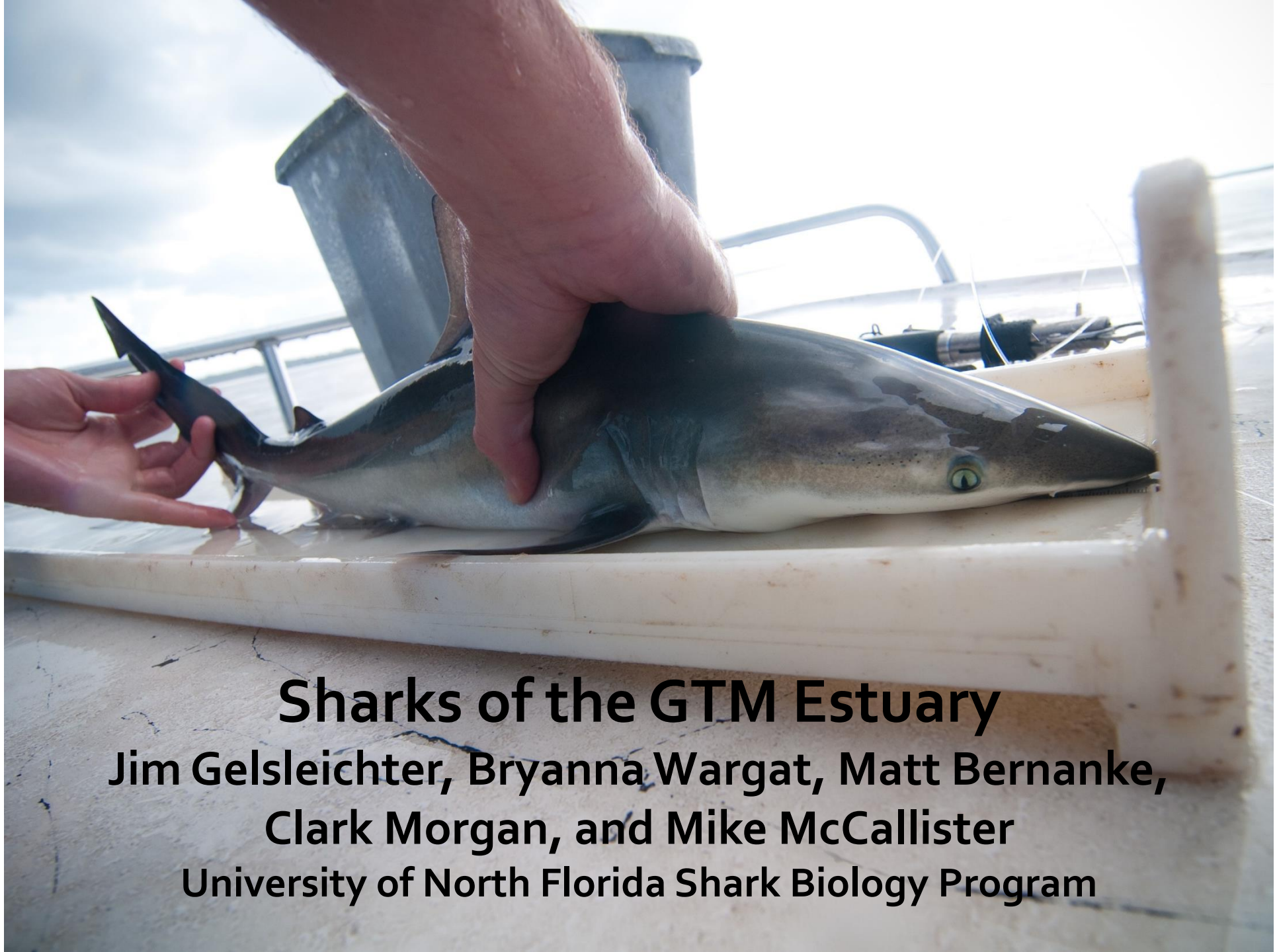
James Gelsleichter, Ph.D.
University of North Florida

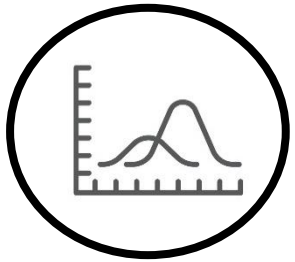


Sharks of the GTM Estuary

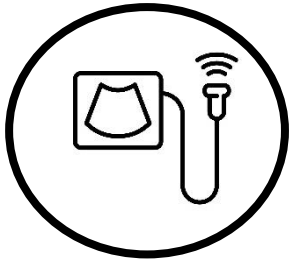
Jim Gelsleichter, Bryanna Wargat, Matt Bernanke,
Clark Morgan, and Mike McCallister

University of North Florida Shark Biology Program

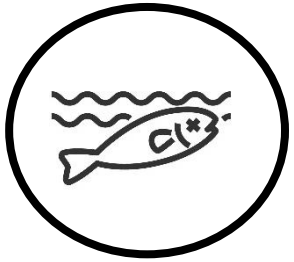
RESEARCH AREAS



Population Ecology

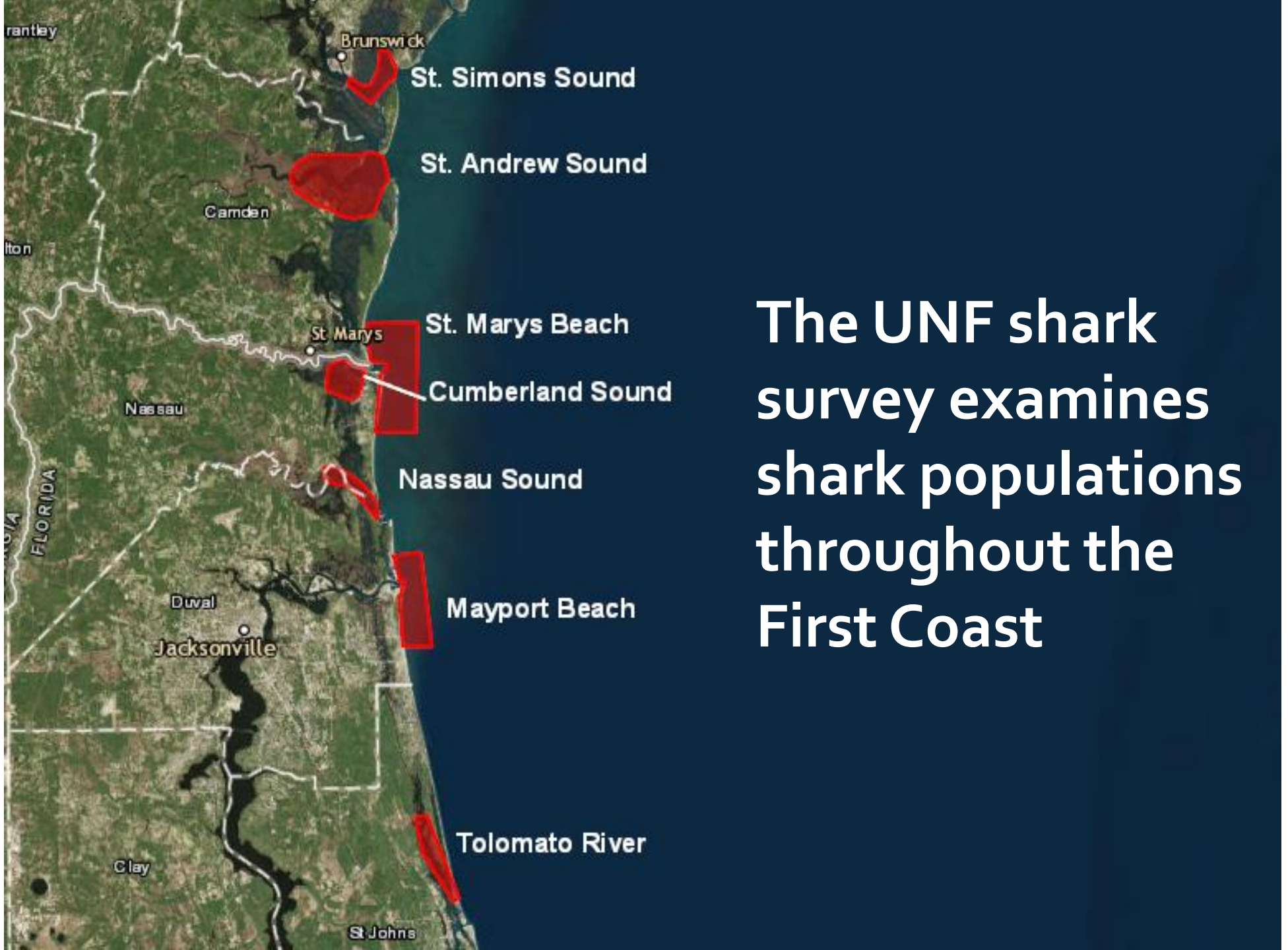


Reproduction



Ecotoxicology

The goal of the study is to characterize species composition and trends in shark populations in the GTM Estuary (2010-)



