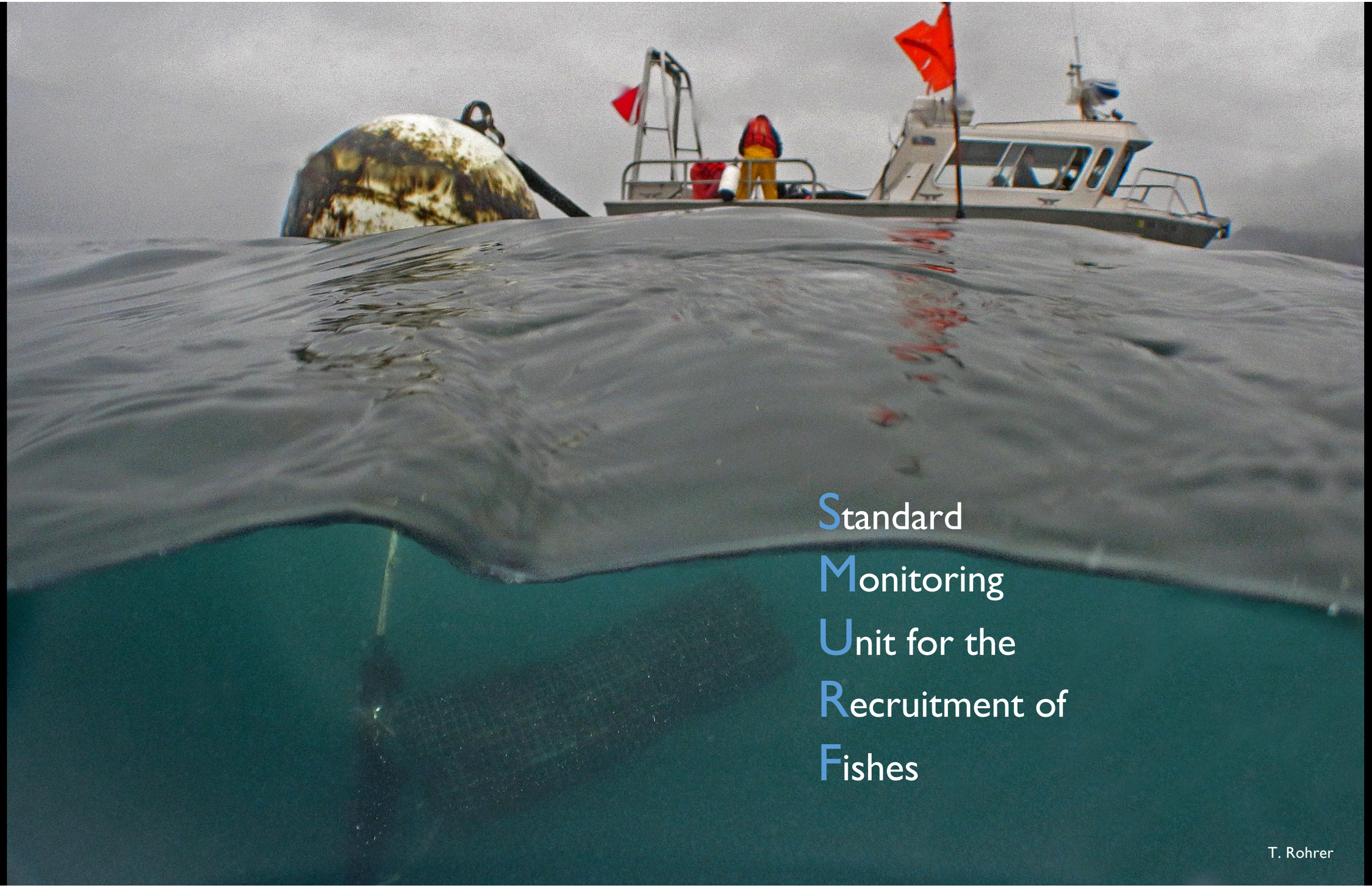
Oregon State University
Port Orford

Oregon State University
Hatfield

OREGON COAST
AQUARIUM

OREGON
MARINE RESERVES
OREGON DEPARTMENT OF FISH & WILDLIFE

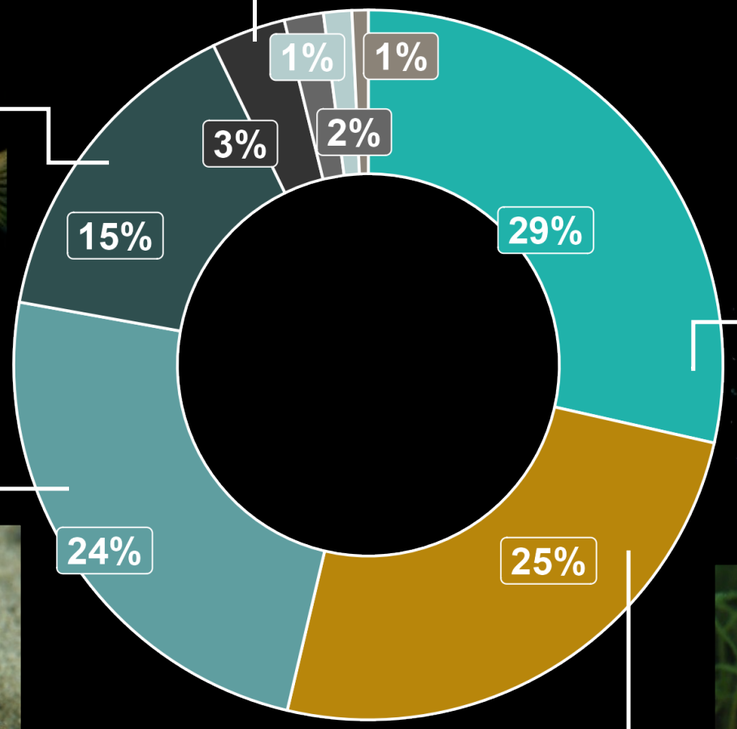
Oregon State
University


Standard
Monitoring
Unit for the
Recruitment of
Fishes
T. Rohrer

common recruits

Tiger rockfish

SR = Splitnose/Redbanded



OYTB = Olive / Yellowtail / Black / Blue rockfish

Cabezon

QGBCC = Quillback / Gopher / Black & Yellow / Copper / China rockfish

common recruits

