Atlantic Highly Migratory Species
Draft Amendment 15
Mid-Atlantic Spatial Management Area

NOAA FISHERIES

Preferred Alternatives

Spatial/Temporal Modification
- Extend eastern boundary of closed area to the 350m shelf break
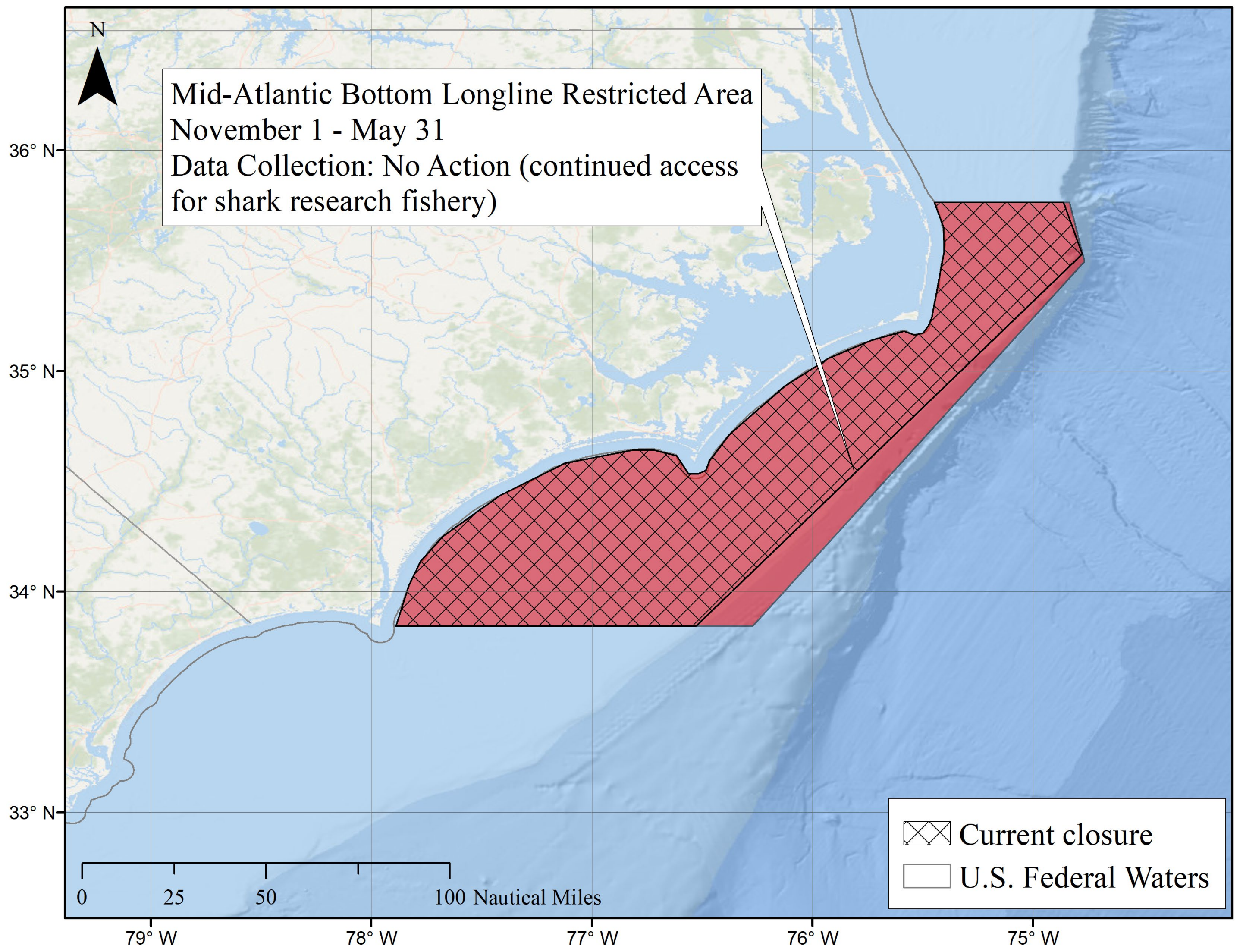- Shift to Nov.1 - May 31