The UNF shark survey examines shark populations throughout the First Coast

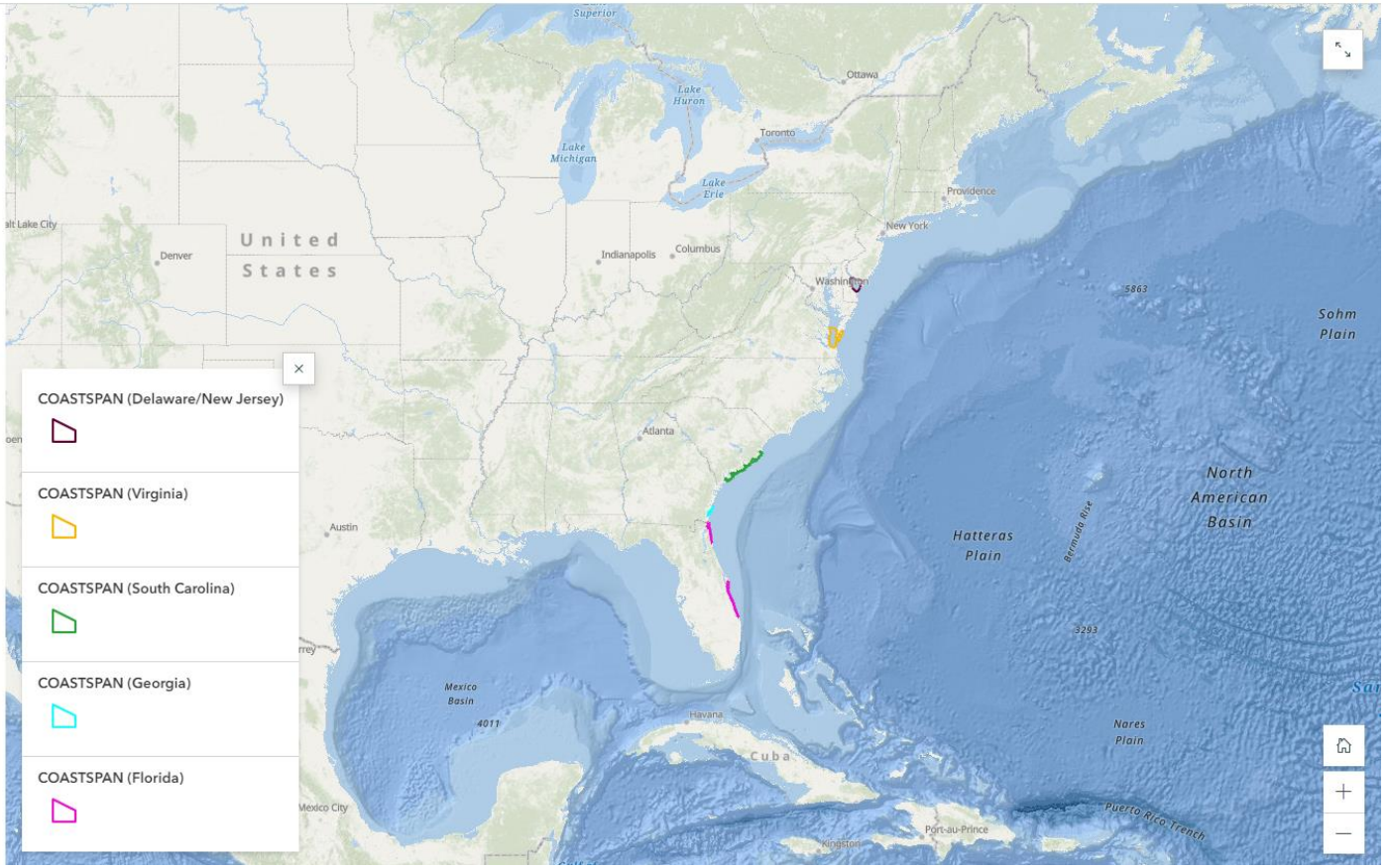
The UNF shark survey is part of the COASTSPAN Program

NOAA Fisheries Atlantic Shark Surveys

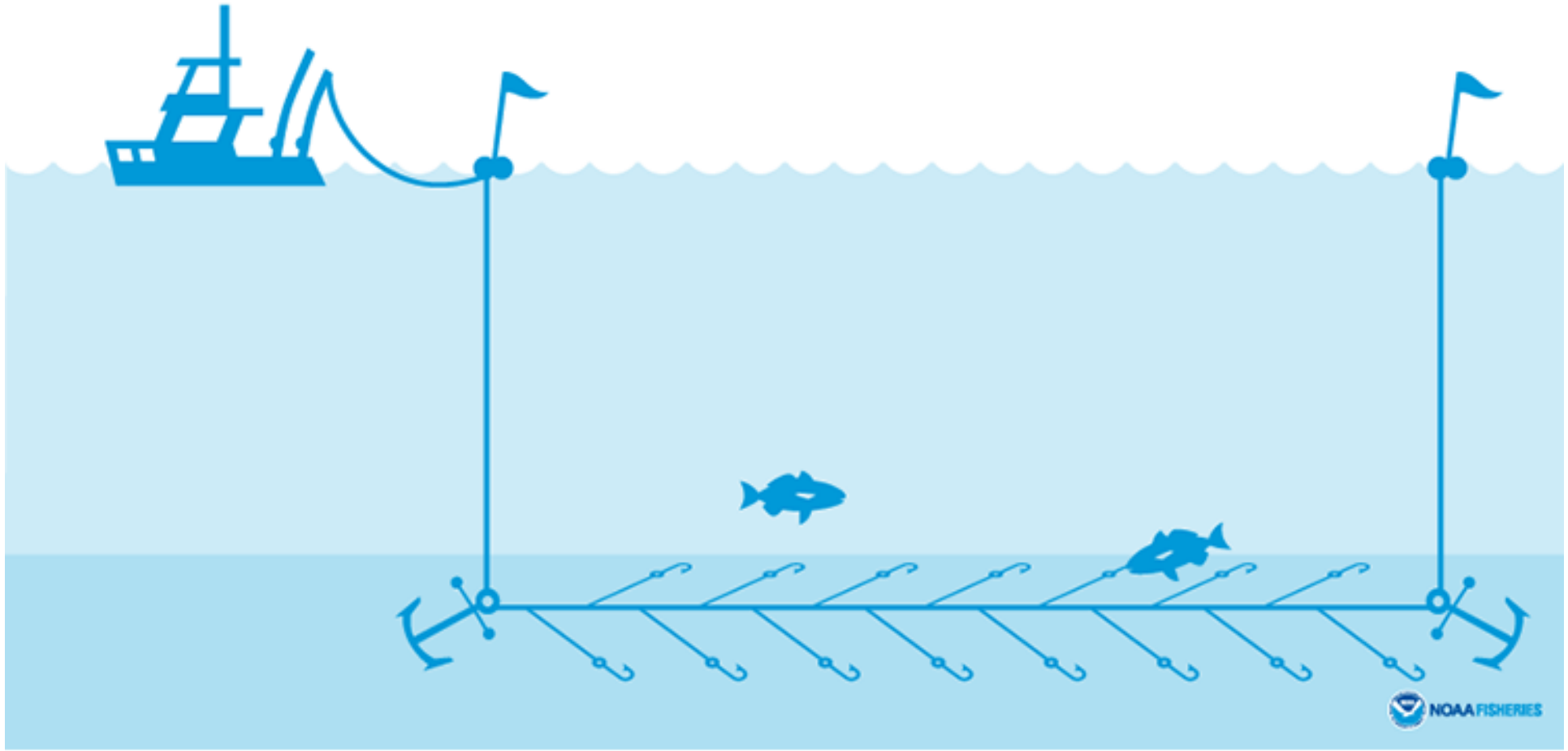
Cooperative Atlantic States Shark Pupping and Nursery Surveys

The COASTSPAN Program surveys and monitors shark nursery habitats in estuarine and nearshore waters along the East Coast. NOAA Fisheries' Northeast Fisheries Science Center manages the five annual surveys conducted from Delaware to Florida by federal agencies, state agencies, and universities.

