



**NOAA
FISHERIES**



Recruitment and marine connectivity

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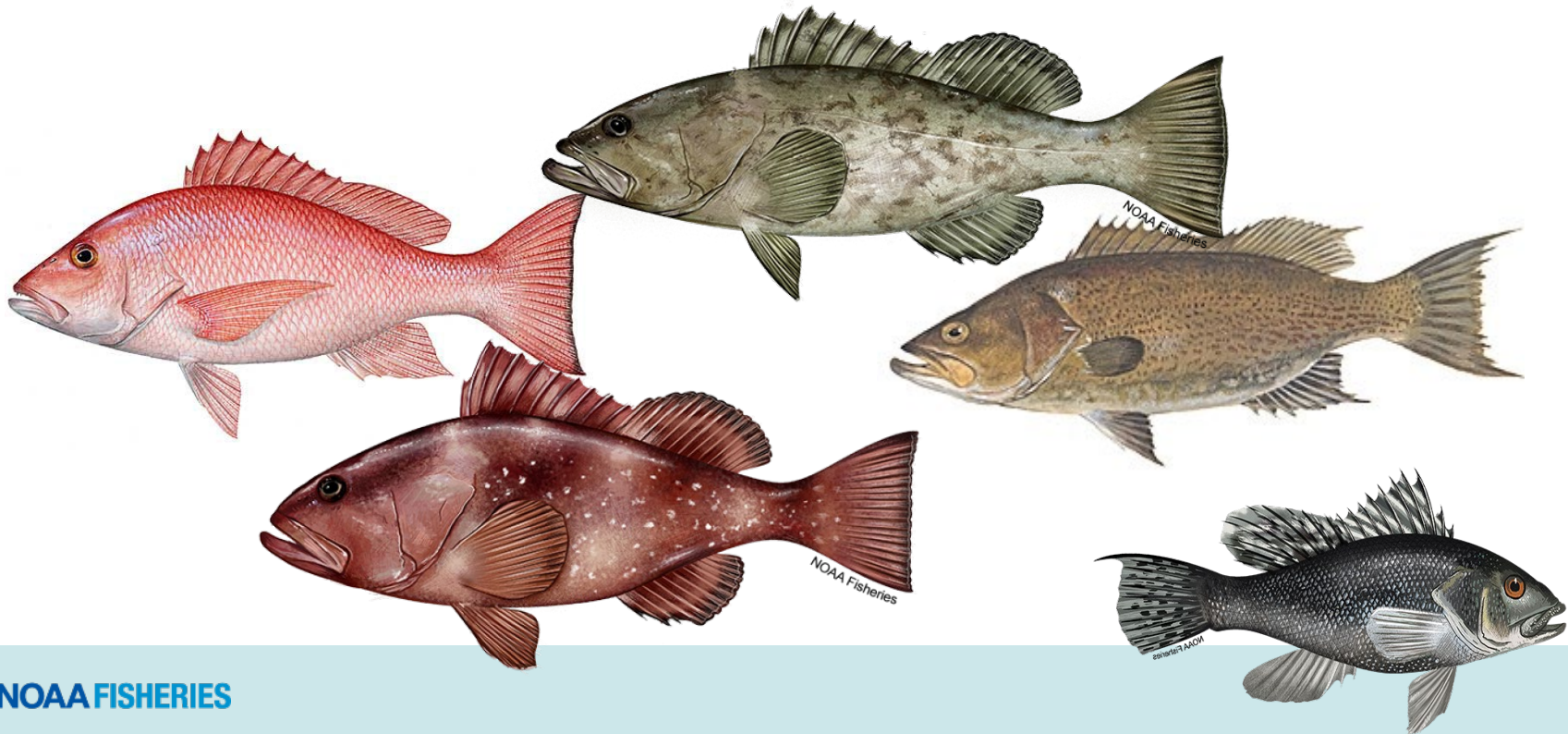
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Two primary SA topics addressed by this work so far