Data Collection Programs
- Maintain current data collection programs (e.g. shark research fishery, Science Center surveys)

Evaluation Timing
- Evaluate every **3 years** (earlier if conditions warrant)

Mid-Atlantic Bottom Longline Restricted Area
November 1 - May 31
Data Collection: No Action (continued access for shark research fishery)

Current closure
U.S. Federal Waters

0   25   50   100 Nautical Miles

High-Bycatch-Risk Areas

High-bycatch-risk areas of all species across 12 months were used to delineate high- and low-bycatch-risk areas. Maps below provide examples for each species for 2 different seasons.

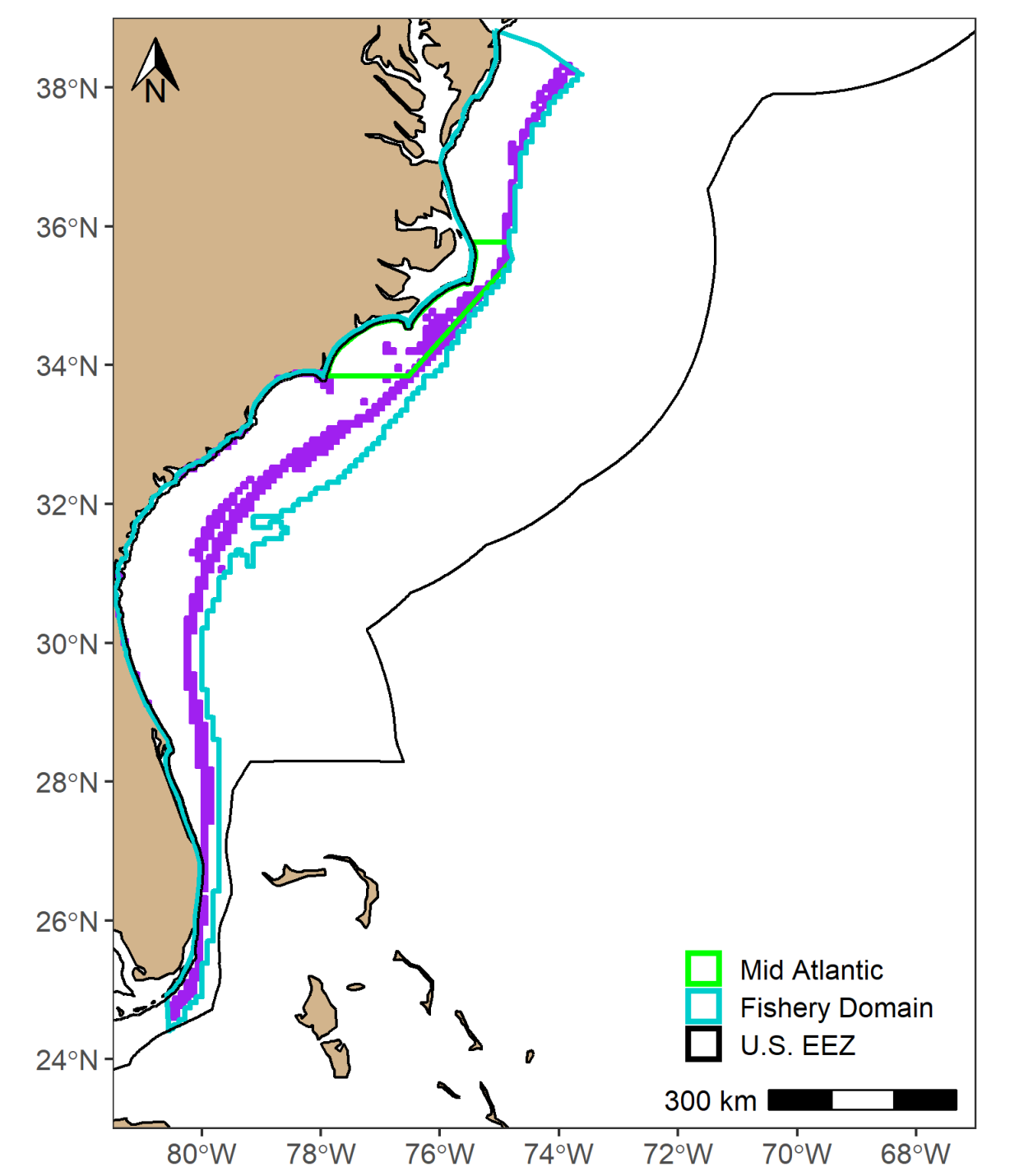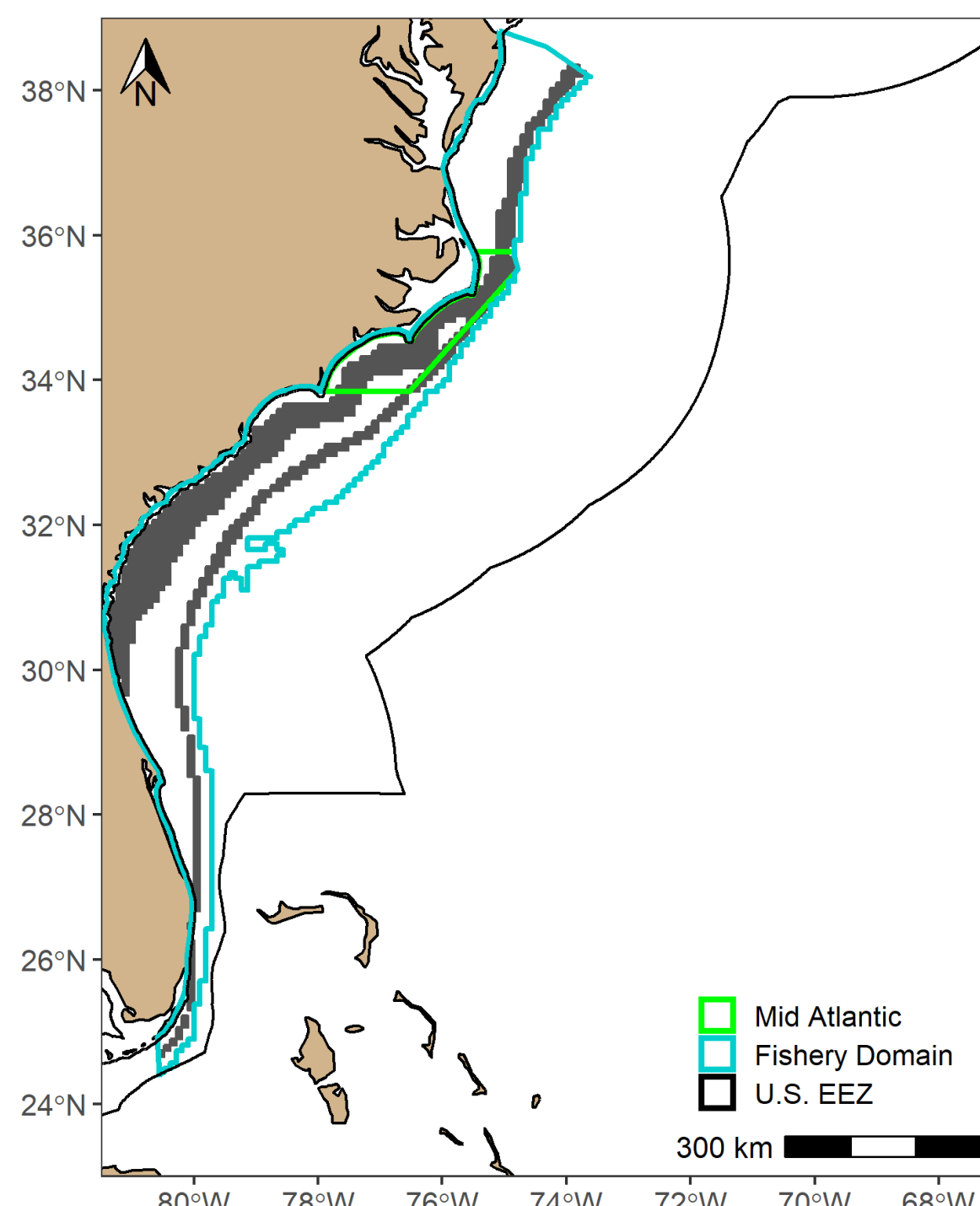