

**NOAA**  
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SEFSC

# Scalloped Hammerhead Assessment

## Gulf of Mexico and Western North Atlantic Ocean

### Stock ID

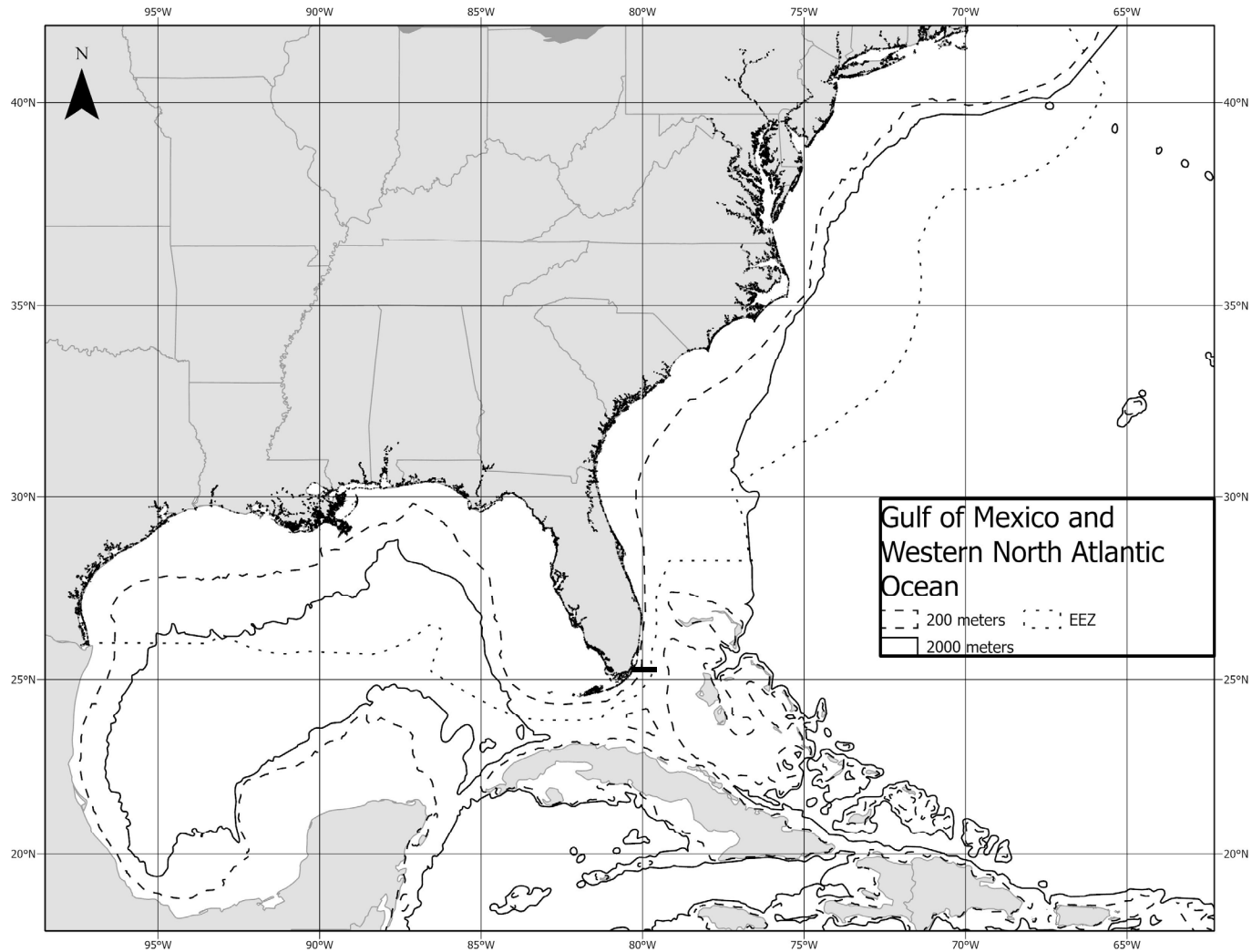
SEDAR 77 (Review Workshop)

