

The Casco Bay Aquatic Systems Survey (CBASS)



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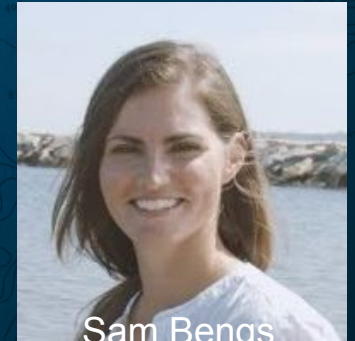
Gulf of Maine Monitoring and Research Symposium (April 8-9, 2025)



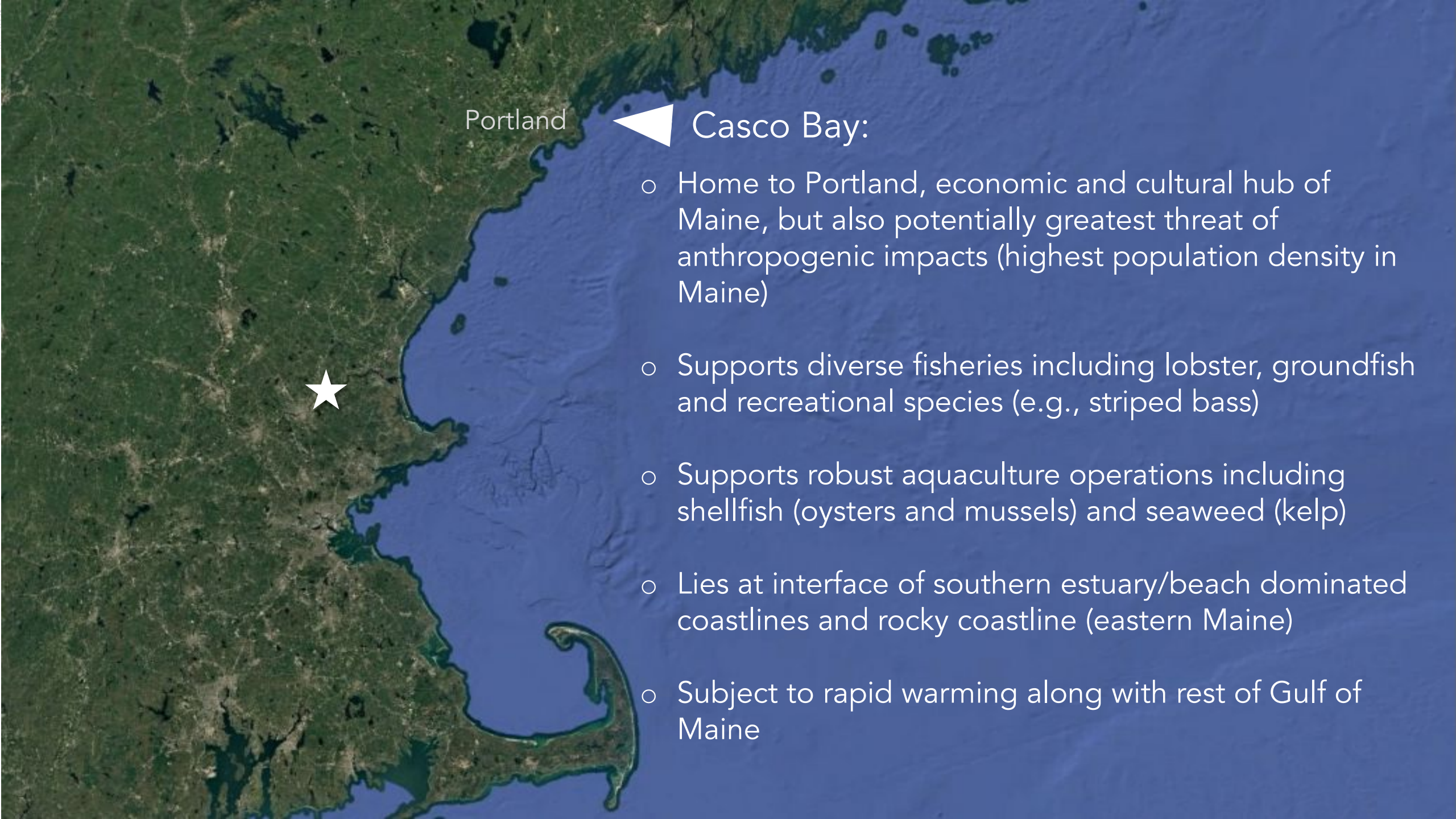
Katie Lankowicz



Gulf of Maine
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Sam Bengs



Portland

◀ Casco Bay:

- Home to Portland, economic and cultural hub of Maine, but also potentially greatest threat of anthropogenic impacts (highest population density in Maine)
- Supports diverse fisheries including lobster, groundfish and recreational species (e.g., striped bass)
- Supports robust aquaculture operations including shellfish (oysters and mussels) and seaweed (kelp)
- Lies at interface of southern estuary/beach dominated coastlines and rocky coastline (eastern Maine)
- Subject to rapid warming along with rest of Gulf of Maine

What is CBASS?

CBASS is a long-term coastal monitoring program to describe ecological changes in the nearshore ecosystem – primarily fish communities – due to rapid warming.

It began in 2014 as a response to the 2012 ocean heat wave in the Gulf of Maine.

The name CBASS is a play on the expectation that we would see more black sea bass in the region; ironically, we've only seen one in 11 years of monitoring!

An aerial photograph of a coastal region, showing a dark blue sea on the left and a green coastline on the right. The coastline is irregular, with many small inlets and peninsulas. The text "CBASS sampling activities..." is overlaid on the right side of the image, in a white, sans-serif font.

CBASS sampling
activities...

River sampling



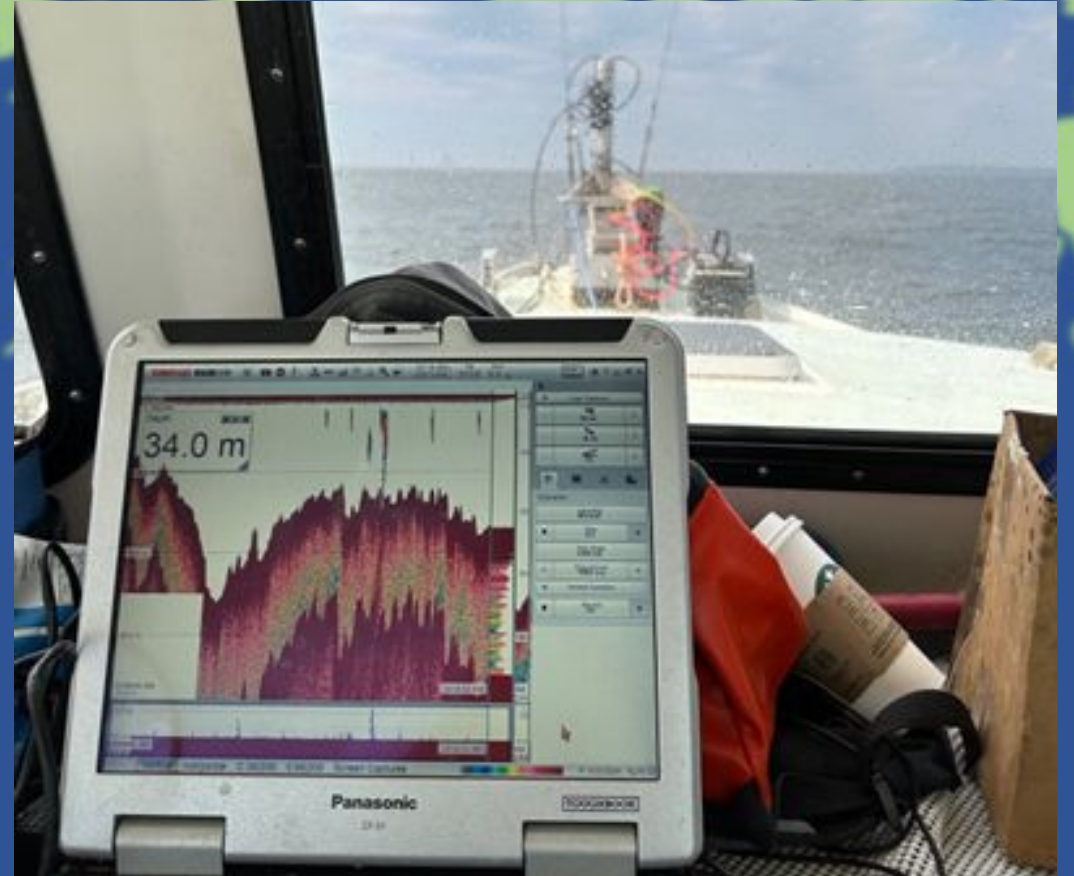
Seine sampling



Hook-and-line sampling



Acoustic survey



Annual Ecosystem Report

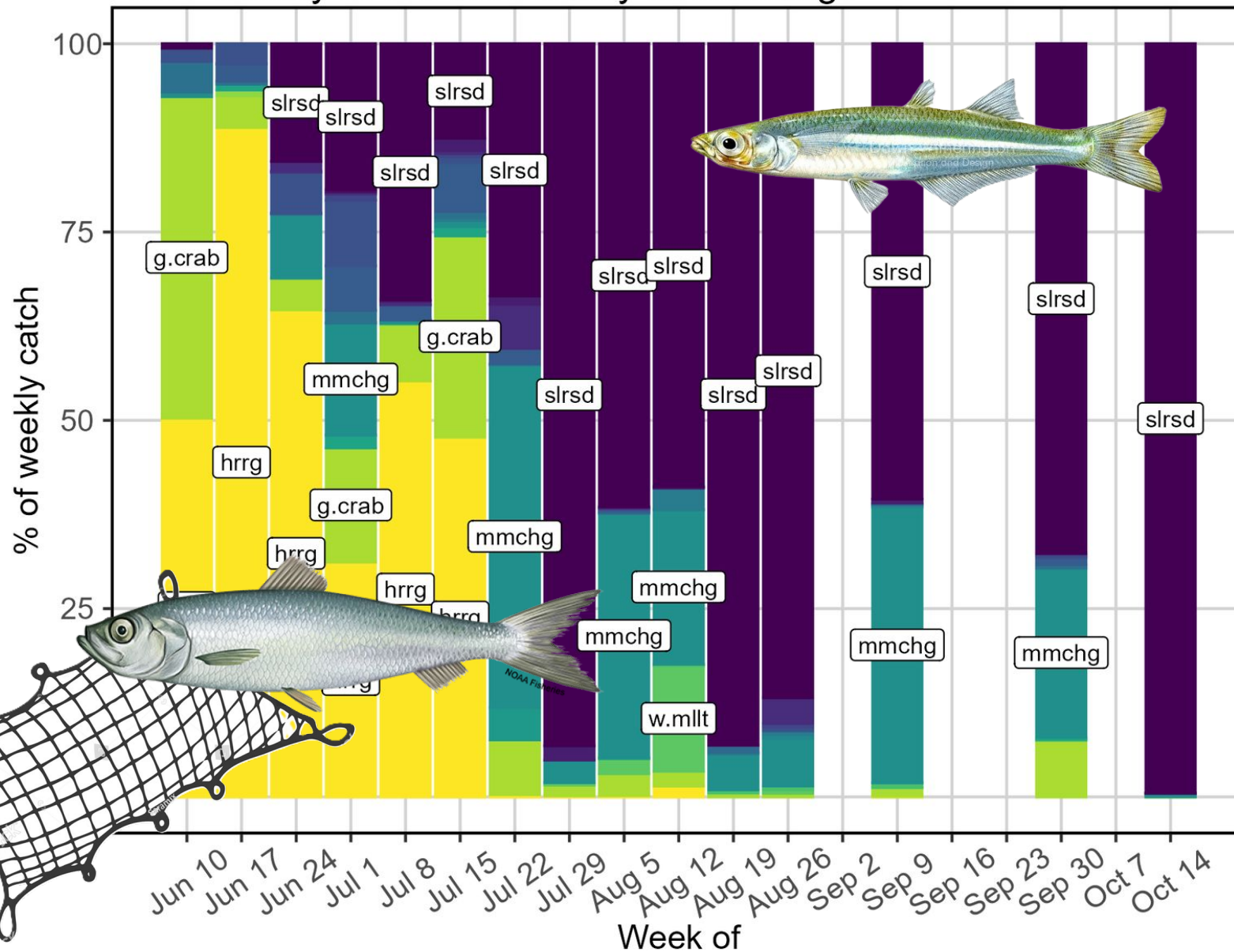
2024



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<https://gmri.org/stories/2024-casco-bay-ecosystem-monitoring-report/>