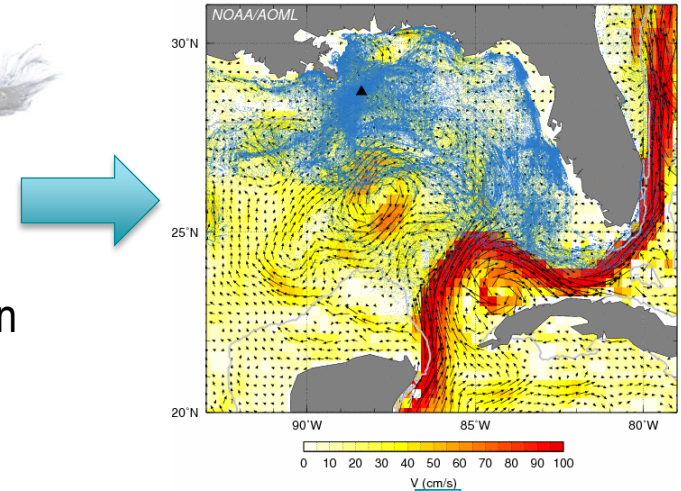
- Connectivity of larval transport between the Gulf of Mexico and South Atlantic regions
- Effectiveness of spawning Special Management Zones



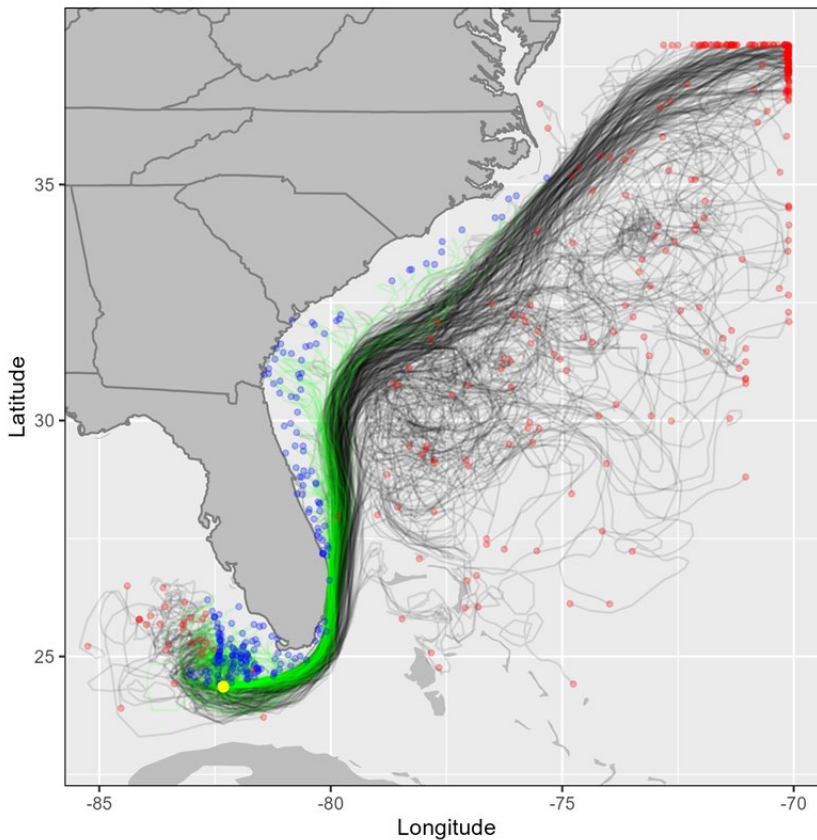
The approach



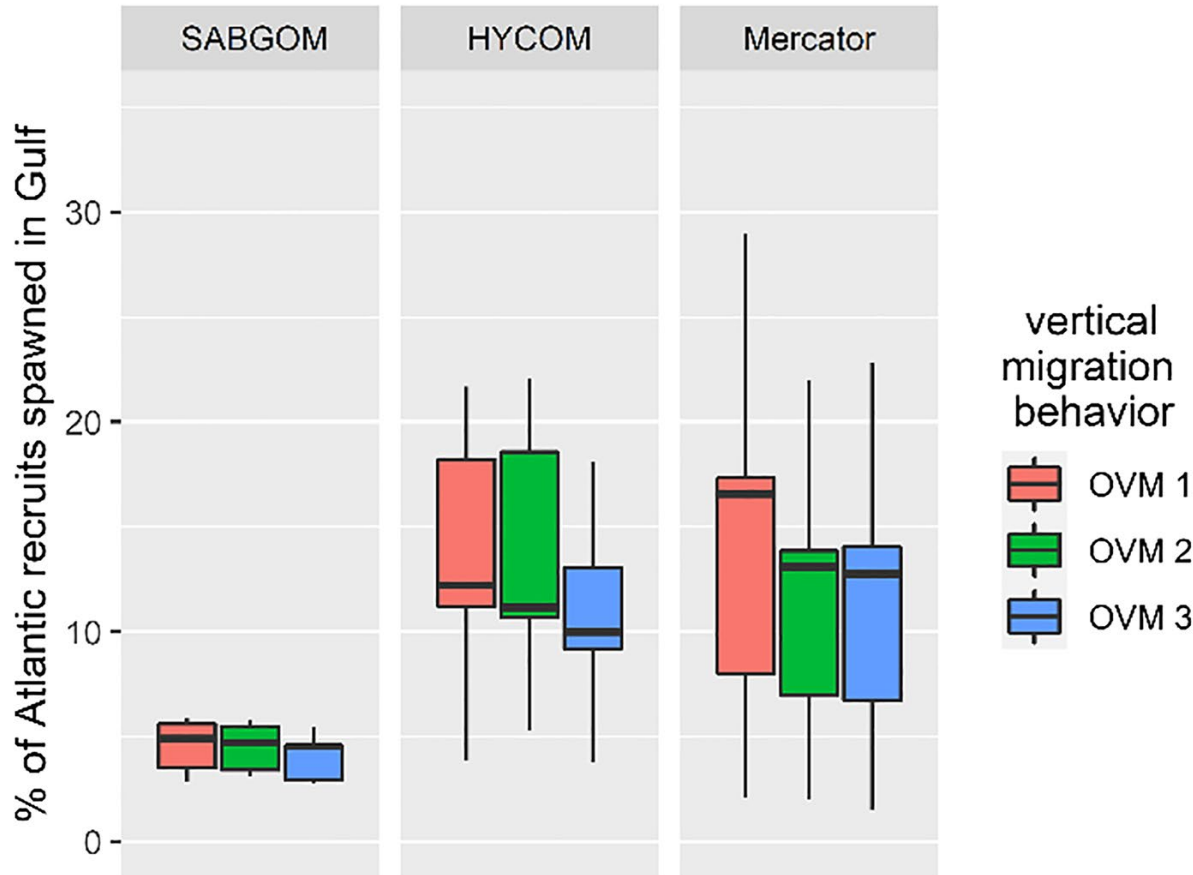
Pelagic larval duration
Larval depth distribution
Settlement criteria