August 28 – September 1, 2023

# Outline

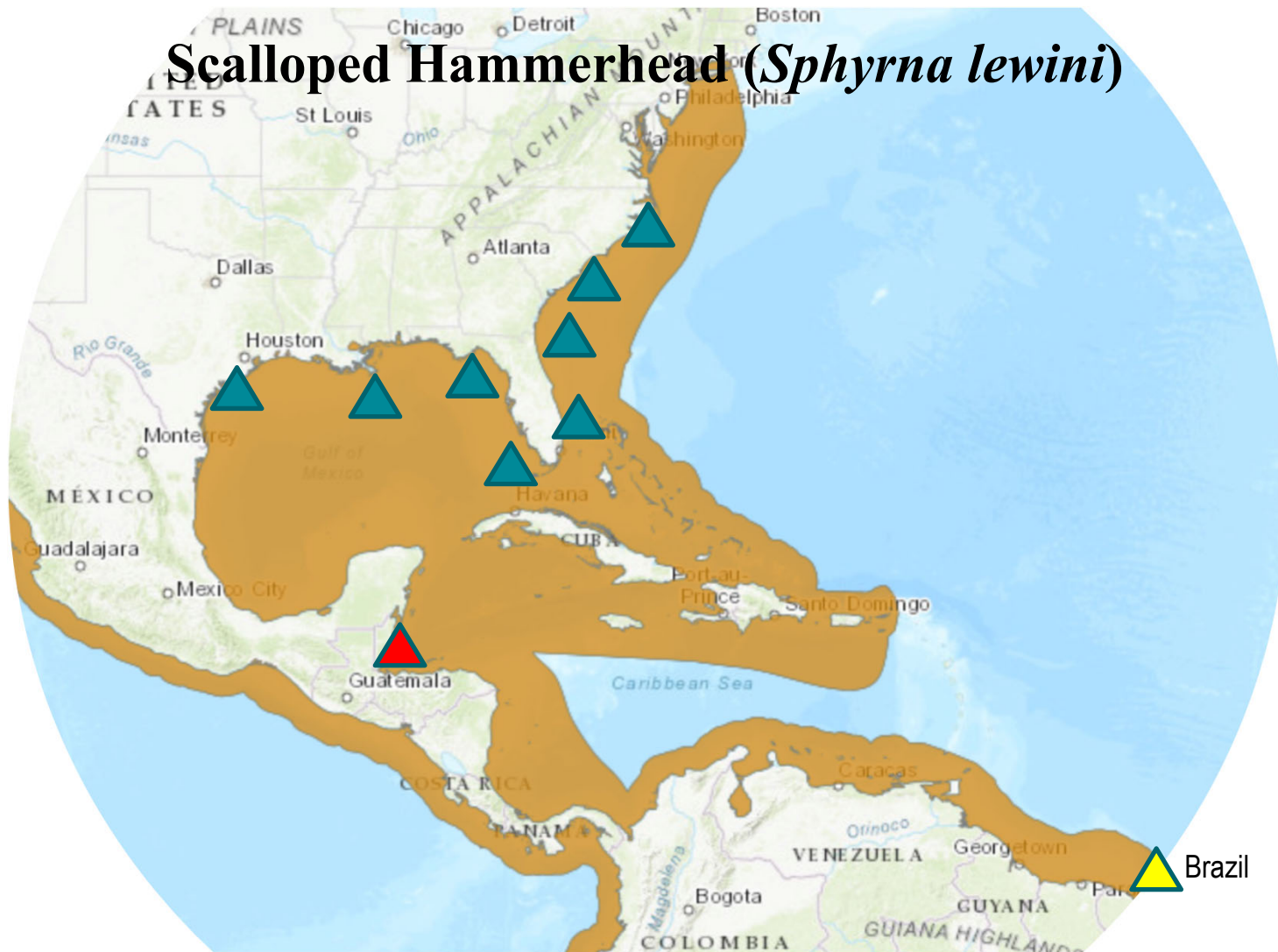
- Scalloped Hammerhead Assessment – Stock ID Workshop
  - Gulf of Mexico and Western North Atlantic Ocean
- Stock ID Workshop Group Presentations
  - Genetics
  - Movements and Spatial Distribution
  - Life History
- Stock ID Process Final Report
  - Recommendations

