2024 NCDMF SOUTHERN FLOUNDER SYMPOSIUM

ASSESSING THE MIGRATION AND SPAWNING HABITATS OF SOUTHERN FLOUNDER(*PARALICHTHYS LETHOSTIGMA)* IN THE SOUTH ATLANTIC USING SATELLITE TAGS

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A MISSING PIECE OF THE PUZZLE

- Where does spawning occur?
- What happens after spawning?
- What habitats are used before and after spawning?

OBJECTIVES OF SATELLITE TAGGING

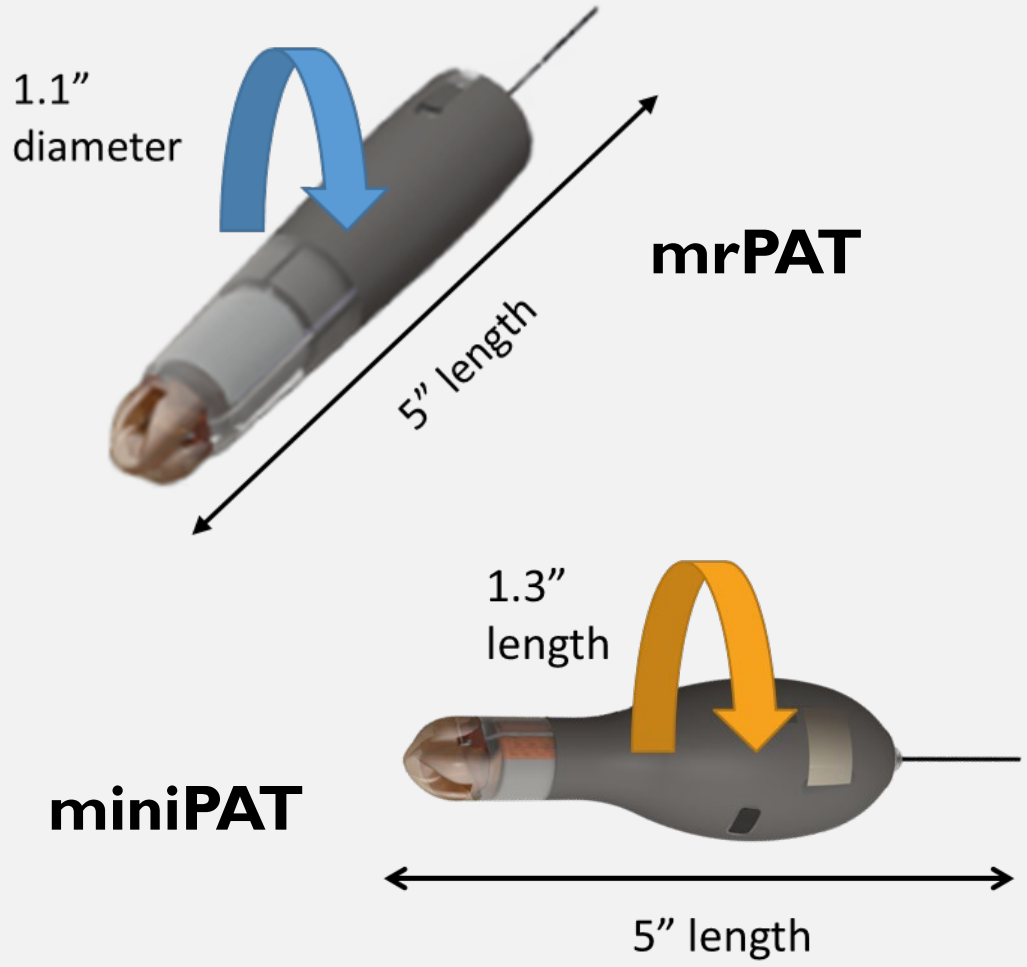
I. Identify potential offshore spawning areas used by southern flounder

II. Identify movements prior to and after winter spawning

III. Identify migration corridors and offshore habitat preferences

TAGGING METHODS

- mrPAT and miniPAT models
- Detaches on a pre-determined date
- Floats to surface and transmits data to satellites
- Release location and temperature range + depth for miniPAT
- High reward spaghetti tag