Paris et al., 2013



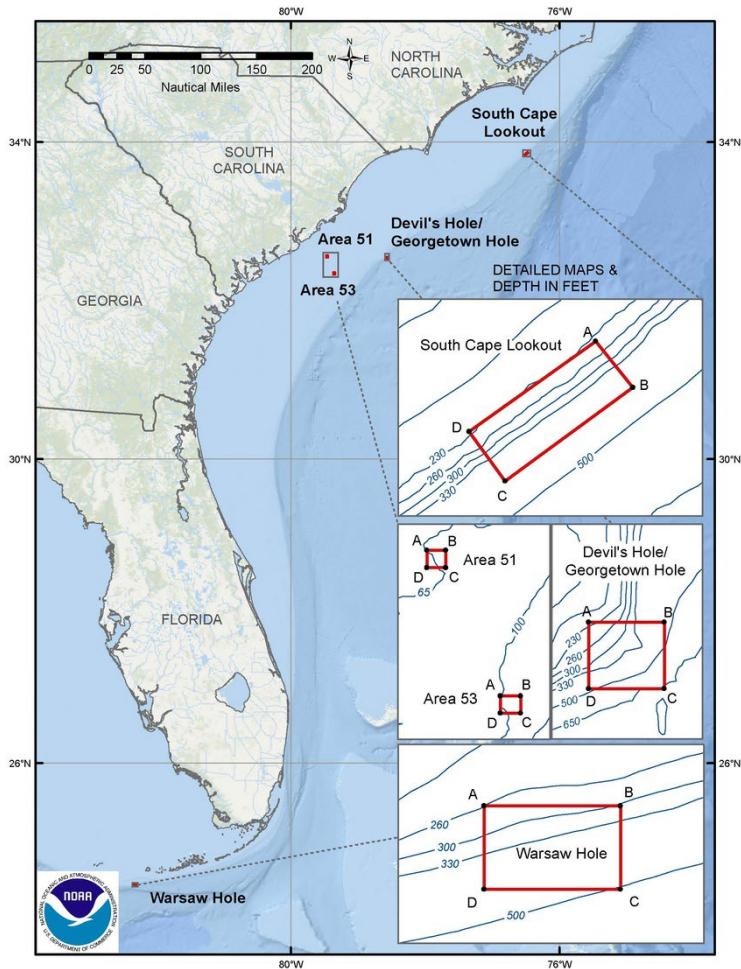
Connectivity between GoM and SA Red Snapper



If I live in the
SA, what's the
probability I
was spawned
in the Gulf?

Karnauskas et al. 2022.

Spawning Special Management Zones



ArcGIS.com Ocean Basemap sources: Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors

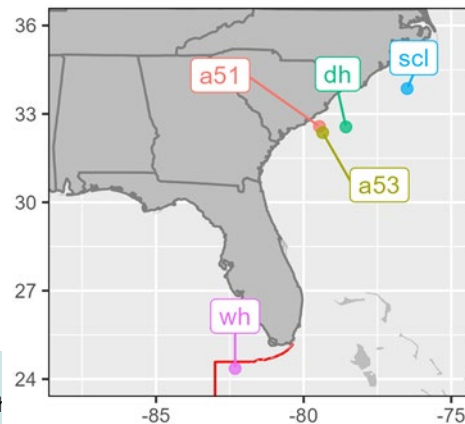
sSMZ	Location	Size (sq km)
Area 51*	SC	7.8
Area 53*	SC	7.8
Devil's Hole	SC	7.9
South Cape Lookout	NC	13.2
Warsaw Hole	FL	9.3

1. Settlement dynamics of larvae spawned in each sSMZ?
2. How do sSMZs compare to other spawning areas in the Atlantic?
3. How much recruitment to the Atlantic comes from the sSMZs?

Where does Atlantic recruitment come from?

Percent of total Atlantic recruitment

Spawning area	Gag	Red Grouper	Red Snapper	Scamp
Gulf of Mexico	31	84	10	17
Atlantic	69	16	90	83
sSMZs combined	<0.1	<0.01	0.01	<0.1