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Red Irish lord

Bocaccio

Rock greenling

Prickleback

Kelp greenling

Slimy snailfish

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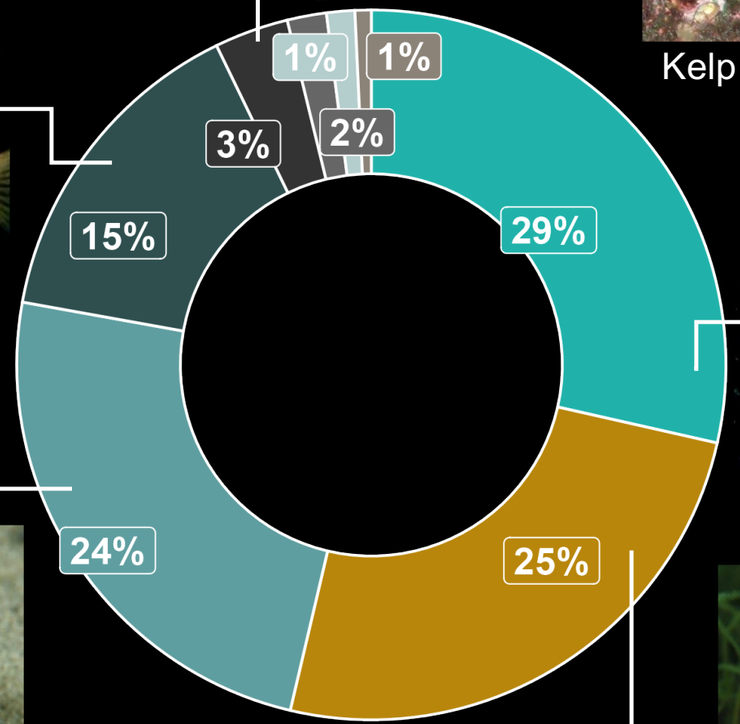

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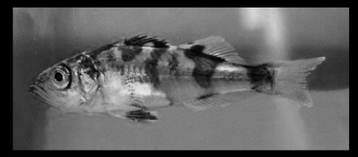

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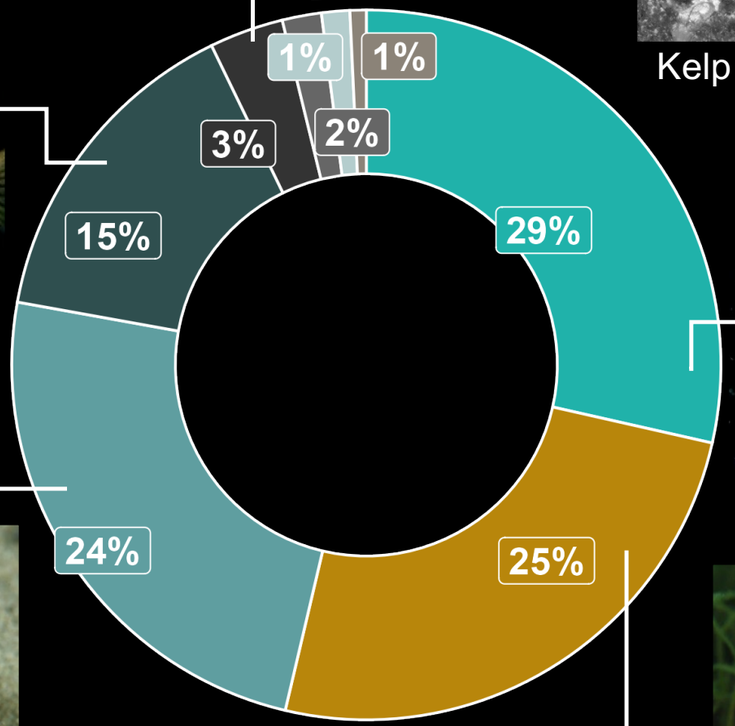

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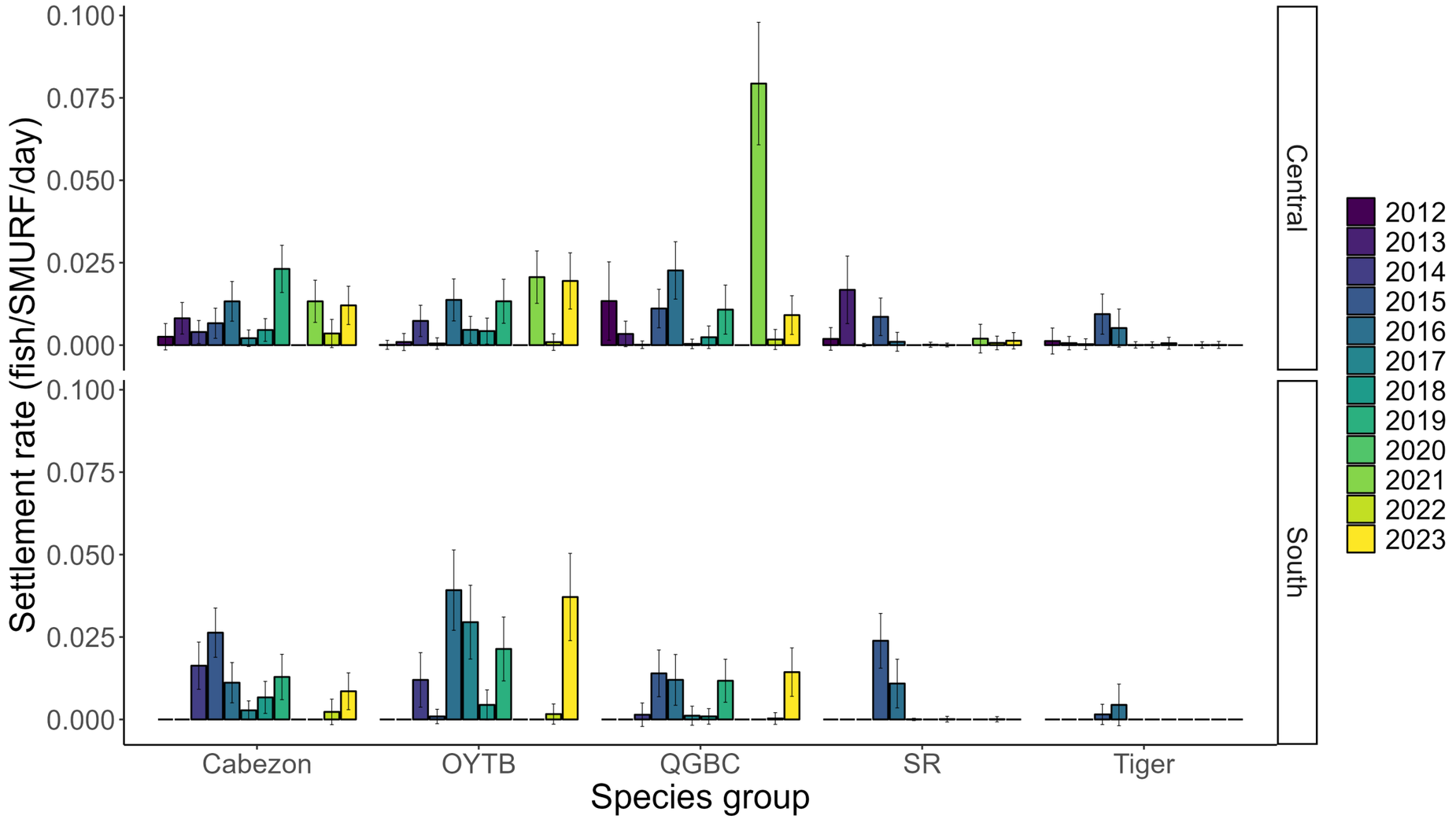
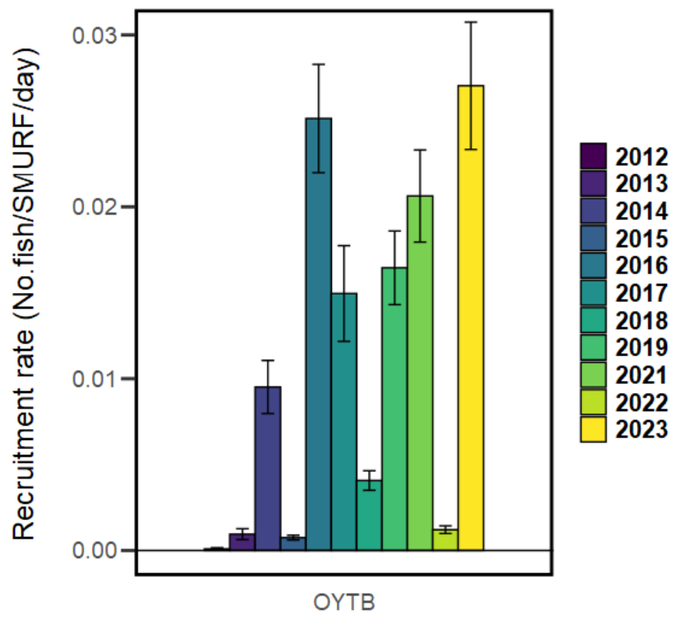
Variability in fish recruitment