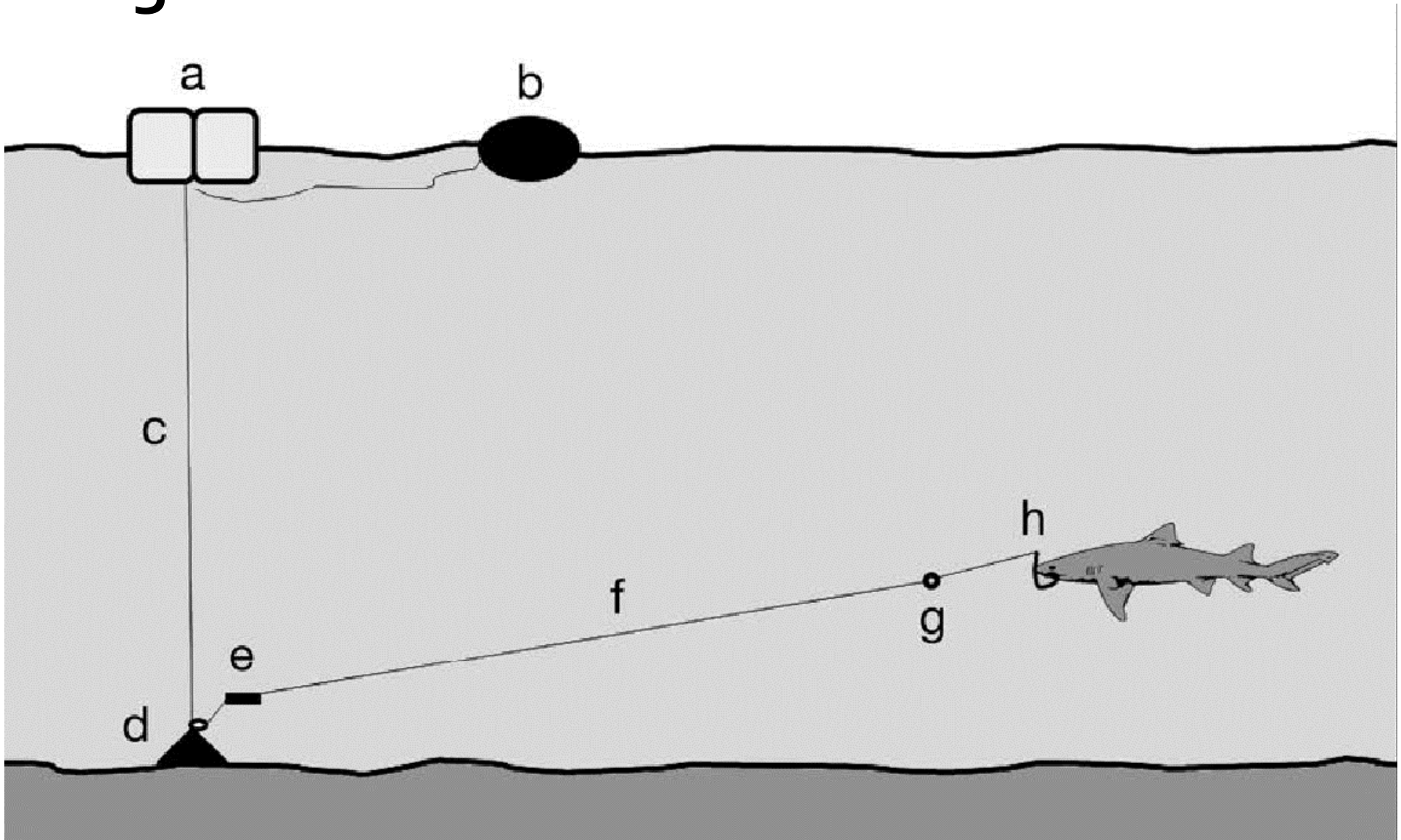
The goals of this program are to identify shark nursery habitat and determine and monitor species composition, habitat use, abundance, and distribution of sharks while they are present in these critical habitats. The five COASTSPAN surveys are described below.



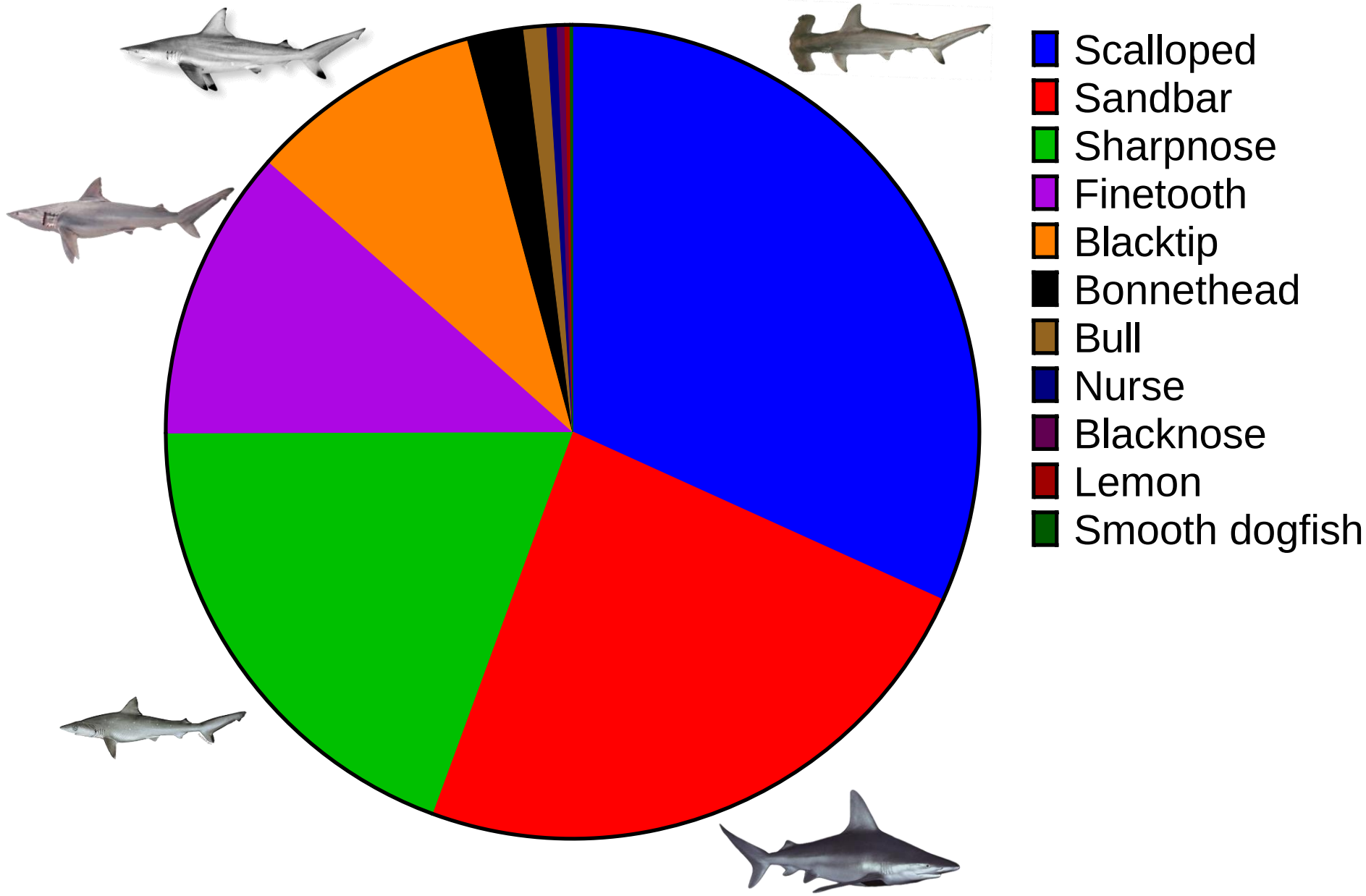
Sharks are surveyed using a fishery-independent, bottom longline fishing



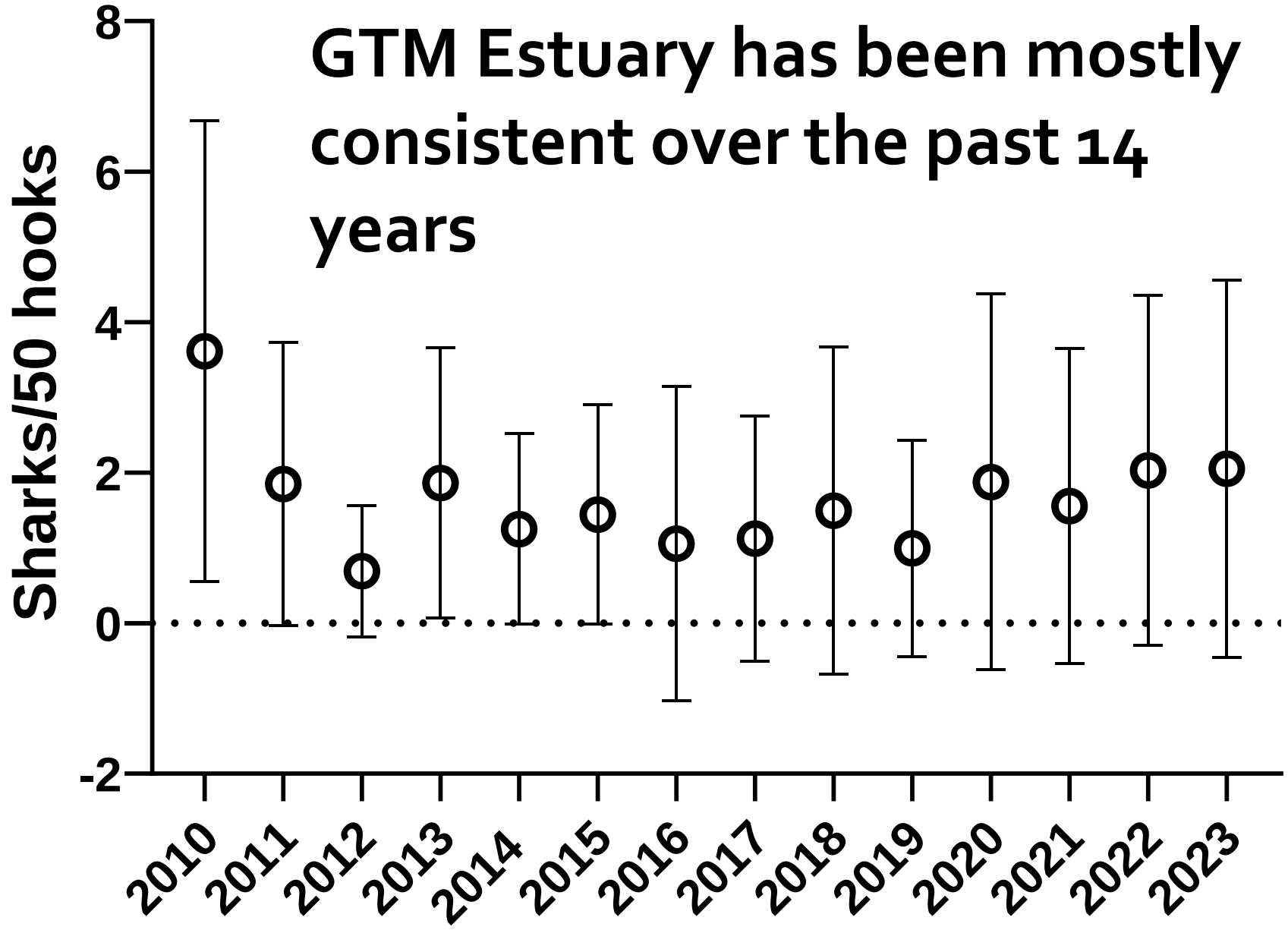
Drumline fishing is also used to target larger sharks