TAGGING METHODS

TAGGING METHODS

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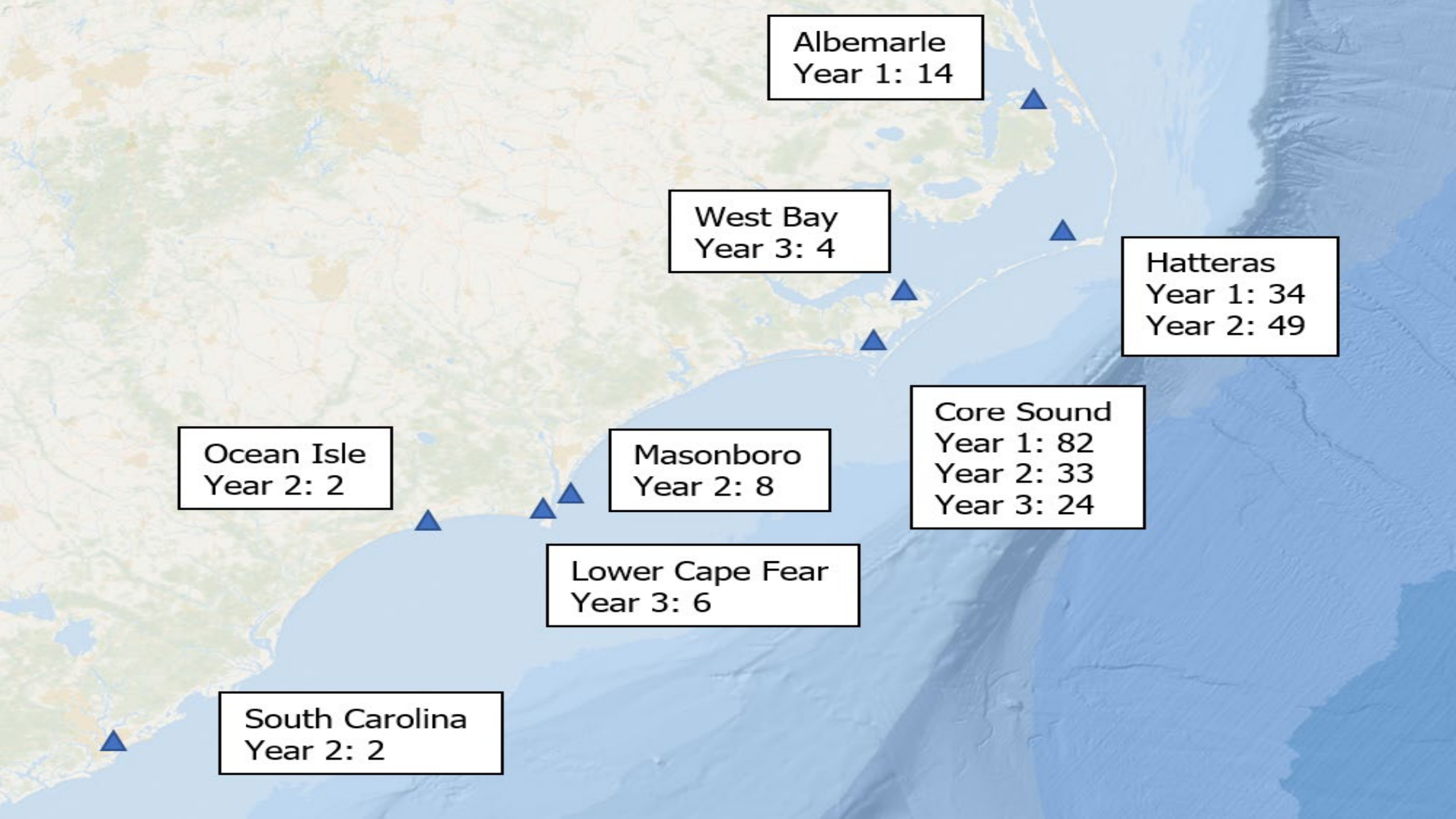
MRPAT TAGGING METHODS

	YEAR 1 - 2020	YEAR 2 - 2021	YEAR 3 - 2022
Total Tags	130	94	34
# Locations	3	5 (2 in SC)	3
Communication Time with Satellite	12 hours	8 hours	8 hours
Release Patterns	15-day interval	Random (10-80-10)	Random (10-80-10)
Other Adjustments	Satellite communication dropped from 24 to 12 hours	Anti-fouling paint; SCDNR/GADNR; miniPAT	Anti-fouling paint; miniPAT


Albemarle
Year 1: 14
West Bay
Year 3: 4
Hatteras
Year 1: 34
Year 2: 49
Core Sound
Year 1: 82
Year 2: 33
Year 3: 24
Ocean Isle
Year 2: 2
Masonboro
Year 2: 8
Lower Cape Fear
Year 3: 6
South Carolina
Year 2: 2