Recruitment rate (No.fish/SMURF/day)
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OYTB
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2013
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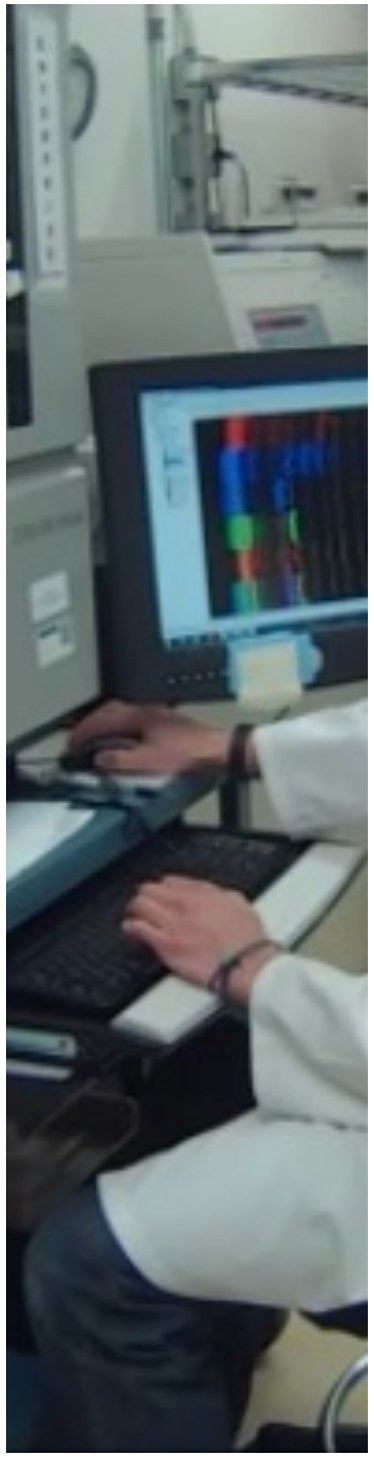
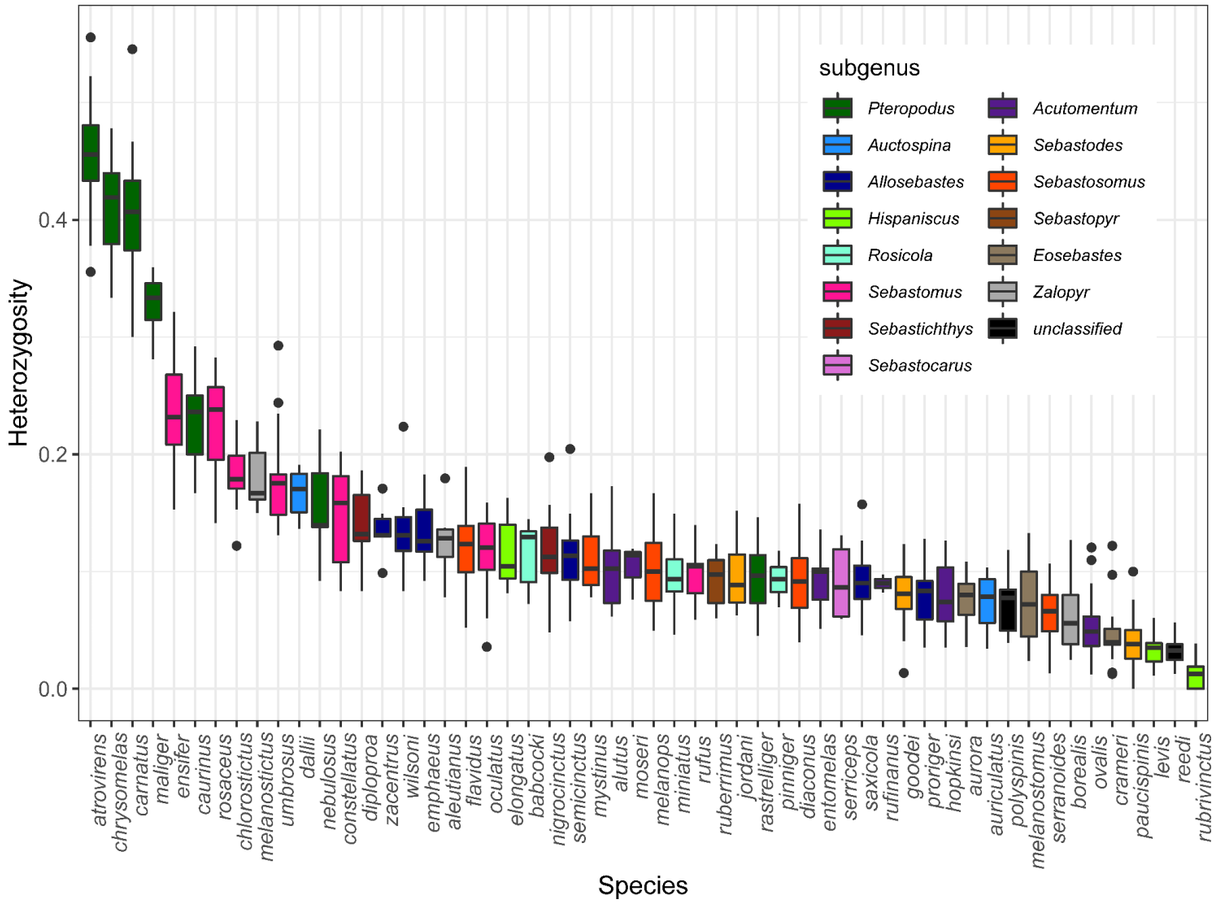


Using cutting edge genetic techniques to ID juvenile rockfishes



Baetscher, D. S., H. M. Nuetzel, and J. C. Garza. 2023. Highly accurate species identification of Eastern Pacific rockfishes (Sebastes spp.) with high-throughput DNA sequencing. Conservation Genetics.