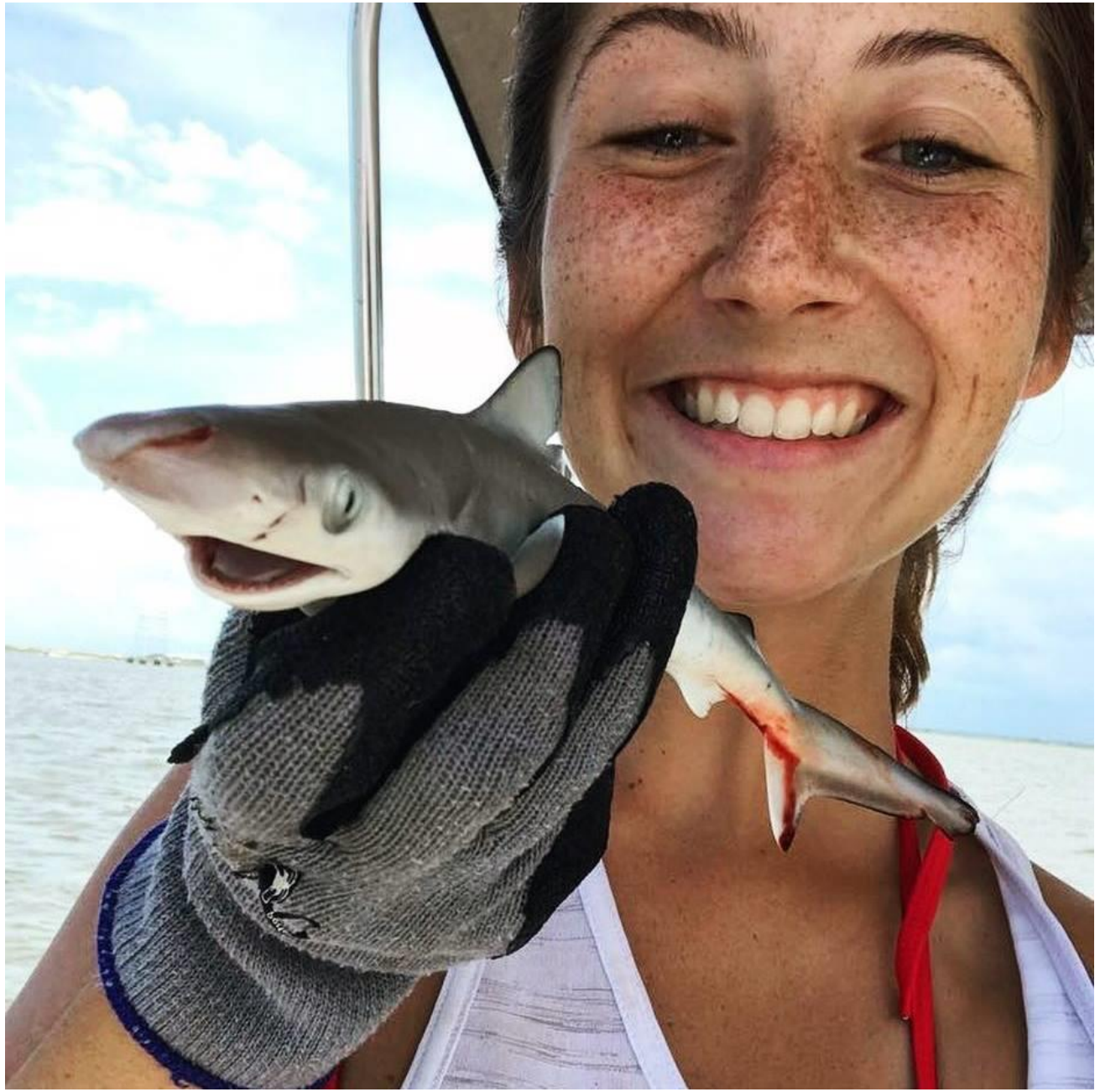

Who are the sharks
of the GTM Estuary?


Scalloped
Sandbar
Sharpnose
Finetooth
Blacktip
Bonnethead
Bull
Nurse
Blacknose
Lemon
Smooth dogfish
Total=982

Overall shark abundance in the GTM Estuary has been mostly consistent over the past 14 years