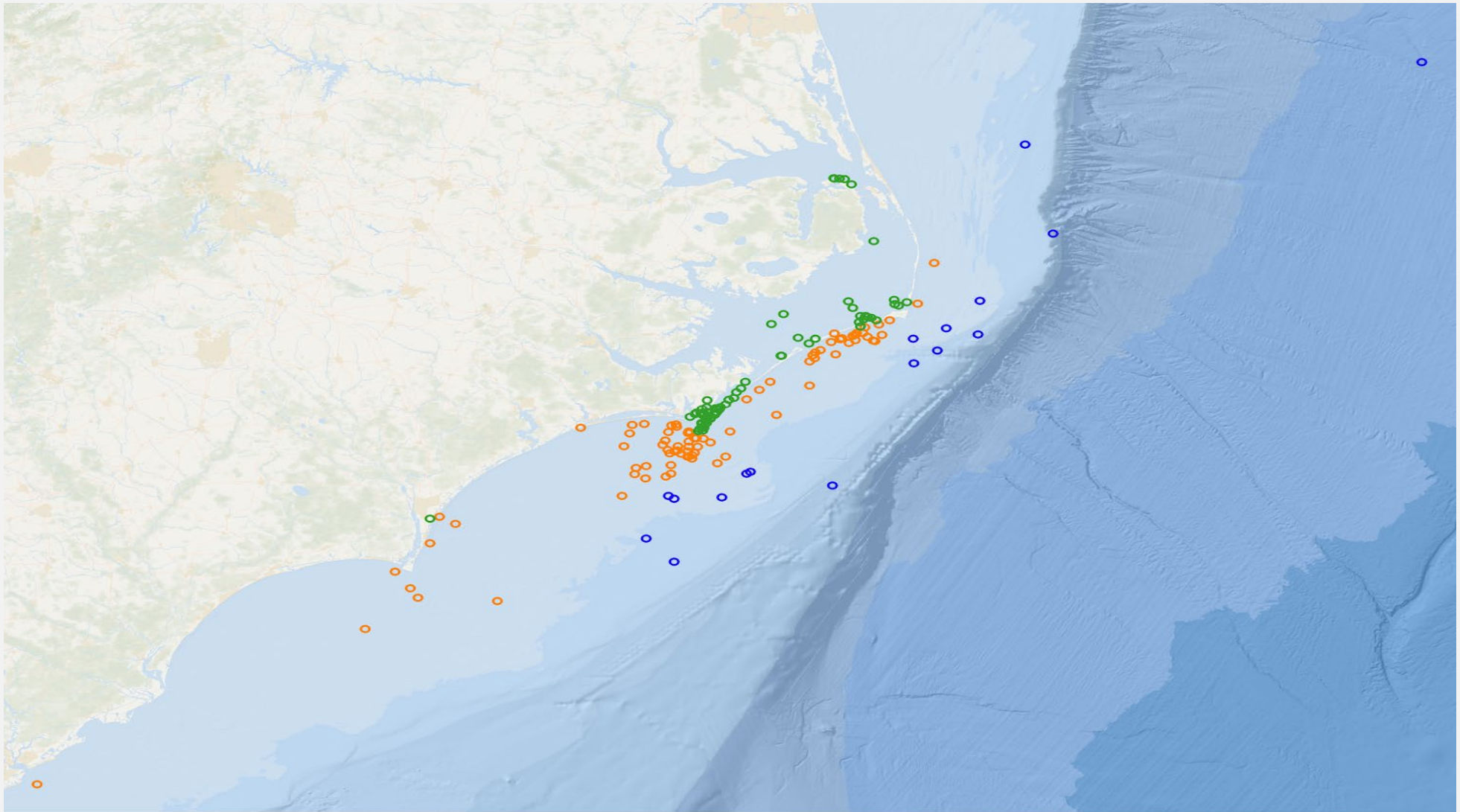
DATA ANALYSIS

- First numeric value two hours after first location (Hussey et al. 2018).
- Location within 24 hours.

Class	Estimated error	Number of messages received per satellite pass
3	<250m	4 messages or more
2	250m < < 500m	4 messages or more
1	500m < < 1500m	4 messages or more
0	>1500m	4 messages or more
A	No accuracy estimation	3 messages
B	No accuracy estimation	2 messages
Z	Invalid location (available only for Service Plus/Auxiliary Location Processing)	