# Gulf of Mexico and Western North Atlantic Ocean

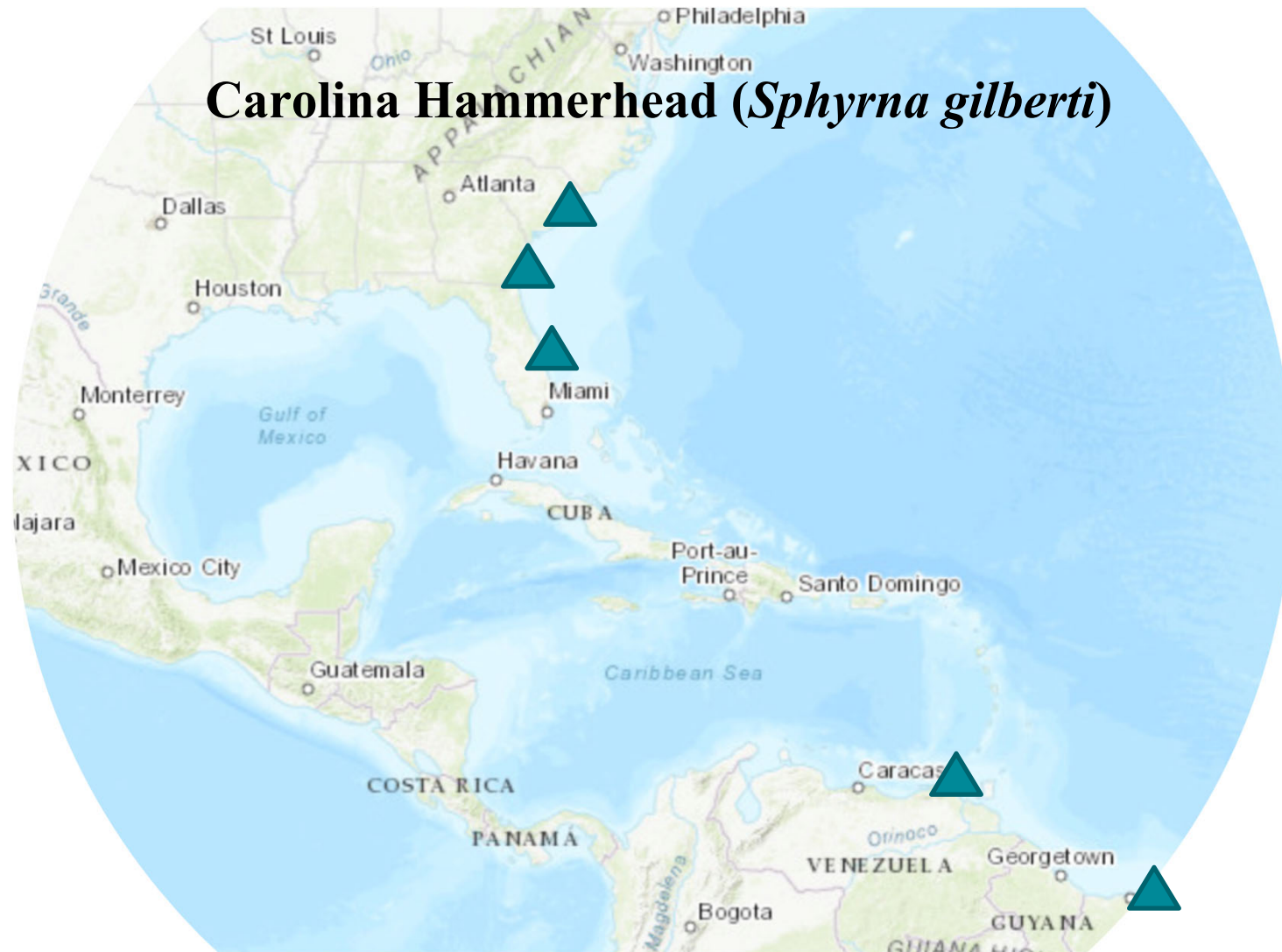


# Stock ID Workshop Group – Genetics

## Scalloped Hammerhead (*Sphyrna lewini*)



# Stock ID Workshop Group – Genetics



# Stock ID Workshop Group – Genetics

Recommendation: The working group recommends assessing Scalloped Hammerheads as two stocks in the U.S. mainland: one in the U.S. Atlantic and one in the U.S. Gulf of Mexico. We do not make this recommendation based on genetic differentiation between populations but rather because of the existence of the indistinguishable sympatric Carolina Hammerhead in the U.S. Atlantic that might make up as much as 27% of local catches of the two species combined. We also recommend that Scalloped and Carolina Hammerheads are assessed as a complex in the U.S. Atlantic given the difficulty in separating catches of these species. We cautiously recommend assessing Scalloped Hammerheads in U.S. Caribbean jurisdictions as a third stock. Although a sample exists from Puerto Rico (N=7 individuals) it has not yet been analyzed. The Scalloped Hammerheads in the Western Caribbean (Belize) are differentiated from U.S. Atlantic and U.S. Gulf of Mexico and we think the same is likely to be true for Eastern Caribbean populations. We recommend genetic analyses of U.S. Caribbean Scalloped Hammerheads as a matter of urgency given that the Central & Southwest Atlantic Distinct Population Segment (DPS) of this species is listed under the Endangered Species Act (<https://www.federalregister.gov/documents/2014/07/03/2014-15710/endangered-and-threatened-wildlife-and-plants-threatened-and-endangered-status-for-distinct>).