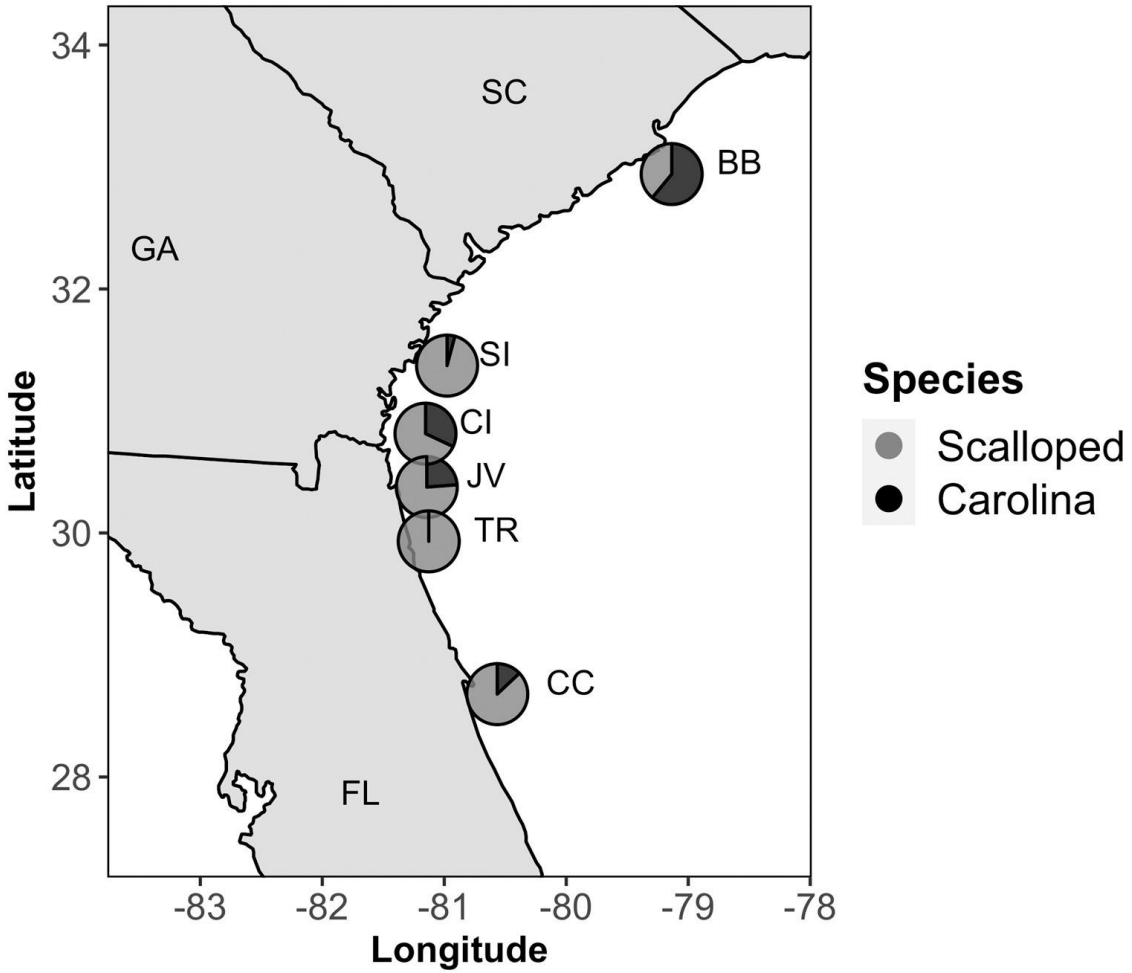


Over 95% of GTM sharks are newborn or juveniles

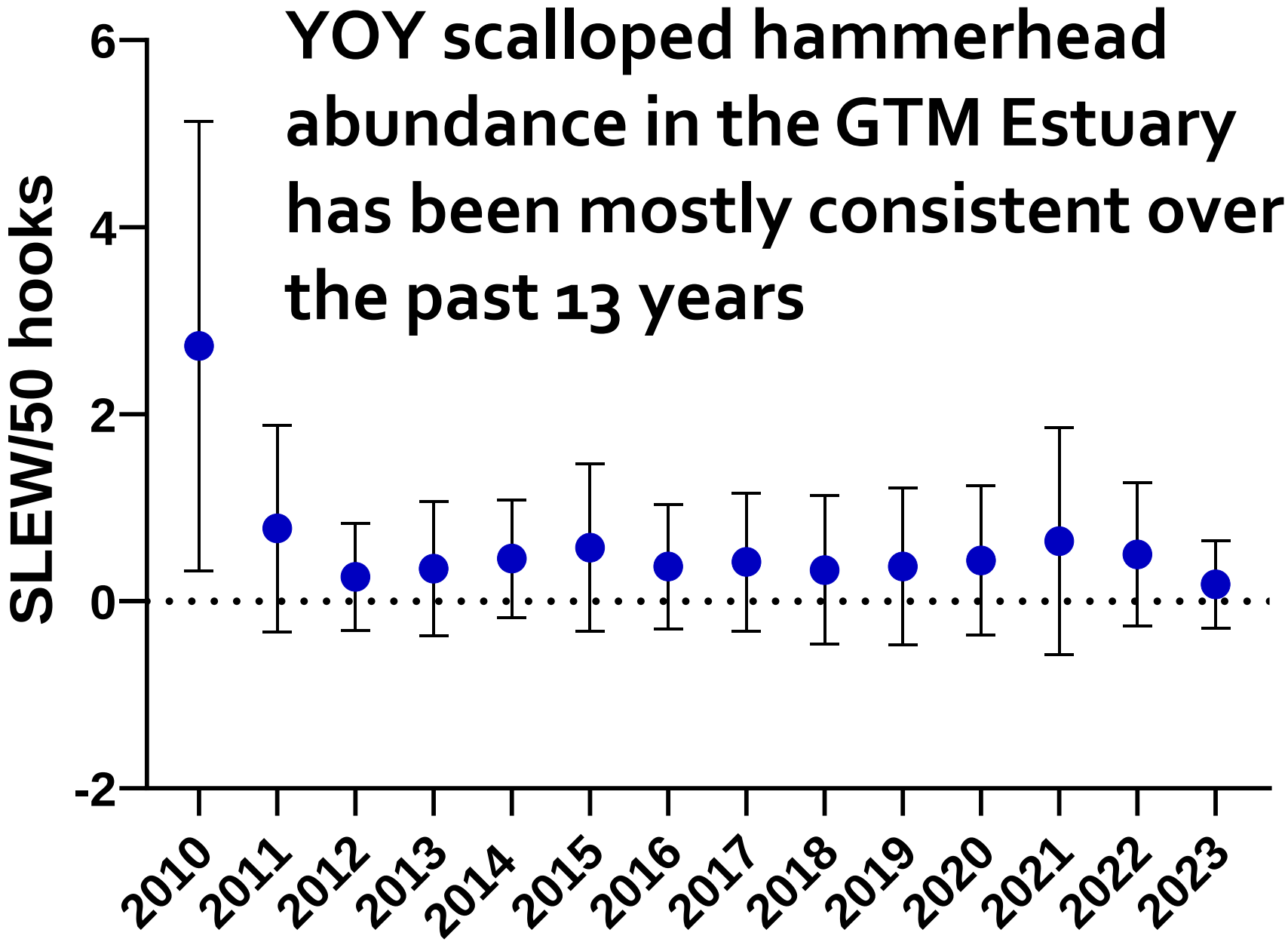


The GTM Estuary is a unique, inshore nursery for YOY scalloped hammerhead shark

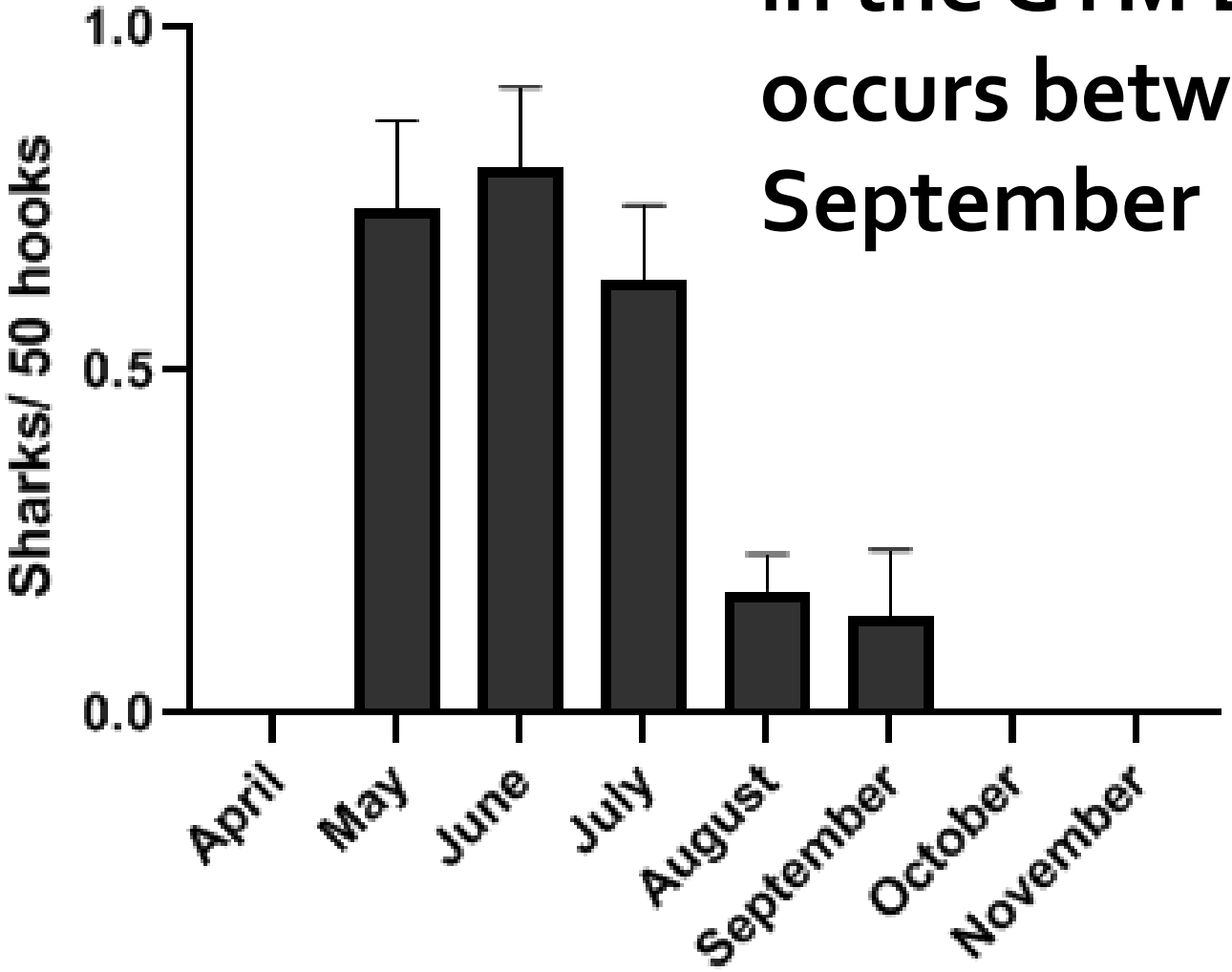
Unlike other "hammerhead" nurseries, the GTM Estuary only appears to be used by the scalloped hammerhead



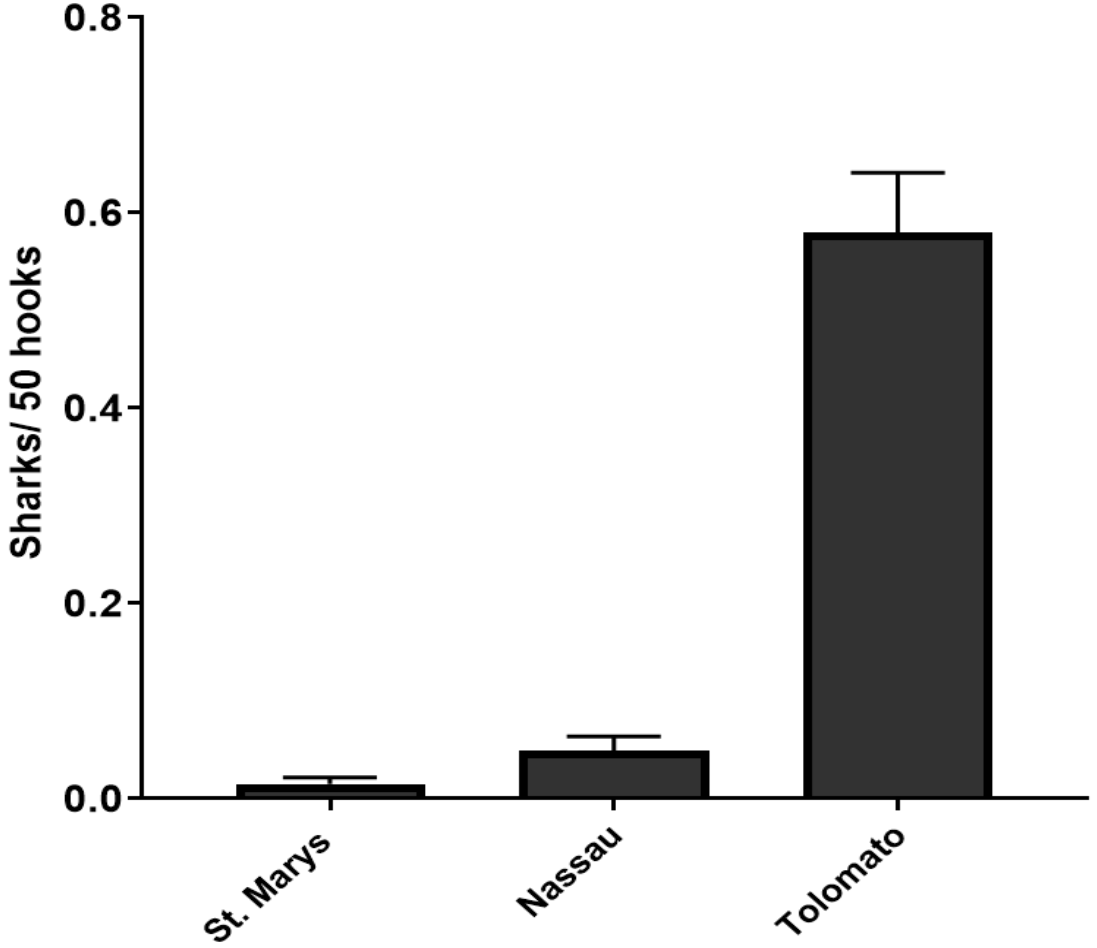
YOY scalloped hammerhead abundance in the GTM Estuary has been mostly consistent over the past 13 years