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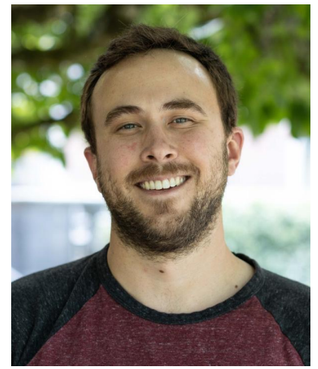
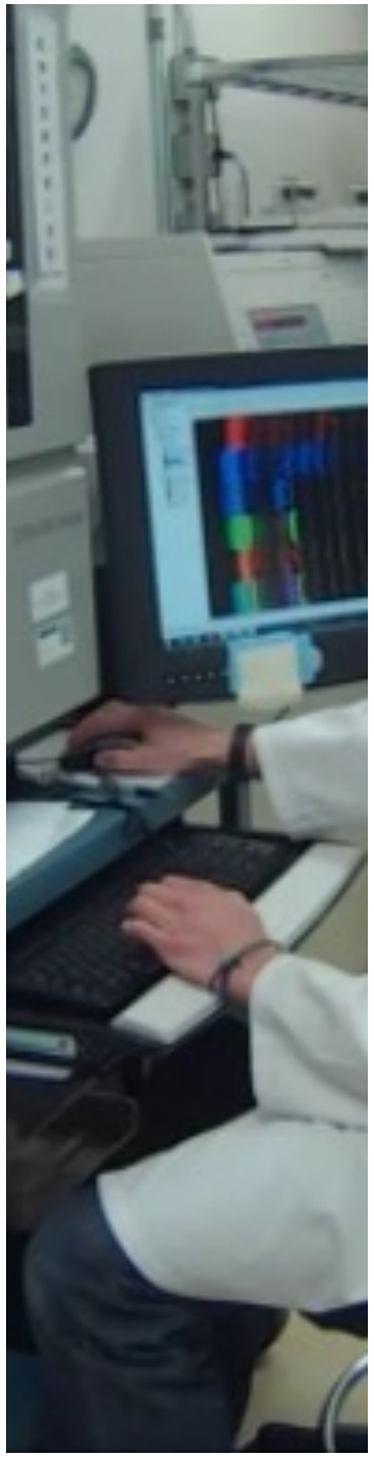
ODFW State
Fisheries Geneticist



Cameron Royer
OSU Grad Student



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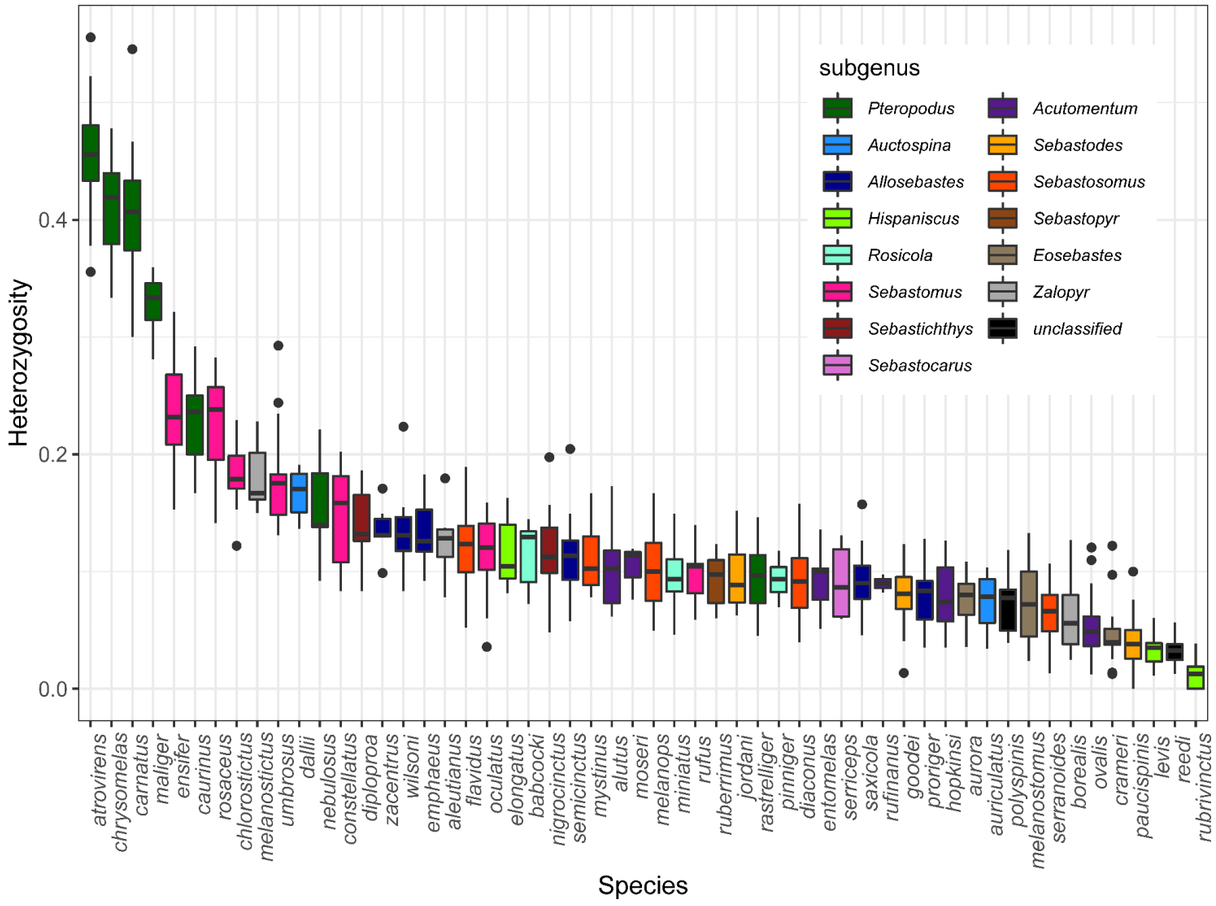