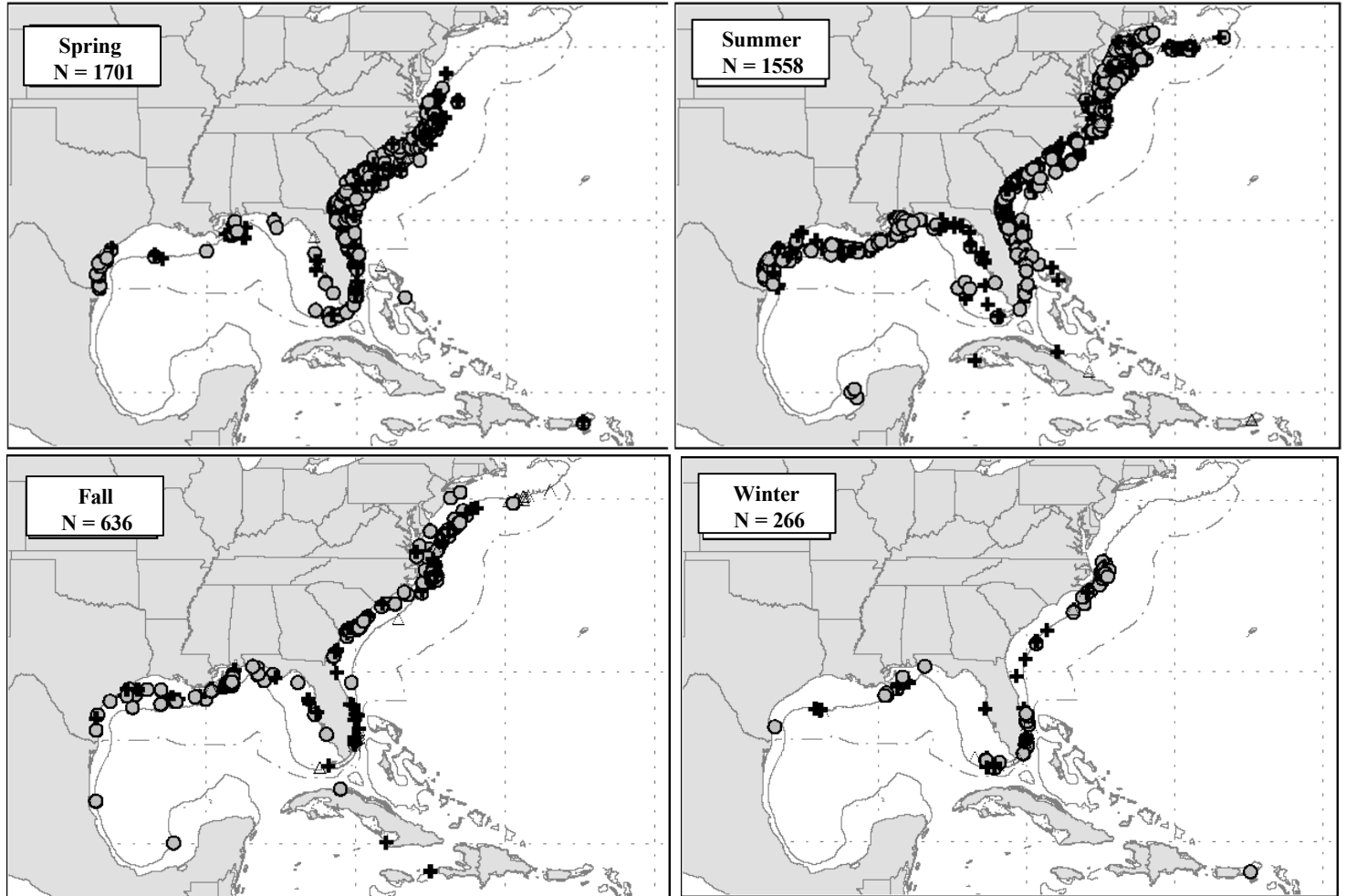


# Stock ID Workshop Group – Movements and Spatial Distribution

## Scalloped Hammerhead

Seasonal  
Distribution  
Based on CSTP  
Capture  
Locations

- + Female
- Male
- △ Unknown



# Stock ID Workshop Group – Movements and Spatial Distribution

## Scalloped Hammerhead

### Overall Distribution Supported by

Banks & Stunz (SID04)  
Chan et al (RD17)  
Drymon et al (RD21)  
Hammerschlag (SID07)  
Heim et al (SID01)  
Heim et al (SID03)  
Kohler & Turner (RD23)  
Macdonald et al (RD24)  
Pollack (Data Scoping Web Pres)  