Category	Count
Total Locations	171
Total Tagged	257

TAGGING RELEASES



Inshore

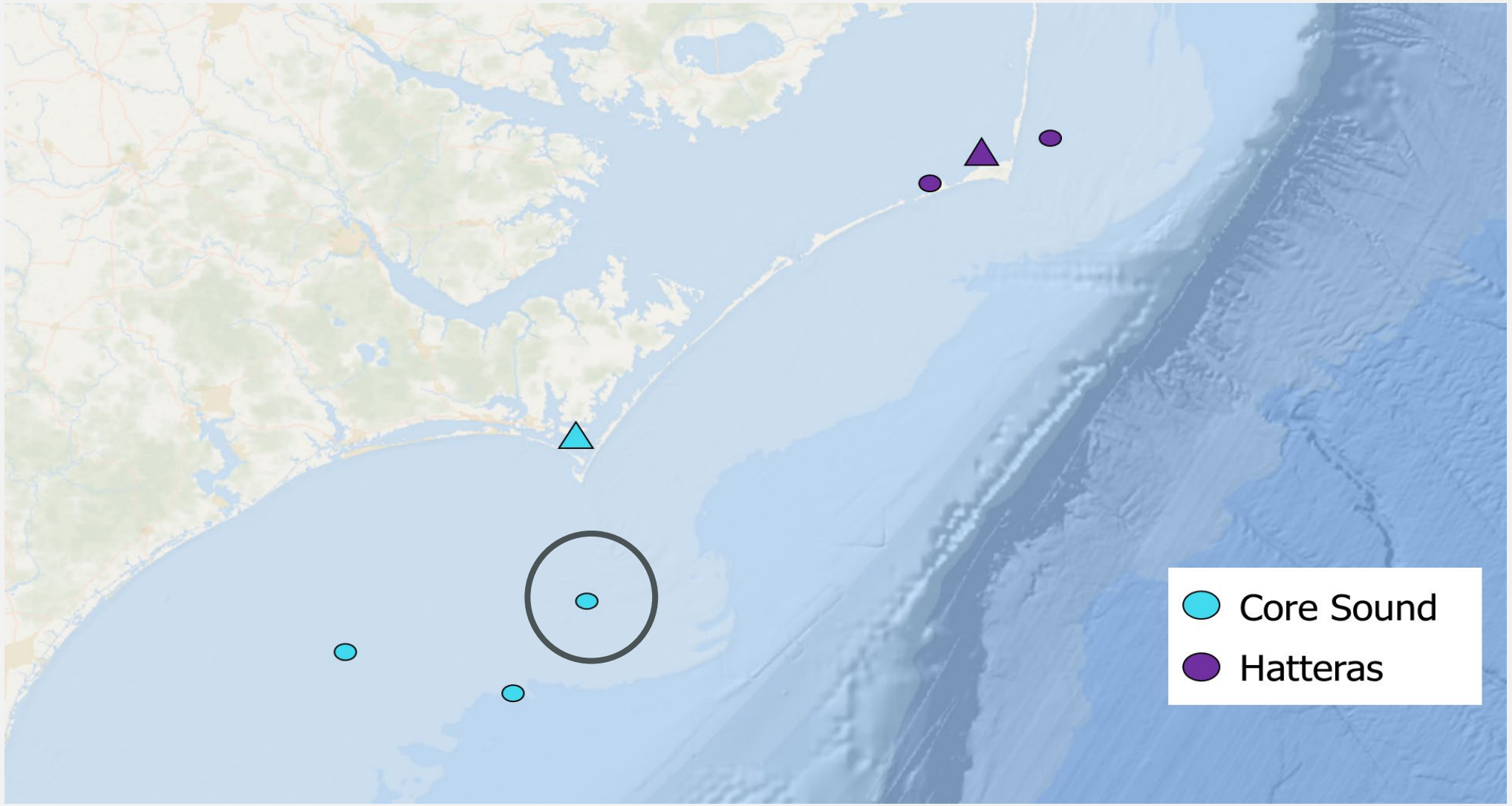
Inner Shelf

Outer Shelf