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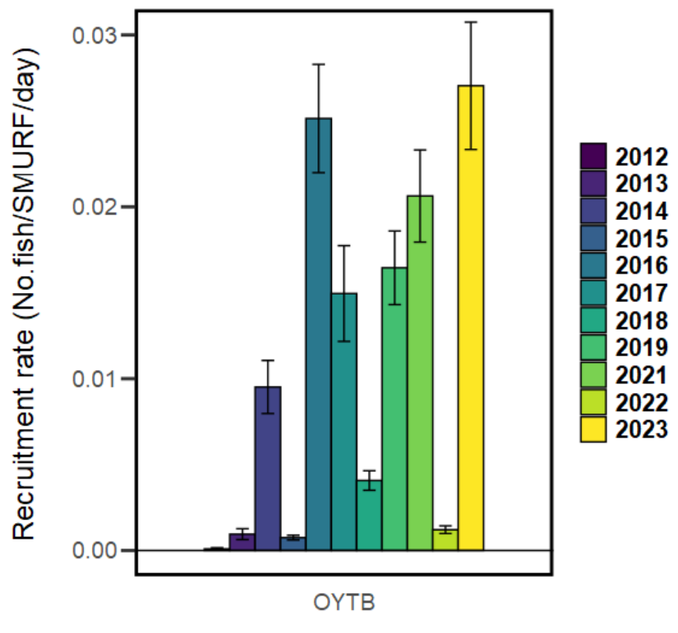
and contribute nearshore data for stock assessments

Black (2023), Yellowtail (2024), Quillback (2024)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