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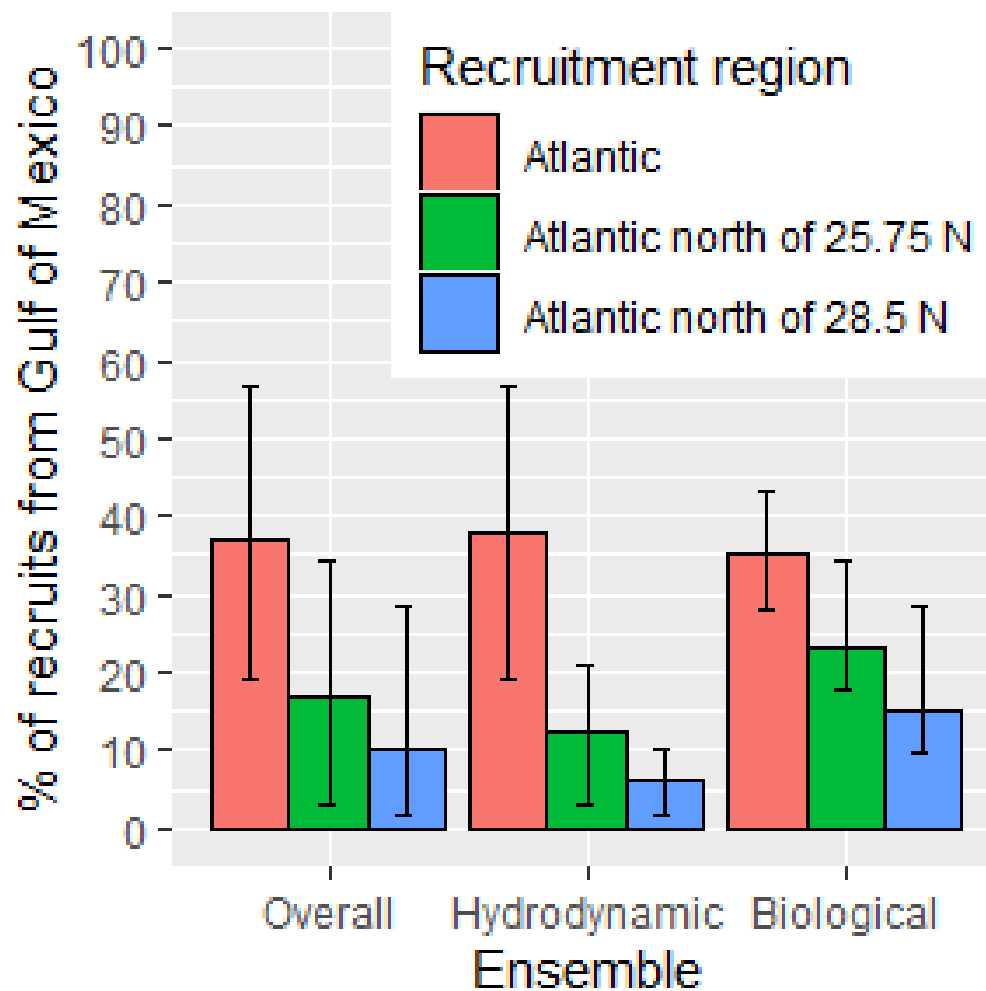


Questions?



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Connectivity between GoM and SA Scamp

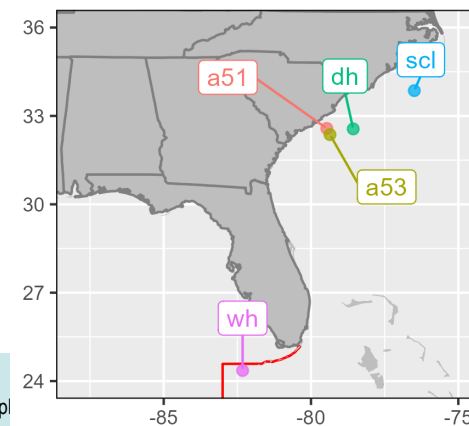


Brothers et al. In review.



Percent of larvae that settle in the Atlantic, if spawned in an sSMZ

sSMZ	Gag	Red Grouper	Red Snapper	Scamp
Area 51	75	74	29	75
Area 53	65	67	37	66
Devil's Hole	40	41	35	41
South Cape Lookout	4	4	4	4
Warsaw Hole	23	28	18	20



How do sSMZs compare to other spawning areas?

Percentile of each sSMZ contribution among all Atlantic spawning areas

sSMZ	Gag	Red Grouper	Red Snapper	Scamp
Area 51	15	36	15	82
Area 53	52	64	32	95
Devil's Hole	90	19	17	98
South Cape Lookout	42	13	12	28
Warsaw Hole	52	79	41	58