Pollack & Hanisko (SID02)  
Wells et al (RD01)



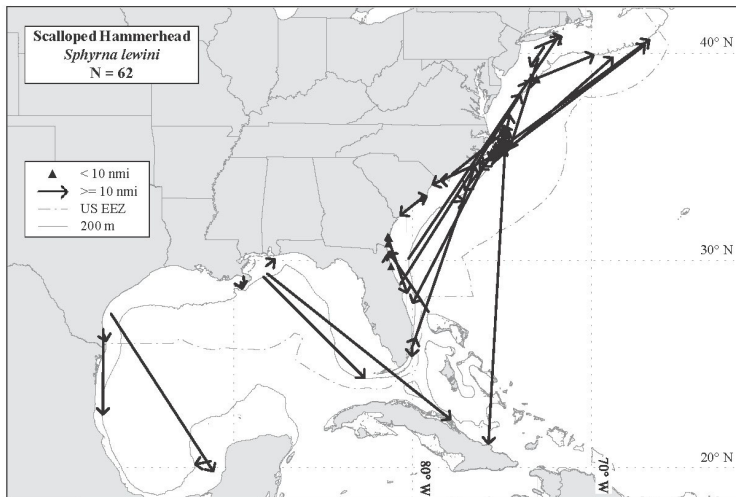


# Stock ID Workshop Group – Movements and Spatial Distribution

## Scalloped Hammerhead

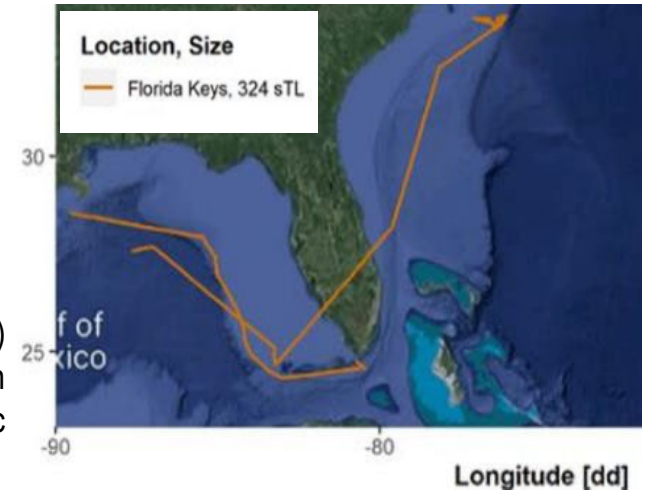
**Conventional tag data:** recaptures show exchange between GOM and Atlantic and exchange between US and Mexican GOM

**Satellite telemetry data:** show exchange between GOM and Atlantic



Cooperative Shark Tagging Program (SEDAR77- RD23)  
Exchange between GOM and Atlantic  
Exchange between US and Mexican GOM