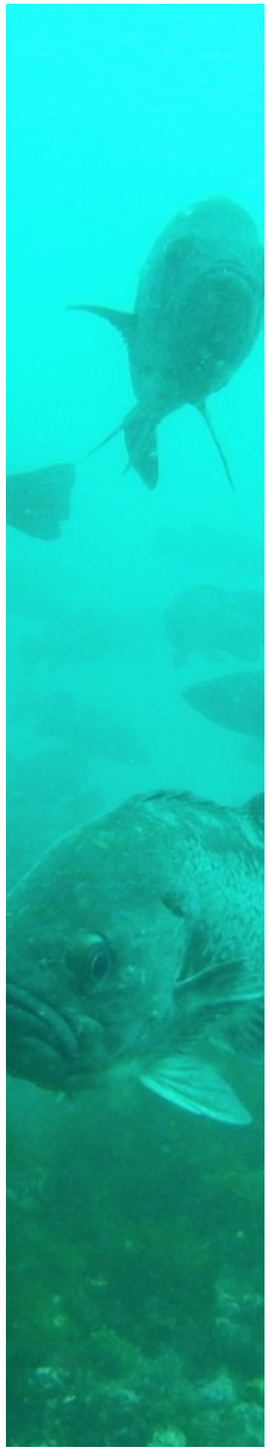
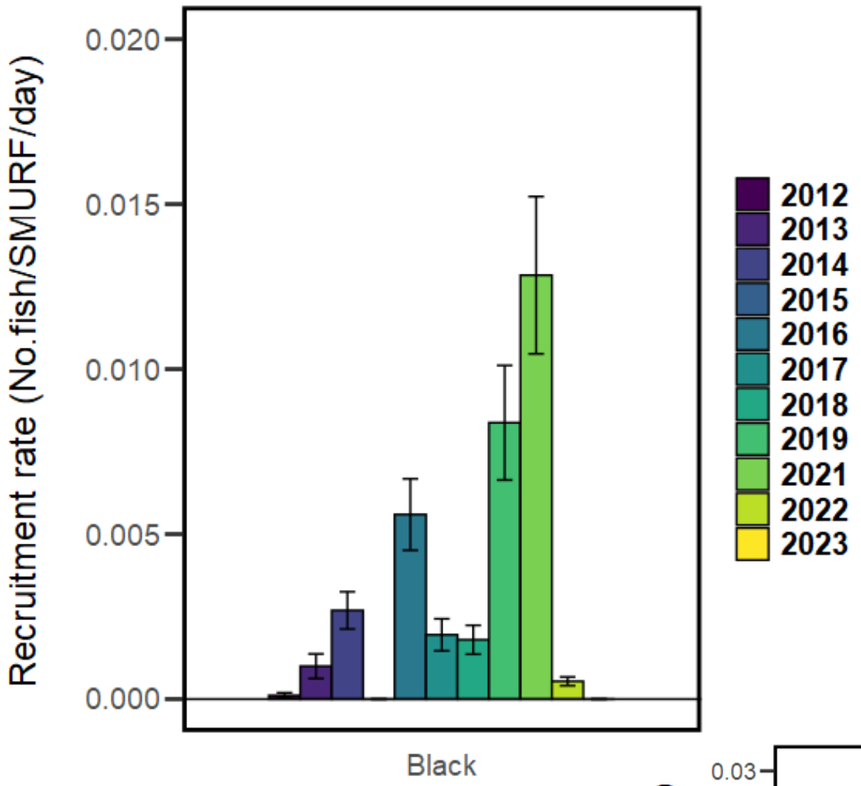
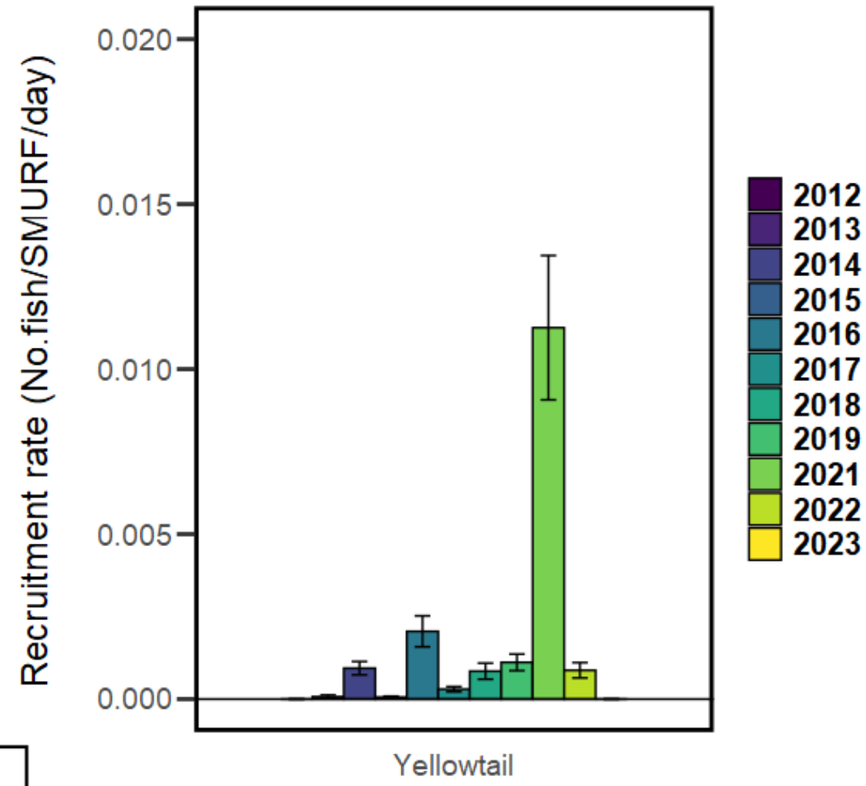
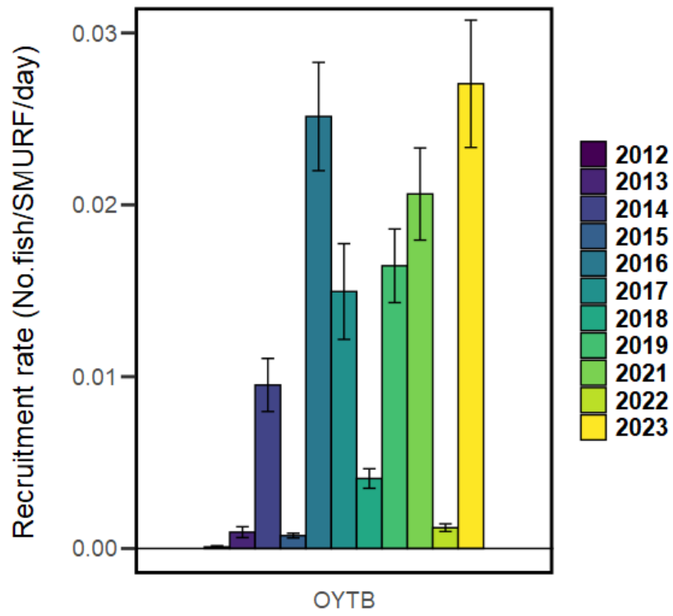
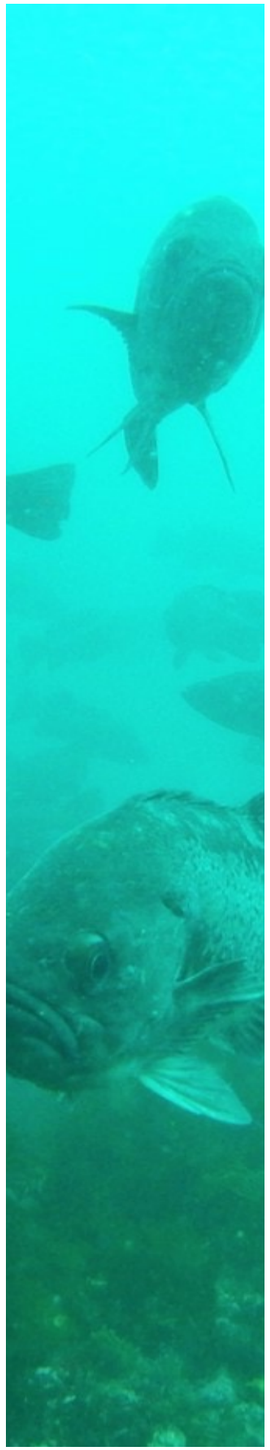