YOY scalloped hammerhead presence in the GTM Estuary occurs between May & September



YOY scalloped hammerhead abundance in the GTM Estuary greatly exceeds that in other northeast Florida estuaries

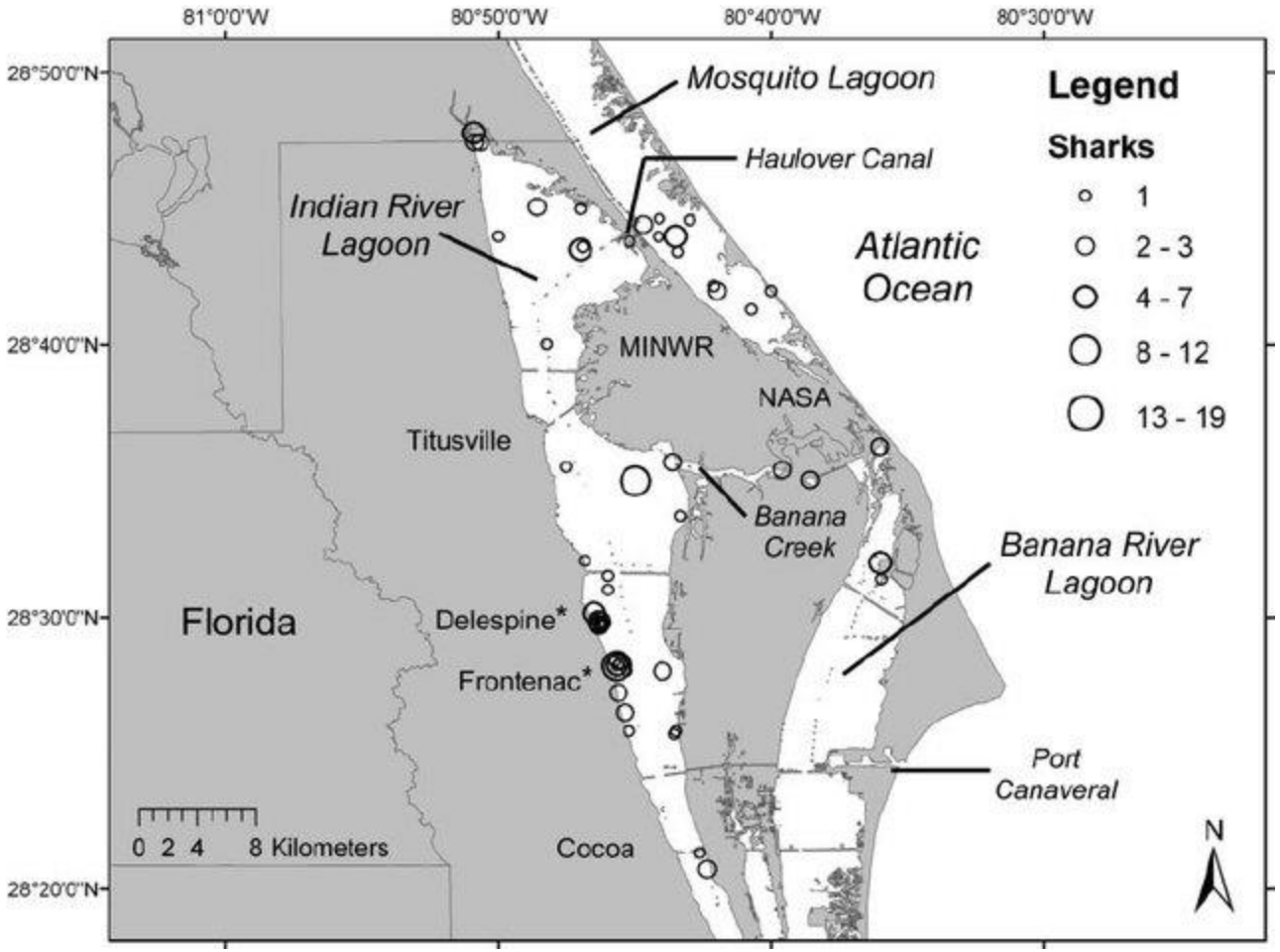


Lower risk of predation may explain preferential use of the GTM Estuary

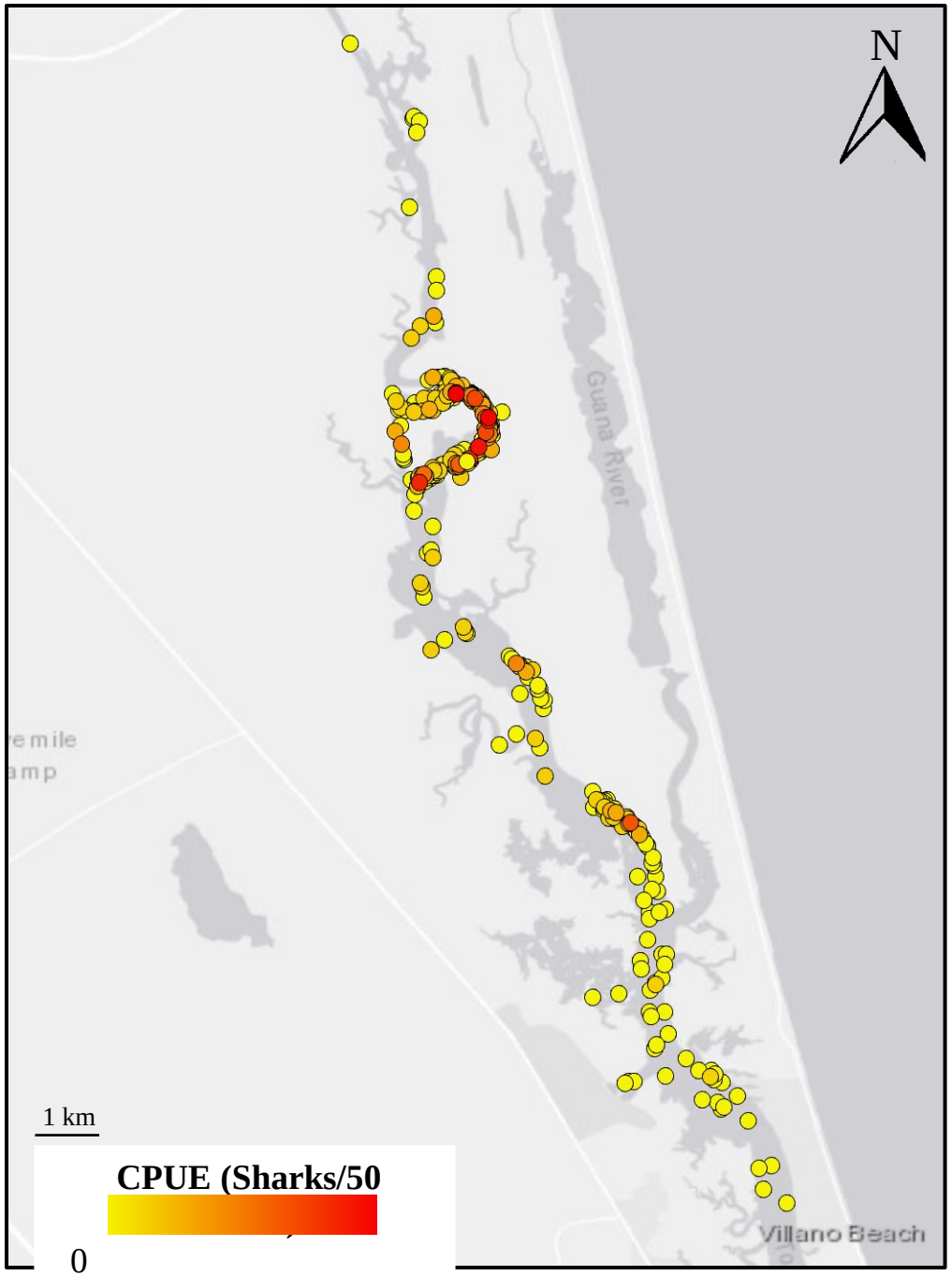
Drumline data shows low presence of large sharks