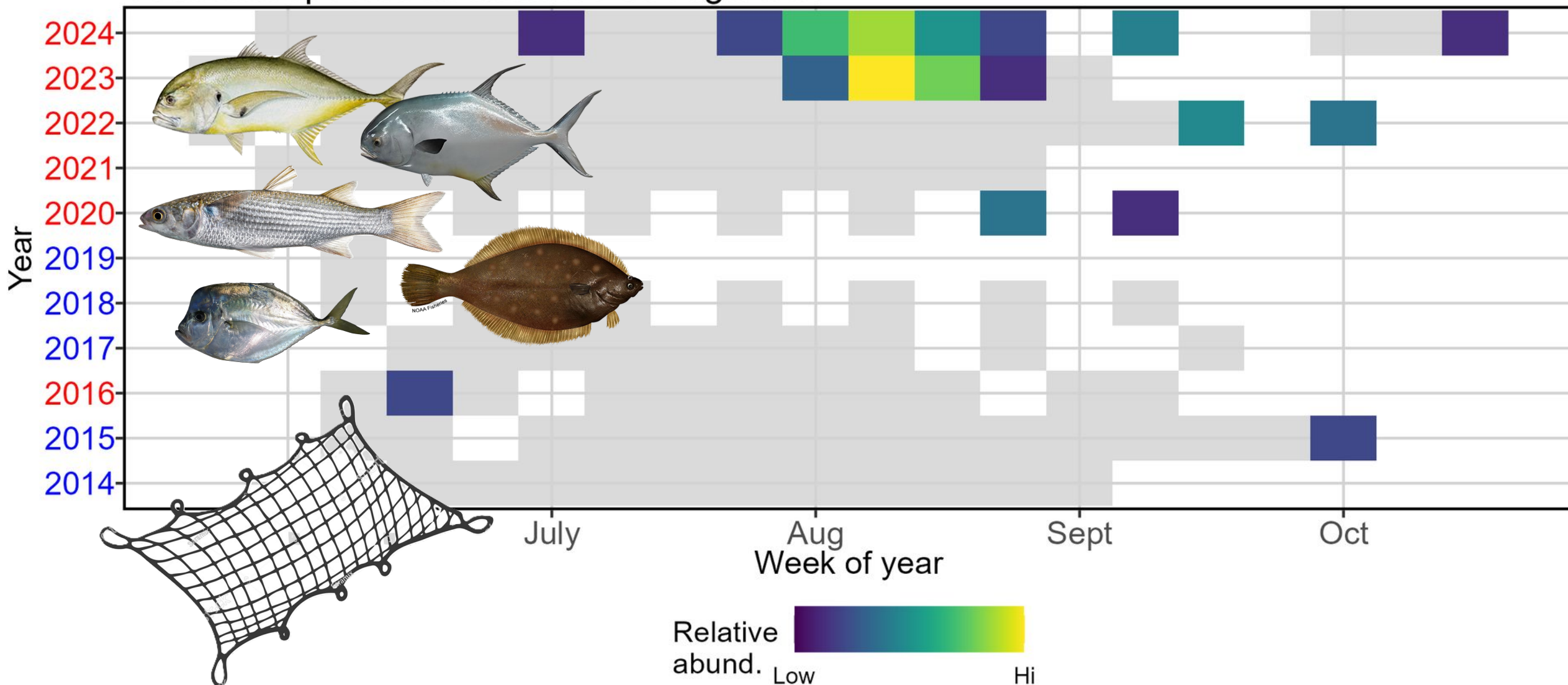
2024 weekly seine community assemblage

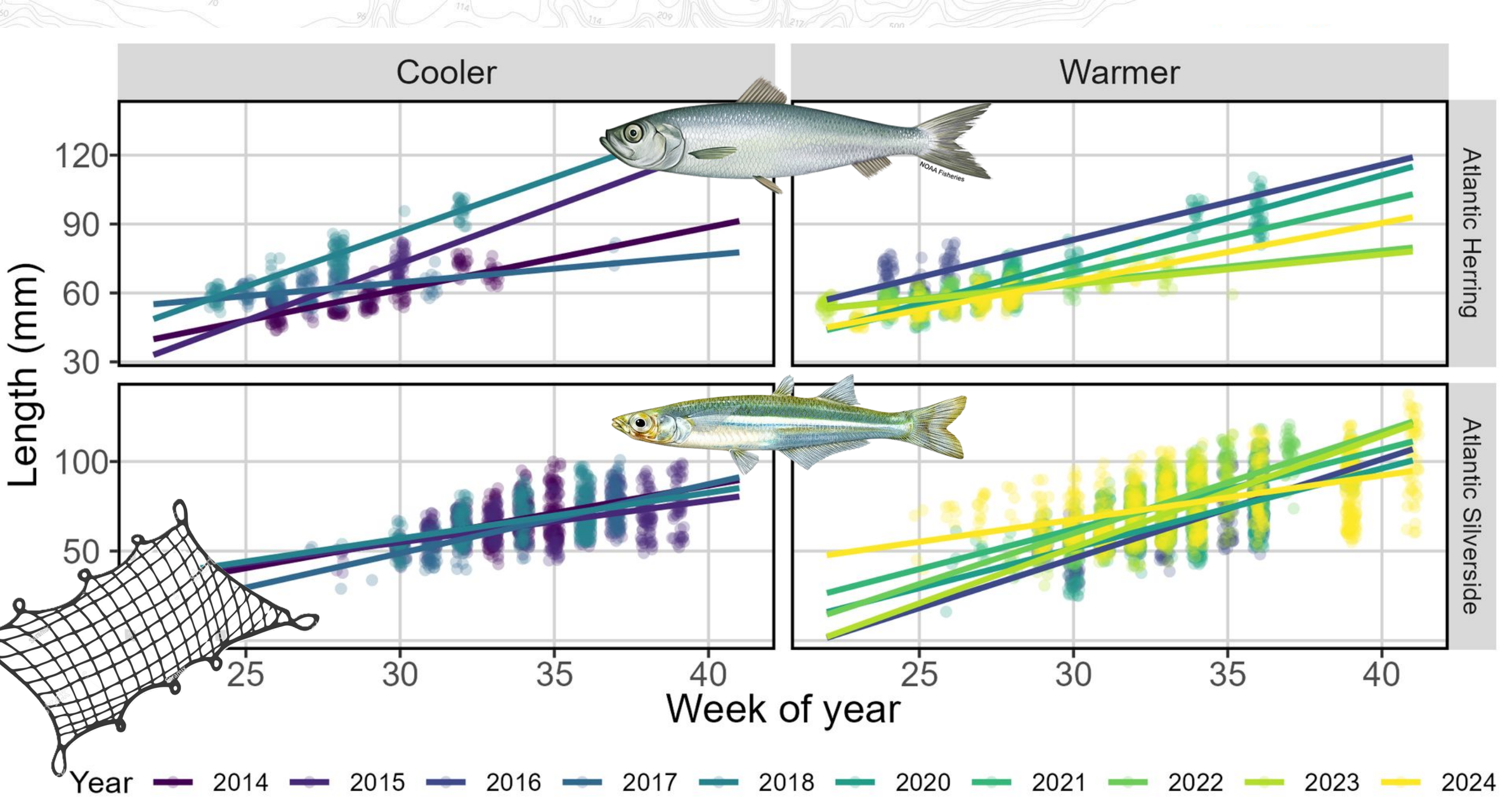


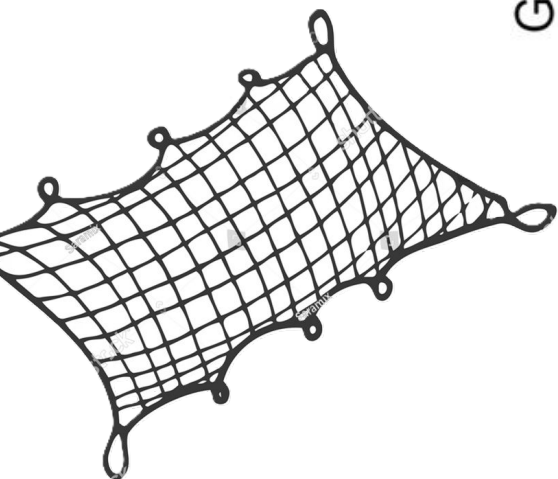
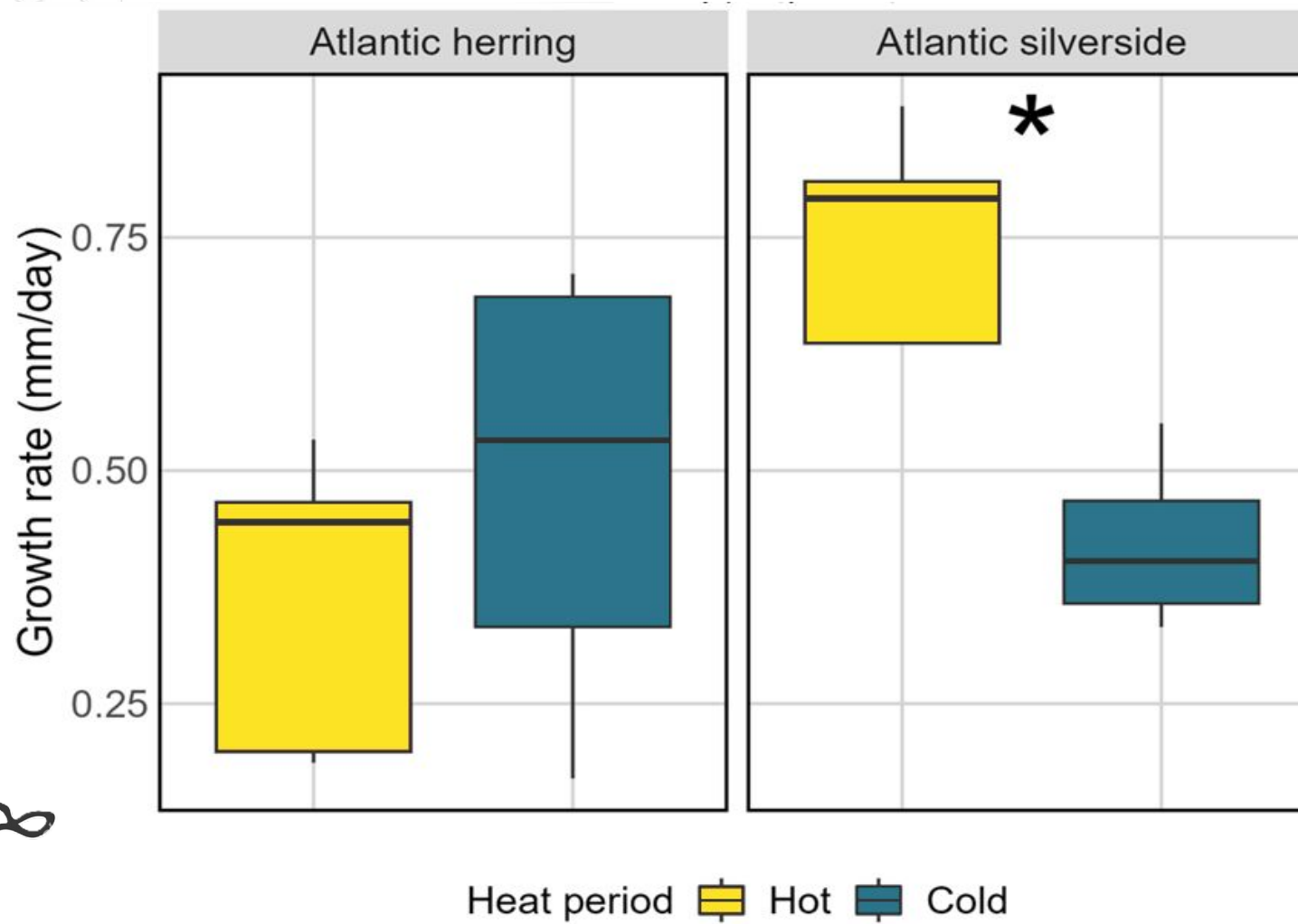
Species

- atlantic silverside ★ ★ ★
- asian shore crab
- bluefish
- alewife ★
- sturgeon
- stickleback
- atlantic tomcod
- winter flounder ★
- crevalle jack ←
- sculpin
- sandlance ★
- white perch
- mummichog ★ ★
- fallfish
- northern pipefish
- american eel
- atlantic moonfish ←
- permit ←
- white mullet ←
- hake
- pollock
- green crab
- atlantic saury
- atlantic mackerel
- atlantic herring ★ ★ ★