Heim et al. (SEDAR77- SID01)  
Exchange between GOM and Atlantic

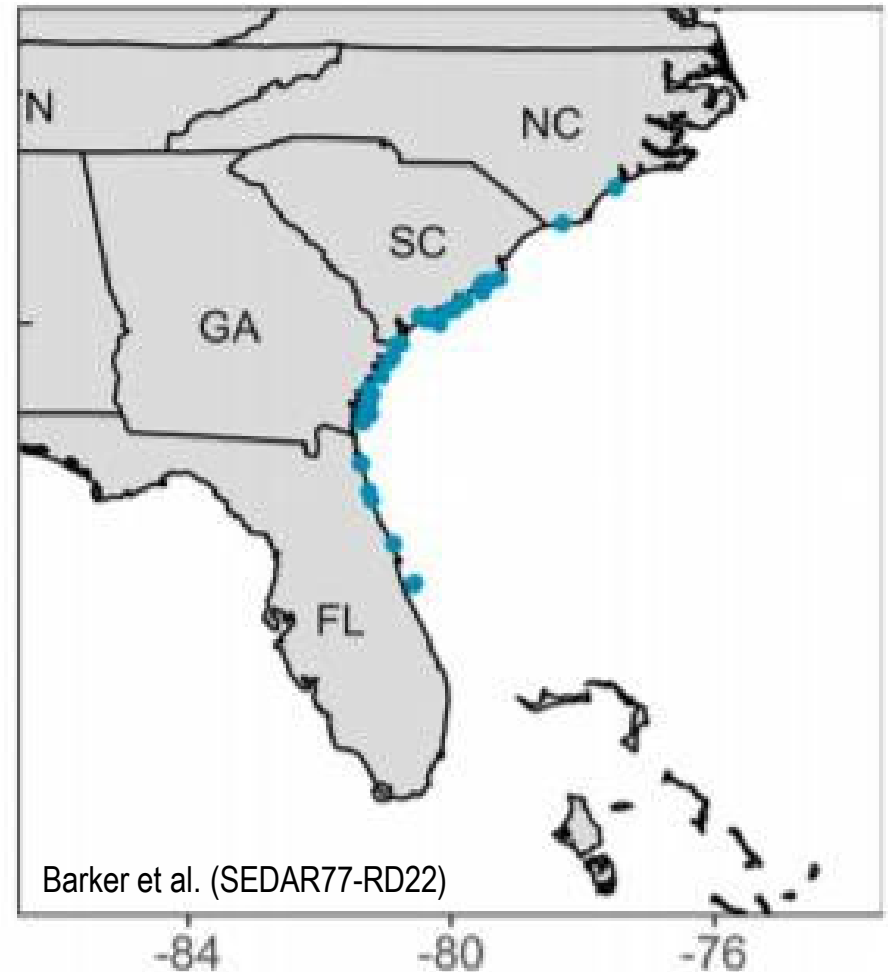


Hammerschlag (SEDAR77- SID07)  
exchange between GOM and Atlantic

# Stock ID Workshop Group – Movements and Spatial Distribution

## Carolina Hammerhead Distribution

- Cryptic species
- Indistinguishable from scalloped hammerhead using external morphology
- Spatially limited distribution in the Atlantic
- No evidence in GOM



# Stock ID Workshop Group – Movements and Spatial Distribution

## Preliminary Recommendations

- **Scalloped Hammerhead** – one stock based on exchange seen in movement data. Exchange between GOM and Atlantic and between US and Mexican GOM.
- **Carolina Hammerhead** – assessed with scalloped hammerhead stock because overlap in distribution and indistinguishable (externally) from scalloped hammerhead.



# Stock ID Workshop Group – Life History

## Life History Group conclusions:

- Significant differences in VBGF parameter estimates for great hammerheads
- Appears to also be the case for scalloped hammerheads
- Limited confidence that differences are real
- Low sample sizes in specific cases / counter to life history patterns in similar species
- In the case of scalloped hammerheads, no confidence that *S. gilberti* samples weren't included
- Problematic due to potential and likely life history differences between *S. gilberti/lewini*

Opinion of group participants that decision on stock ID should not be based on life history



# Stock ID Process Final Report Recommendations



SEDAR  
Southeast Data, Assessment, and Review

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SEDAR 77

## **HMS Hammerhead Sharks**

Stock ID Process Final Report

October 2021

SEDAR  
4055 Faber Place Drive, Suite 201  
North Charleston, SC 29405



# Stock ID Process Final Report Recommendations

- Scalloped Hammerhead Assessment – Stock ID Workshop
- Stock ID Process Final Report Recommendations
- Gulf of Mexico and Western North Atlantic Ocean

Considering all of the available information for Carolina and Scalloped Hammerhead, the Stock ID Workshop recommended that two stock assessments be conducted, if sufficient data are available. Carolina and Scalloped Hammerhead should be assessed as one stock in the U.S. Atlantic and another assessment should be conducted for the Scalloped Hammerhead in the Gulf of Mexico. If it is determined that sufficient data are not available to conduct separate assessments, then a single stock assessment should be conducted for the combined Carolina and Scalloped Hammerhead for all areas in the Northwest Atlantic.