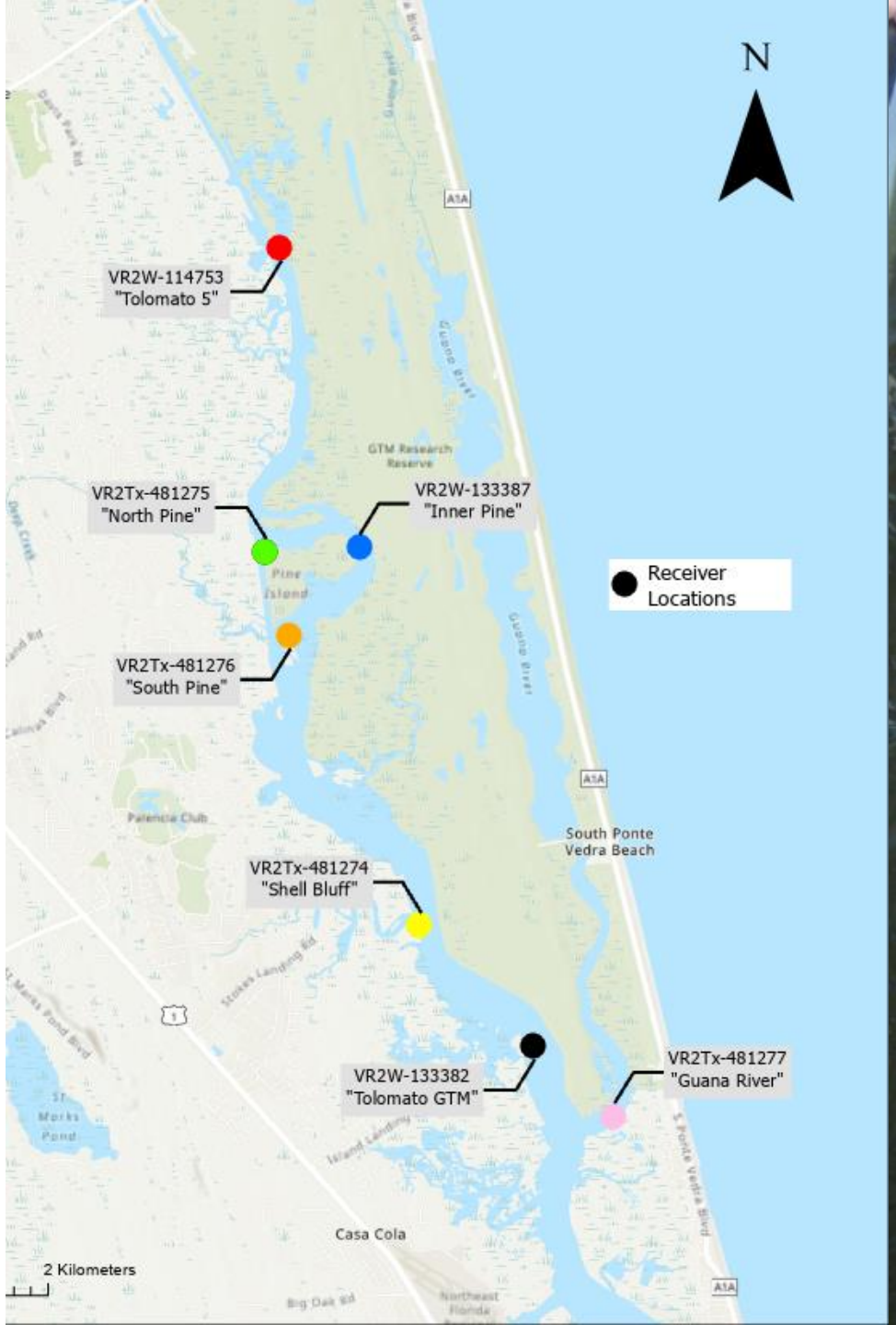
Of 120 drumlines, only 7 captures have been reported

Low abundance of large, predatory sharks may differentiate the GTM Estuary from the IRL