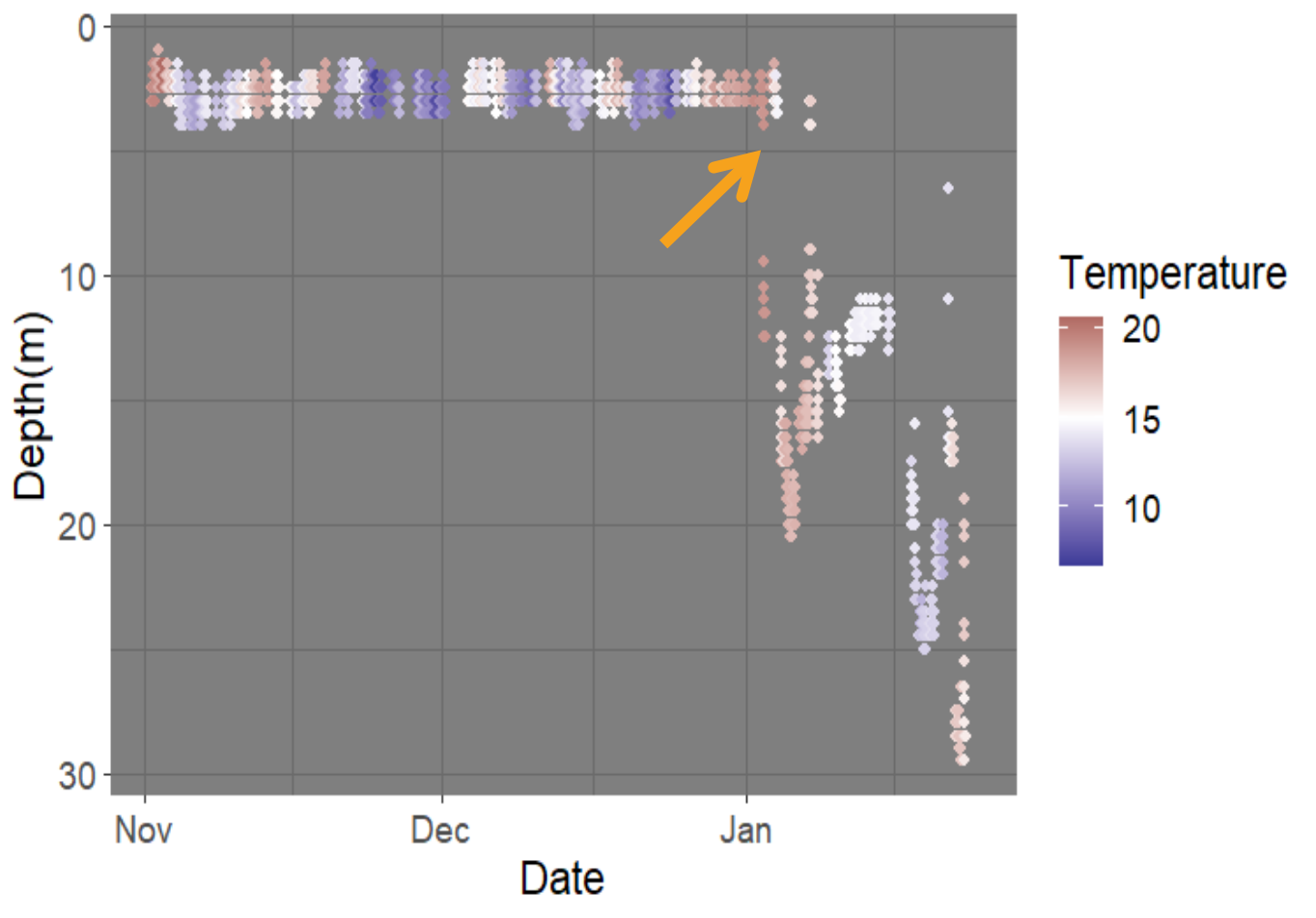

Recaptured on Core Sound 10/5/21
Tagged in Core Sound 11/13/2020
Popped-off in Onlsow Bay 1/29/21