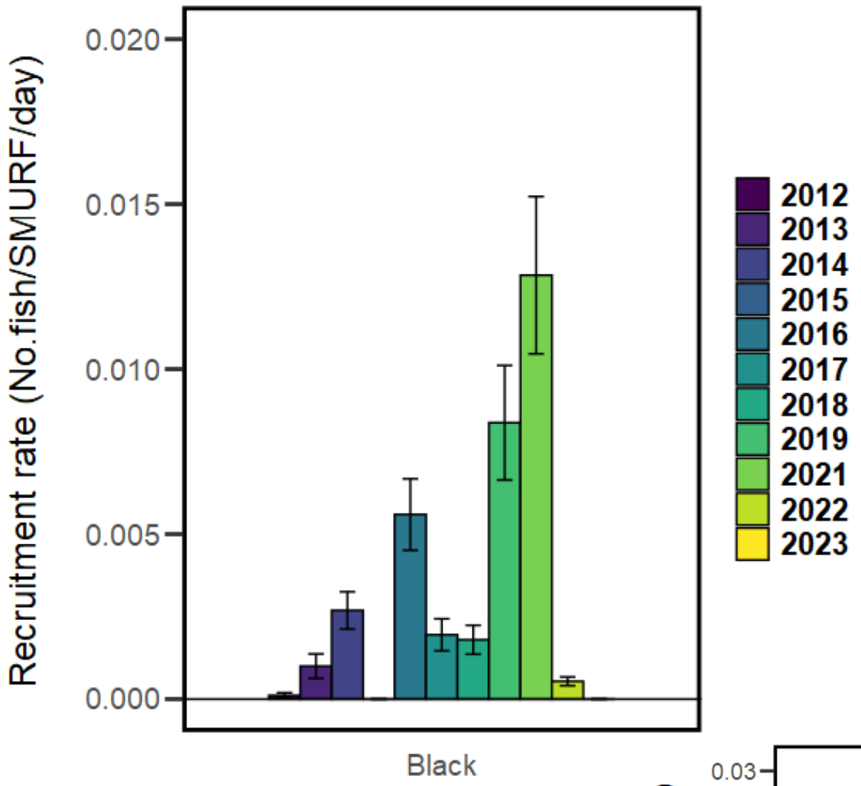


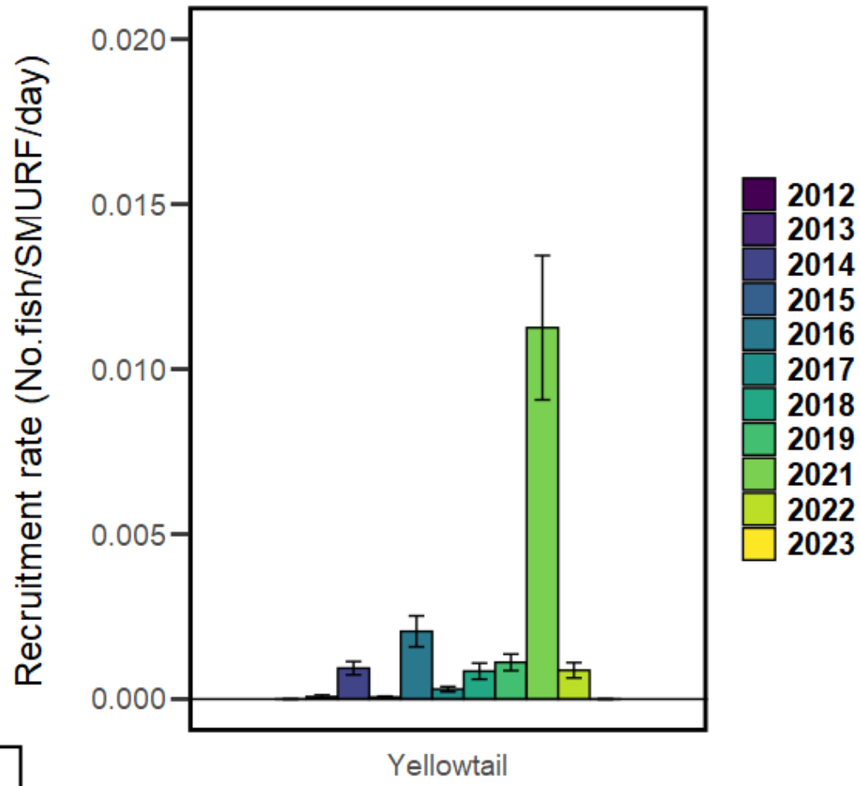


From species grouped to individual species









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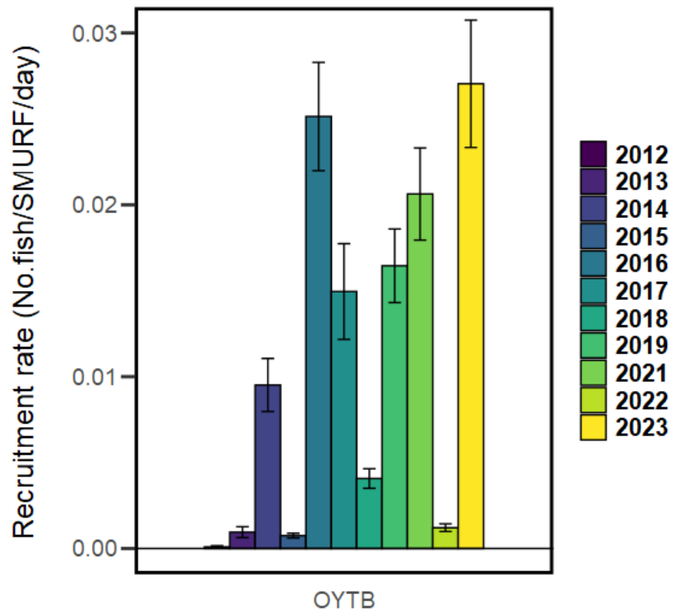
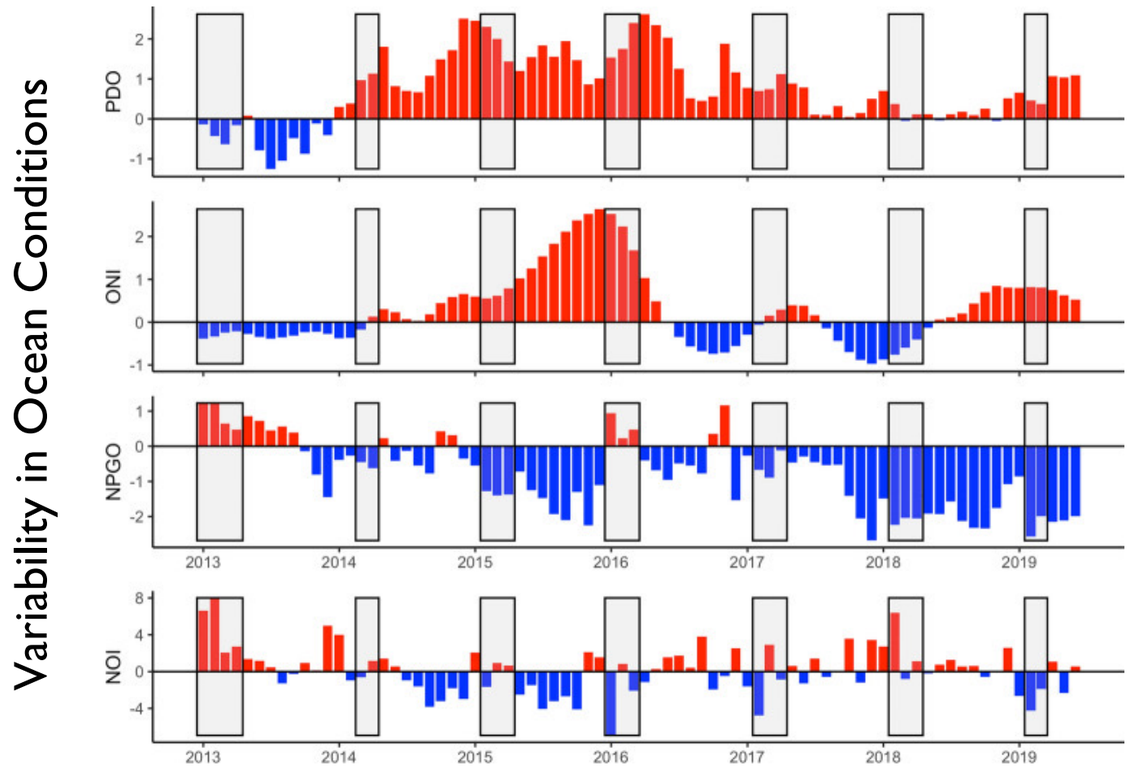


Black and Yellowtail Rockfishes have different dynamics

Where we're headed:

Using species-specific data to understand changes



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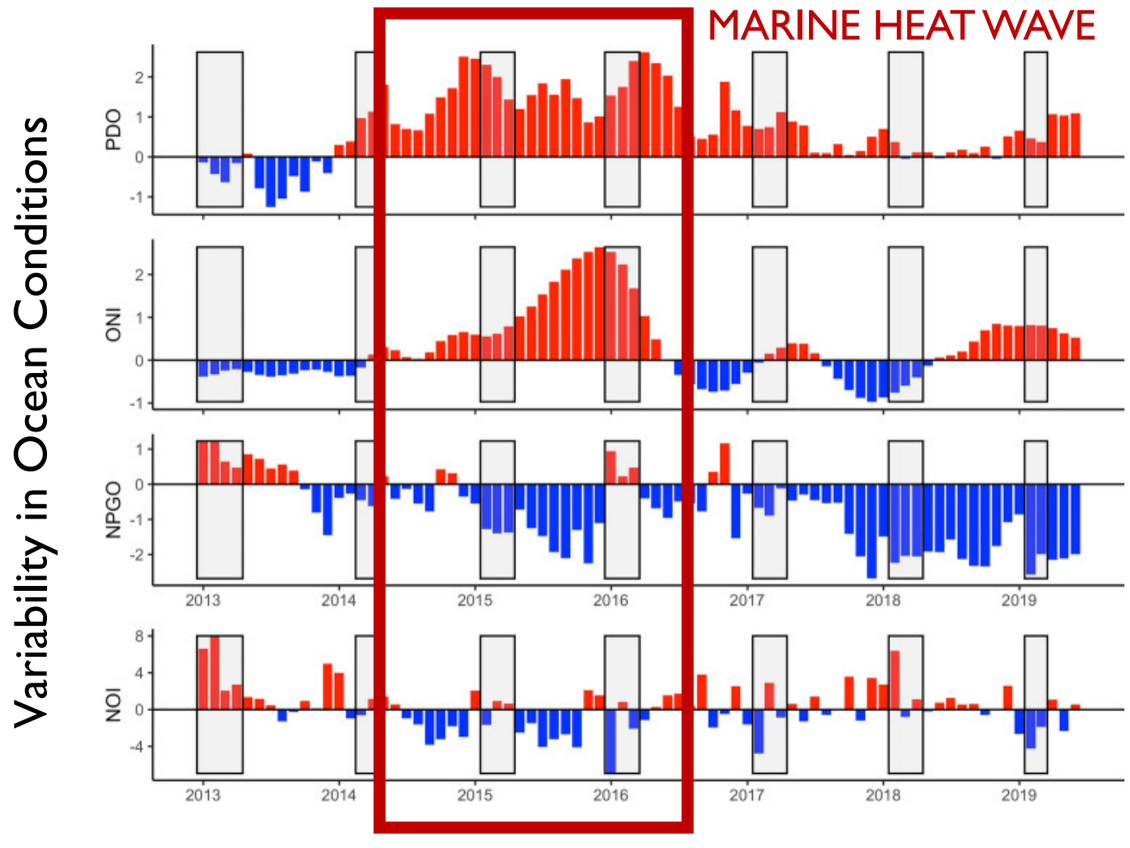

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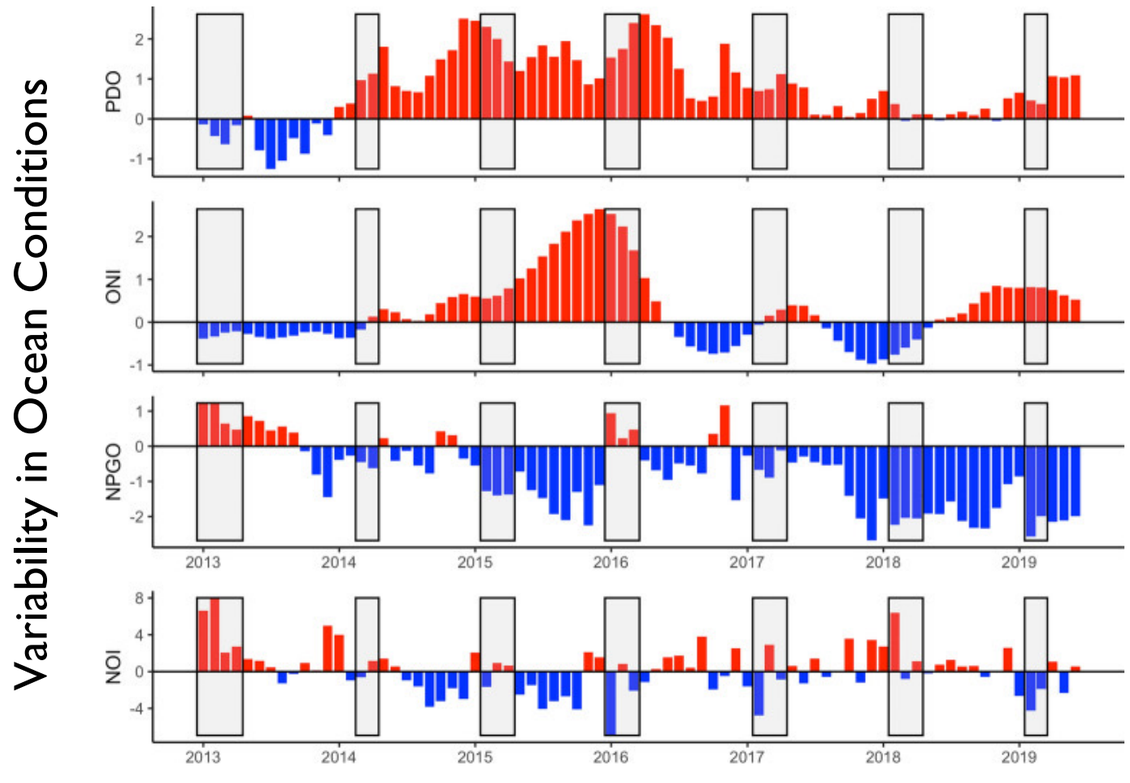
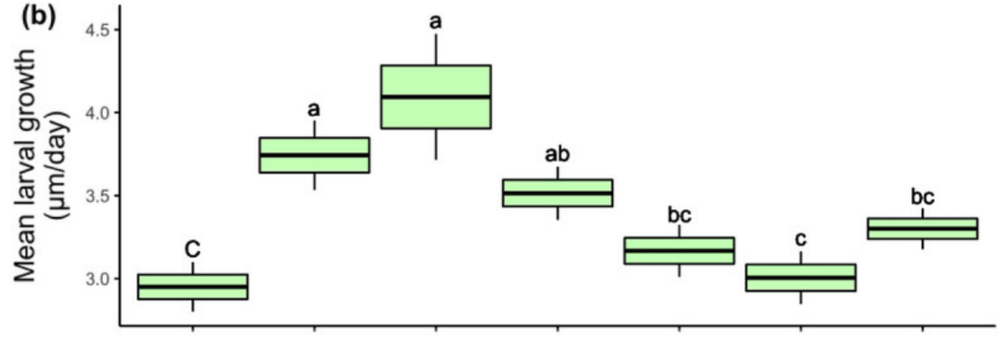


Black Rockfish larval growth increased



But without sufficient prey, there was reduced survival

Will Fennie, Kirsten Grorud-Colvert, Su Sponaugle. 2023. Scientific Reports (Nature Publishing Group).

Our Milestone Schedule

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Milestone 4: Calculate and analyze settlement rates for each sampled species across seasons, years, latitude, habitat types, protection levels, and with varying oceanographic conditions; Winter 2024/25.

Milestone 5: Provide settlement index and fish length data focused on the above species to ODFW Marine Resources Program, the Pacific Fisheries Management Council, and the STAR Panel for the Quillback Rockfish and Yellowtail Rockfish Stock Assessments slated for 2024; Winter 2024.

Milestone 6: Produce our StoryMap to tell multimedia stories of juvenile fishes in Oregon's nearshore. To be shared online (e.g., OSU, ODFW, OCAq); Fall 2023 to Fall 2024.

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