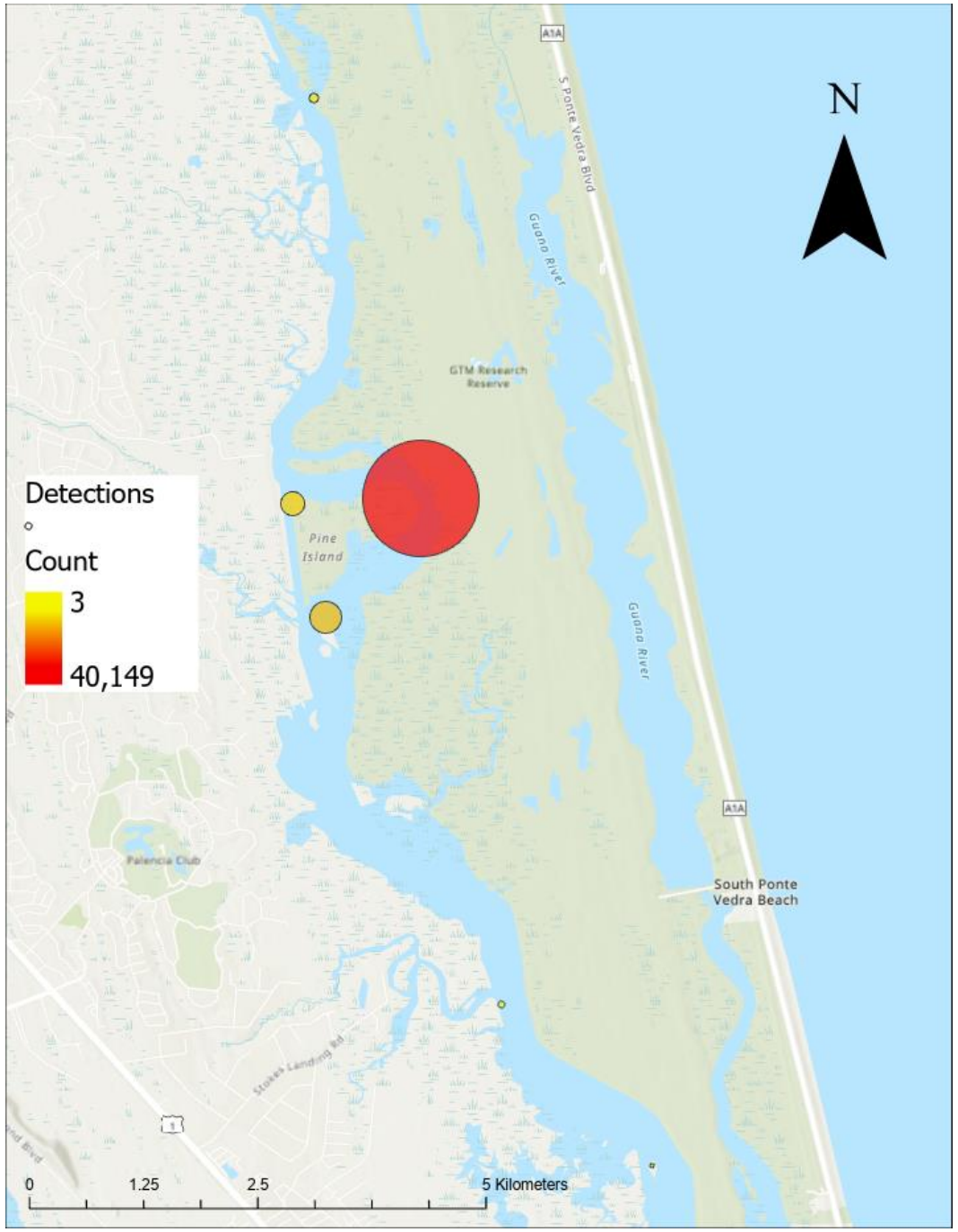


Scalloped hammerheads show preference for certain locations

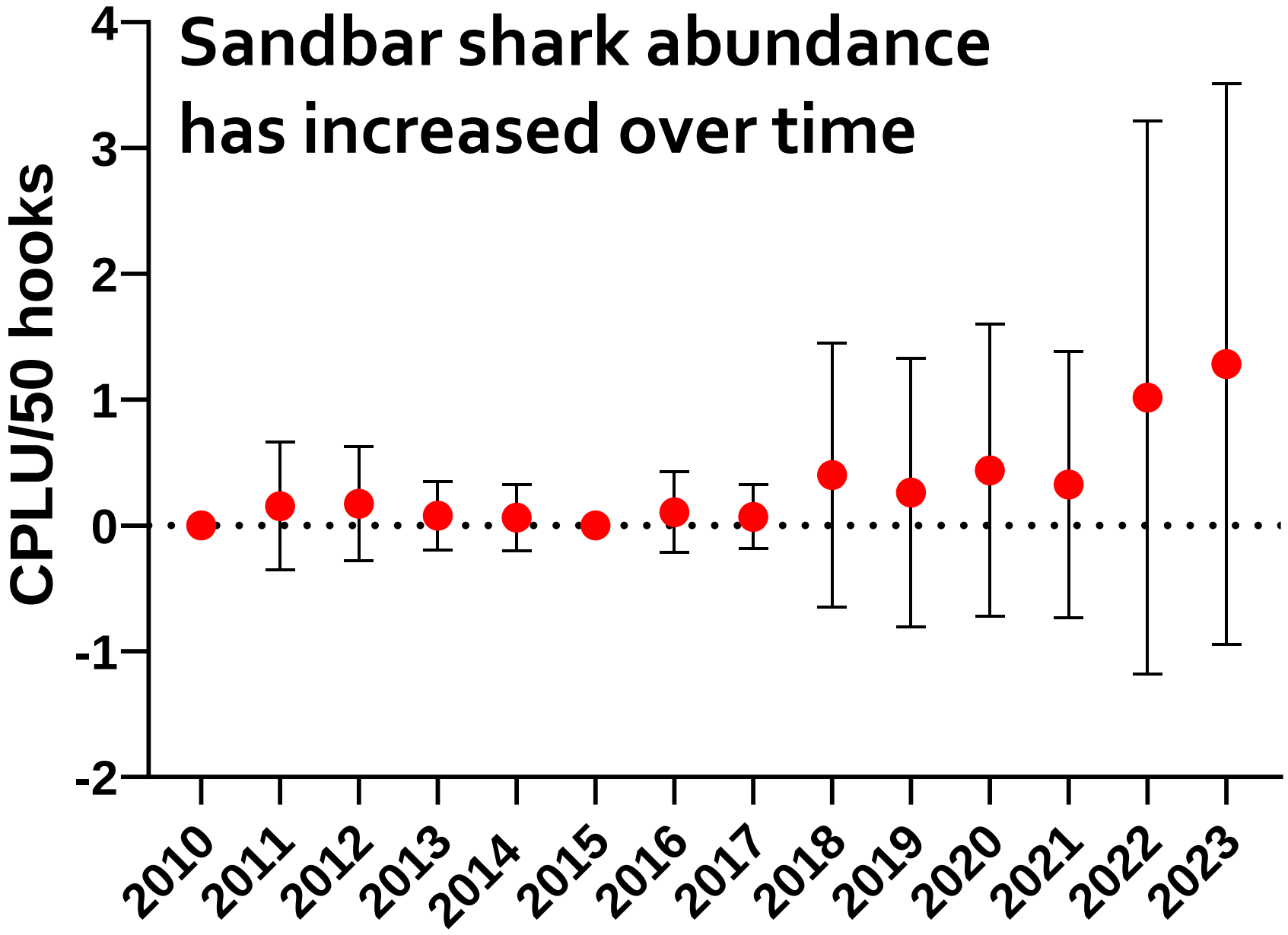



N
VR2W-114753
"Tolomato 5"
VR2Tx-481275
"North Pine"
VR2W-133387
"Inner Pine"
VR2Tx-481276
"South Pine"
Receiver
Locations
VR2Tx-481274
"Shell Bluff"
VR2W-133382
"Tolomato GTM"
VR2Tx-481277
"Guana River"
GTM Research
Reserve
Pine
Island
Palencia Club
South Ponte
Vedra Beach
Casa Cola
A1A
1
2 Kilometers

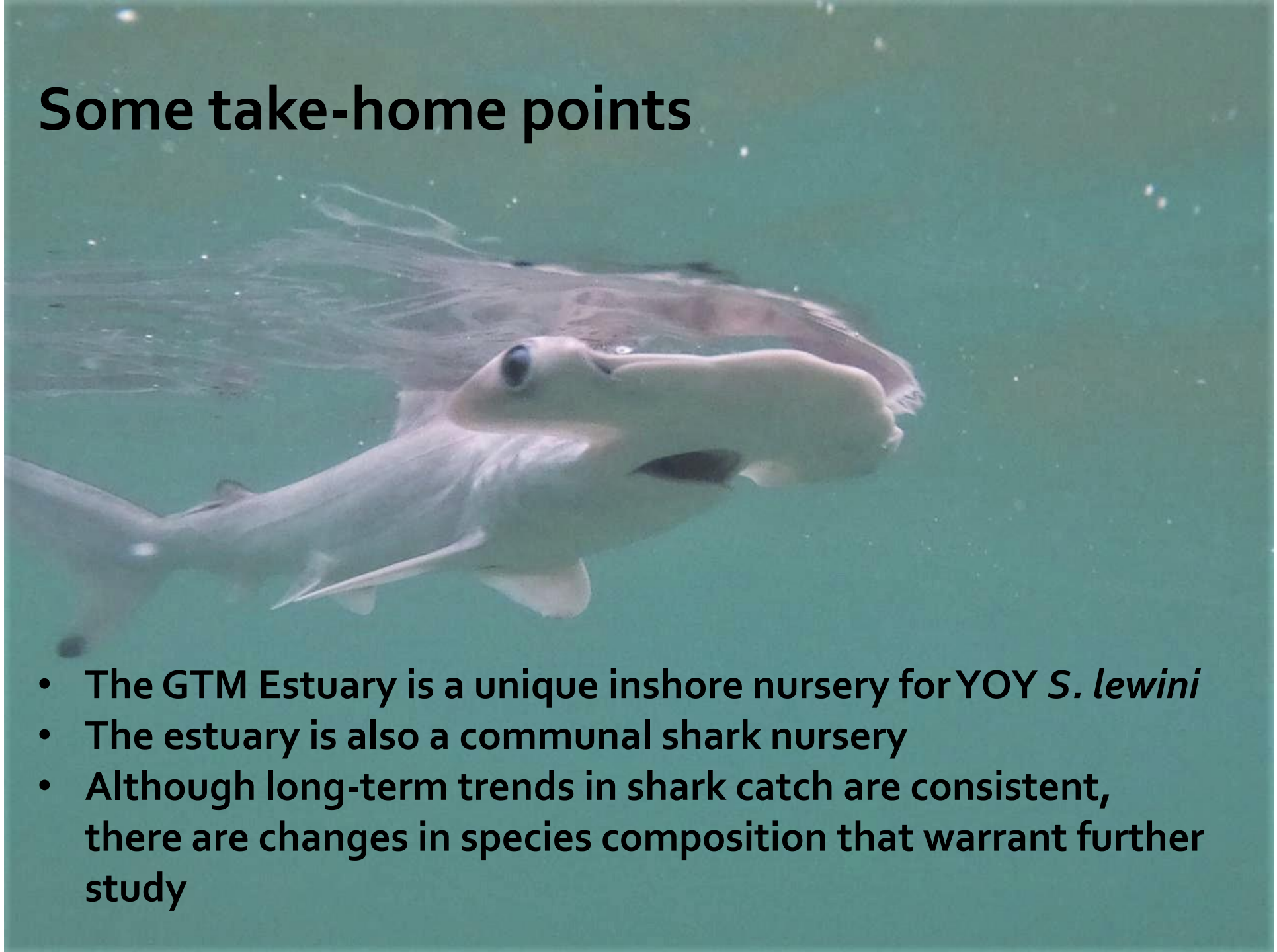
Scalloped hammerheads reuse “core areas” but still make occasional excursions



Sandbar sharks appear to make up a greater proportion of overall catch in recent years


Sandbar shark abundance
has increased over time
CPLU/50 hooks
4
3
2
1
0
-1
-2
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

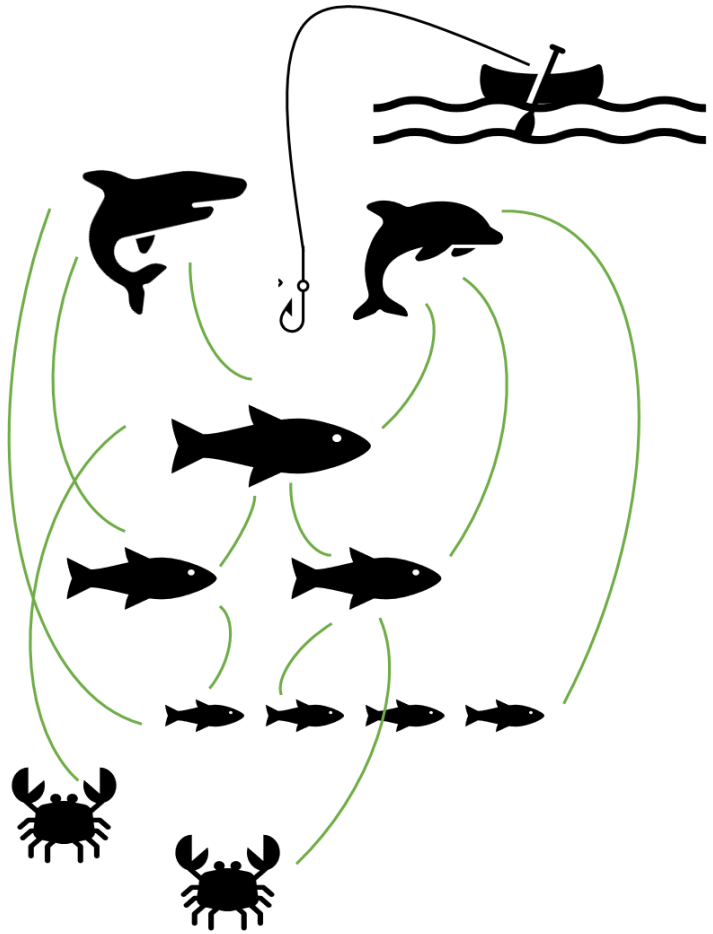
Some take-home points



- The GTM Estuary is a unique inshore nursery for YOY *S. lewini*
- The estuary is also a communal shark nursery
- Although long-term trends in shark catch are consistent, there are changes in species composition that warrant further study

Other studies underway in our program

Baited Remote Underwater Video survey of GTM sharks



Pollutant transfer in the GTM Estuary Food web

We extend our thanks to NOAA Fisheries and UNF for supporting this work

Please see me if you are interested in sponsoring our work!