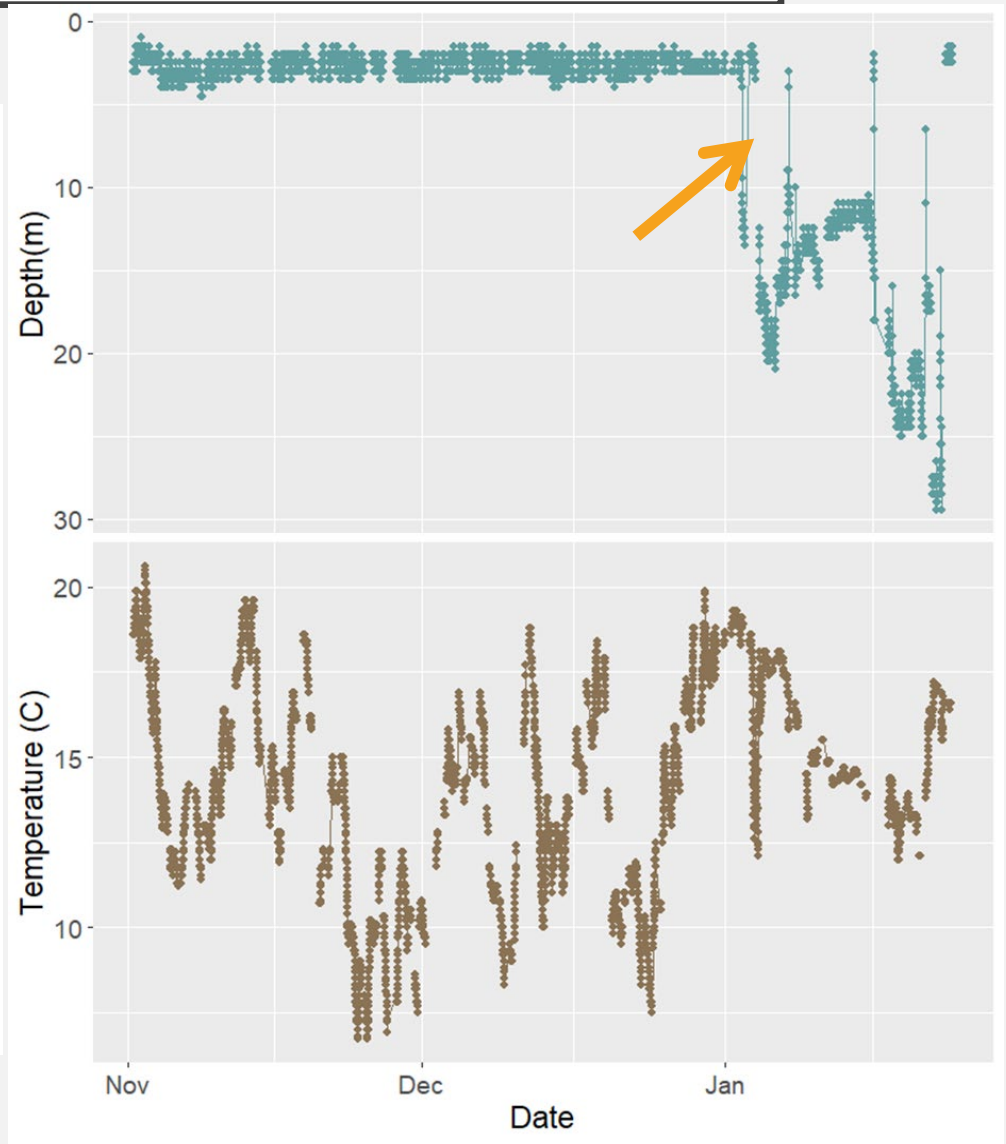
MINIPAT SATELLITE TAGS

MINIPAT TAGS – YEAR 2

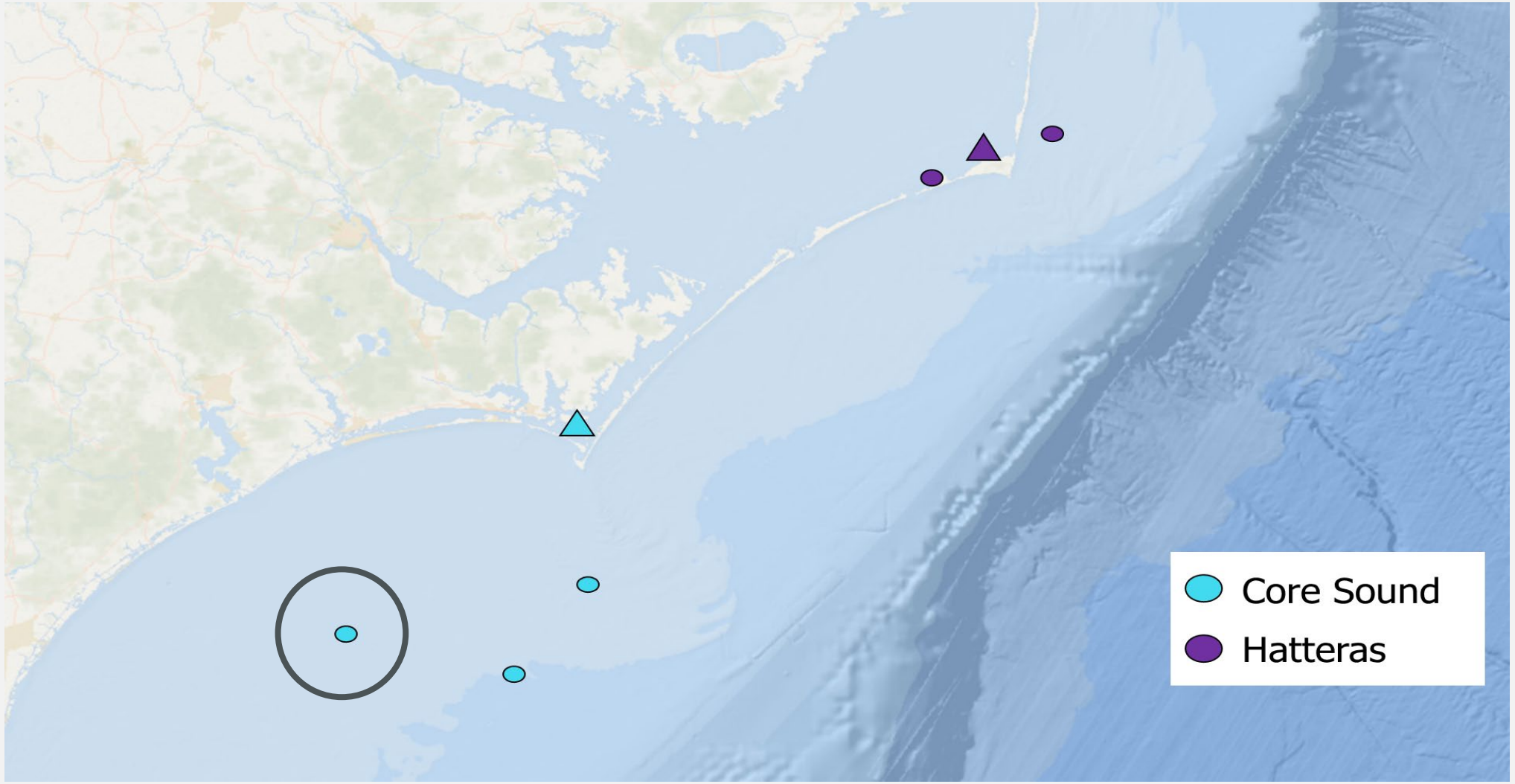


MINIPAT 225743

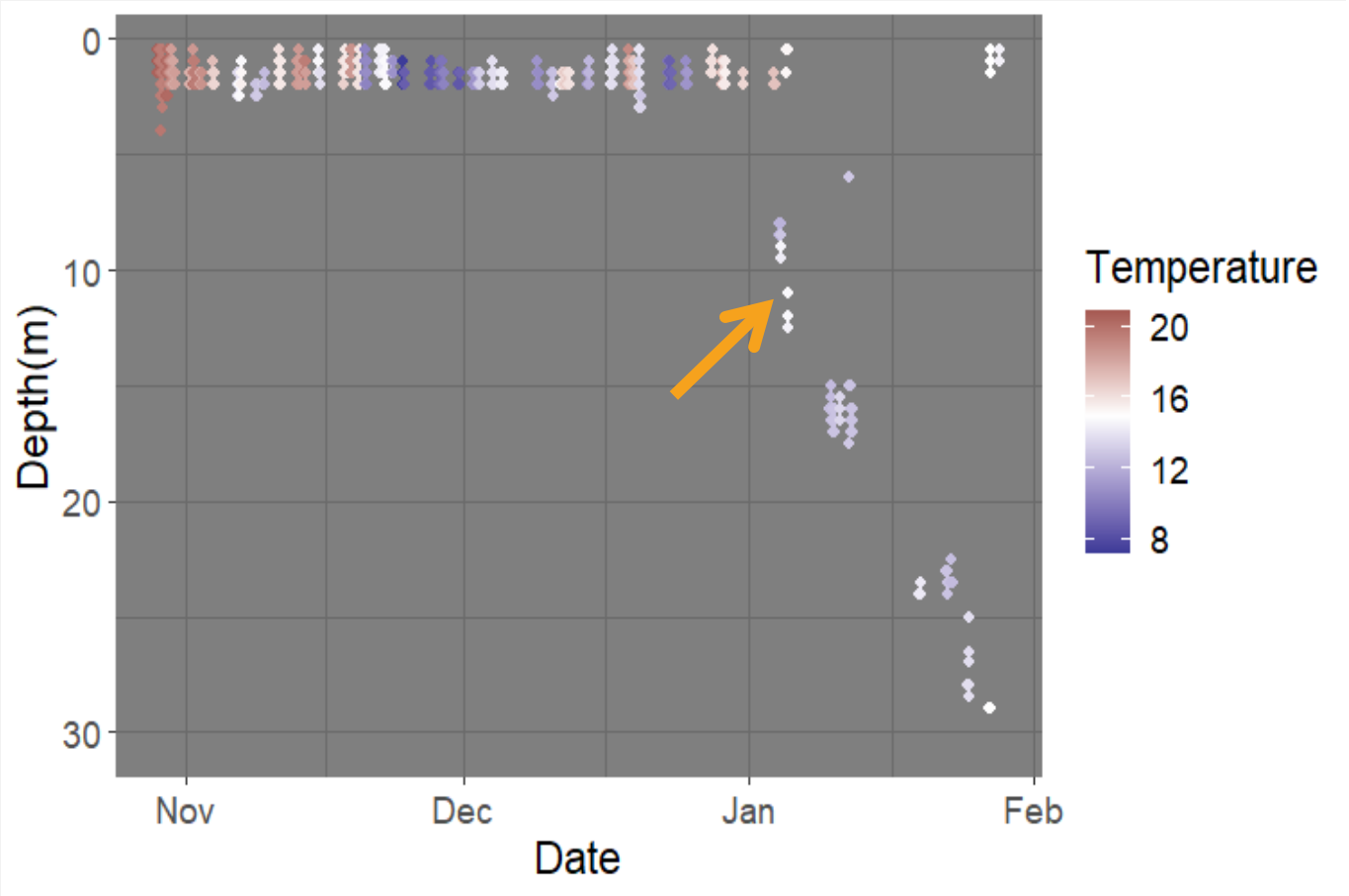


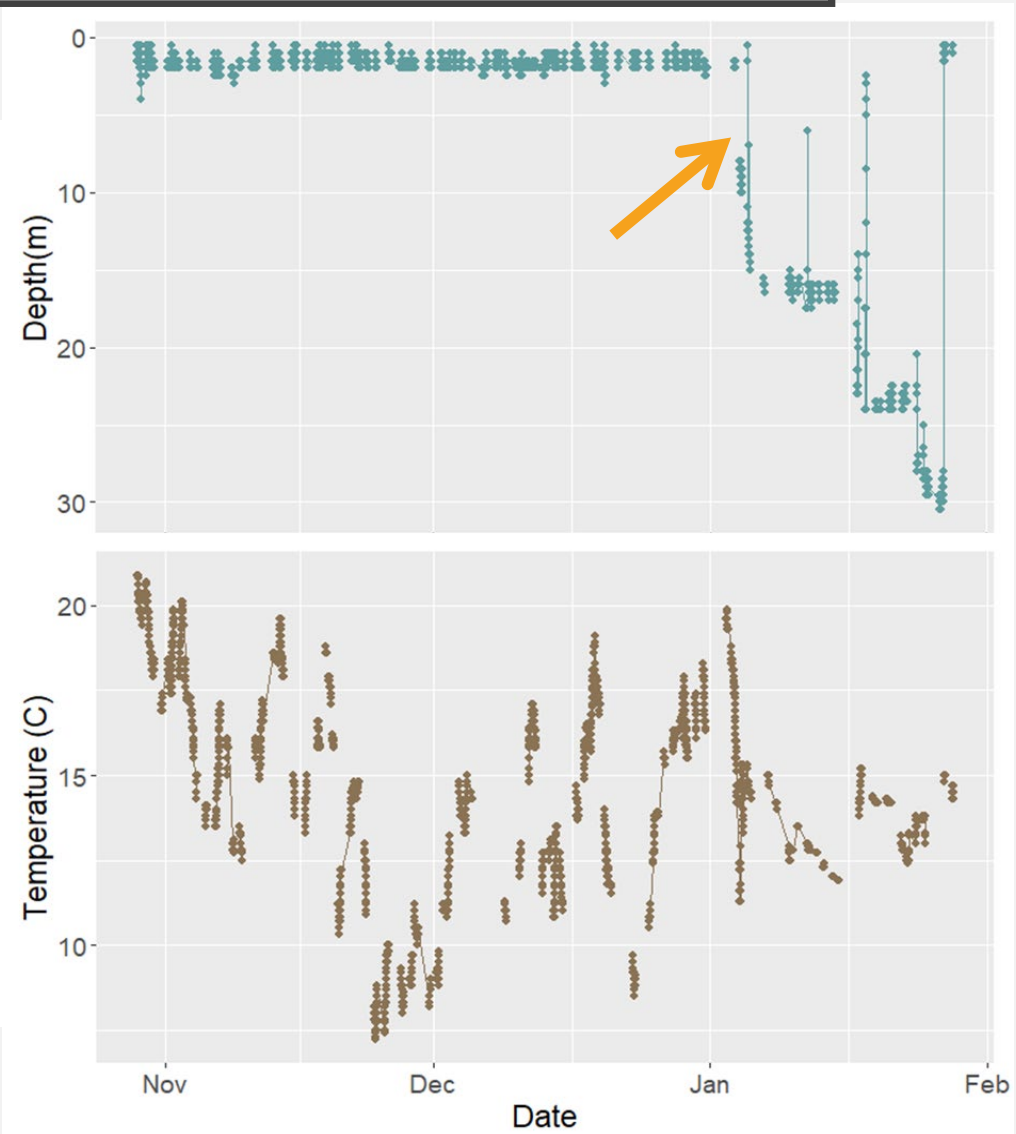


MINIPATS – PRELIMINARY RELEASES



MINIPAT 225735





PUTTING IT ALL TOGETHER

WHAT DID WE LEARN?

- Mid-shelf habitat use (15-30 m depths)
- Timing of migration to offshore areas varied (Nov-Jan)
- Evidence of spawning rise (7 individual fish) – variable behavior
- No evidence of long-distance southward migrations

WHAT'S NEXT?

- Understanding impacts of tagging on migration behavior
- Possible offshore histology studies
- Male behaviors and migration

THANK YOU!

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