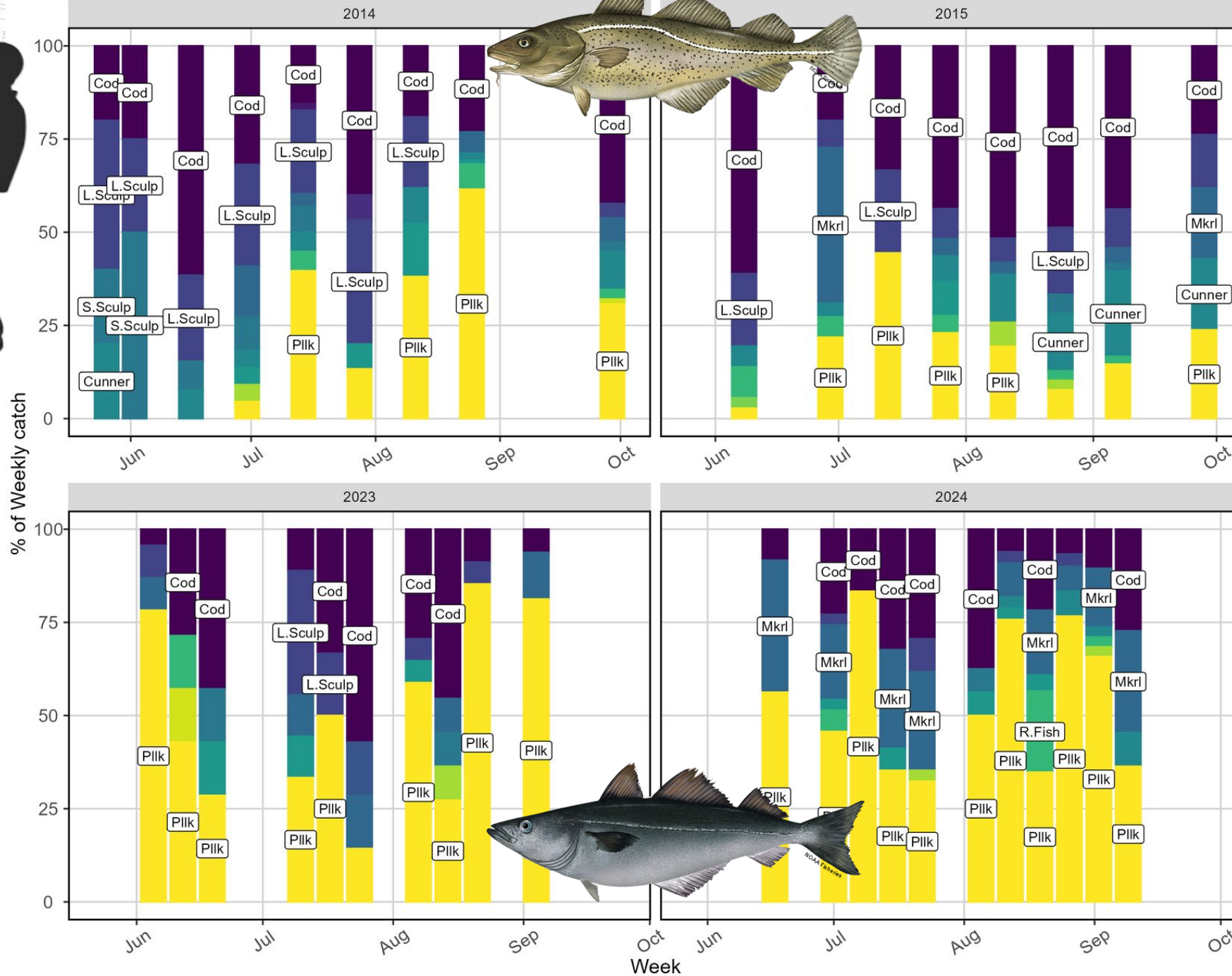
Southern species abundance through time







Jigging community assemblage



- Species**
- Cod
 - Cusk
 - Hake
 - Longhorn sculpin
 - Black sea bass
 - Mackerel
 - Shorthorn sculpin
 - Cunner
 - Whiting
 - White Hake
 - Redfish
 - Haddock
 - Sculpin
 - Sea Raven
 - Red Hake
 - Pollock



Future Plans

We plan to continue monitoring for as long as possible; we now have 11 years of data and are just beginning to scratch the surface of understanding what's changing in Casco Bay.

Long-term monitoring is crucial for understanding ecosystem change in the face of warming.

CBASS is also providing excellent opportunities to engage the public in our work as well as undergraduate students (REU).

CBASS is an important platform for leveraging additional research (e.g., eDNA).

Thank you!