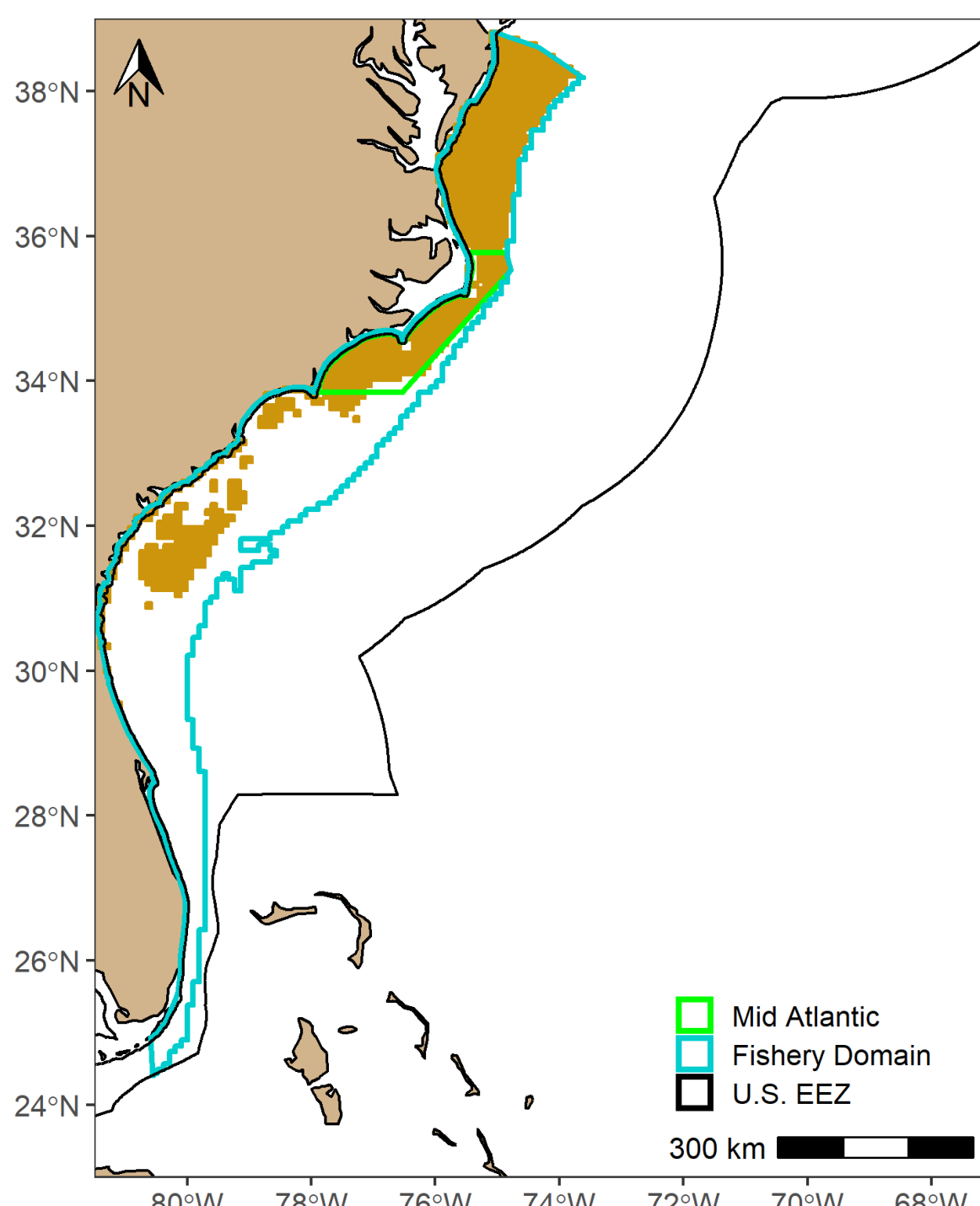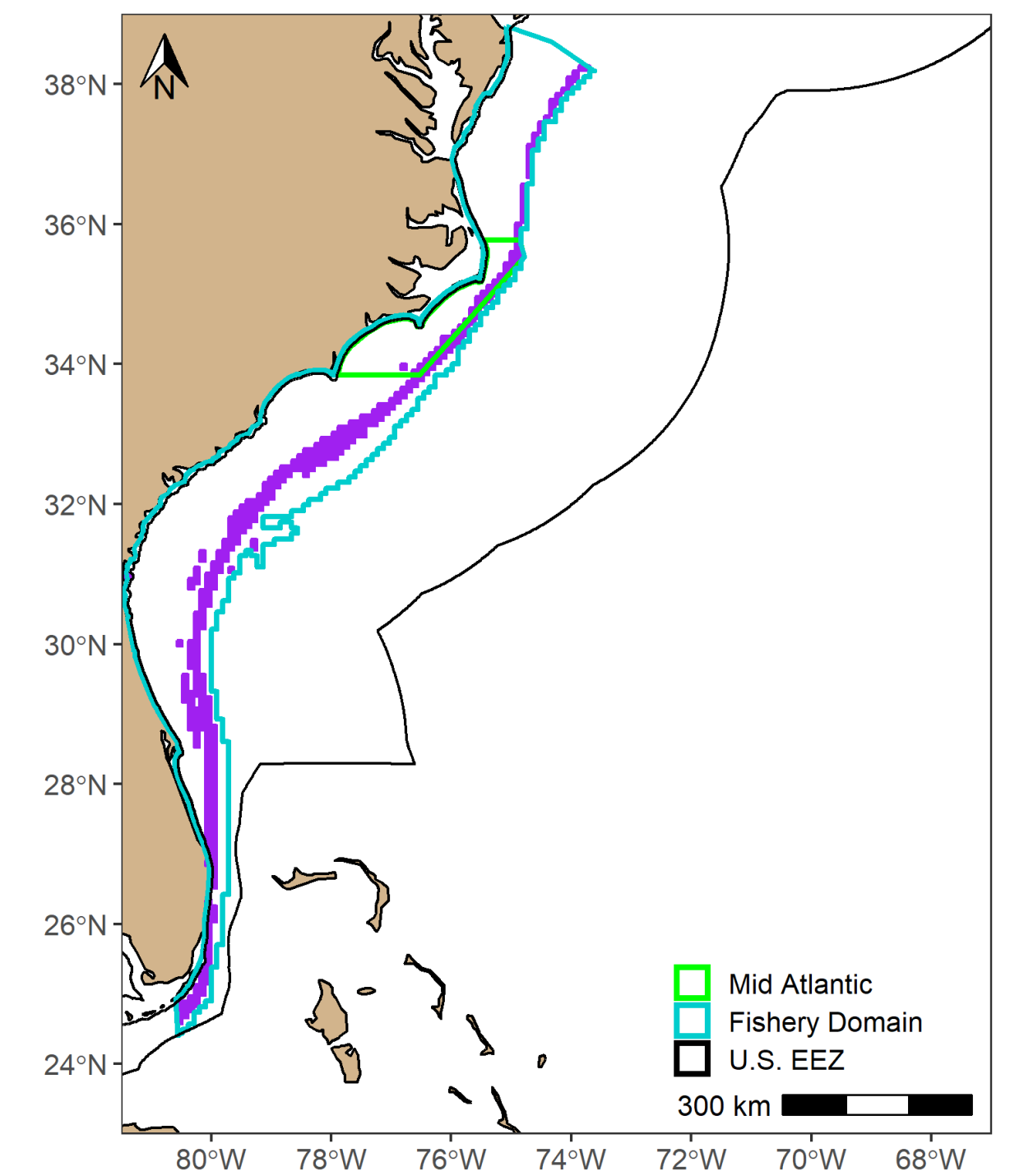**Take a picture** to view online content & submit comments

Sandbar Shark

Dusky Shark

Scalloped Hammerhead Shark

July

December
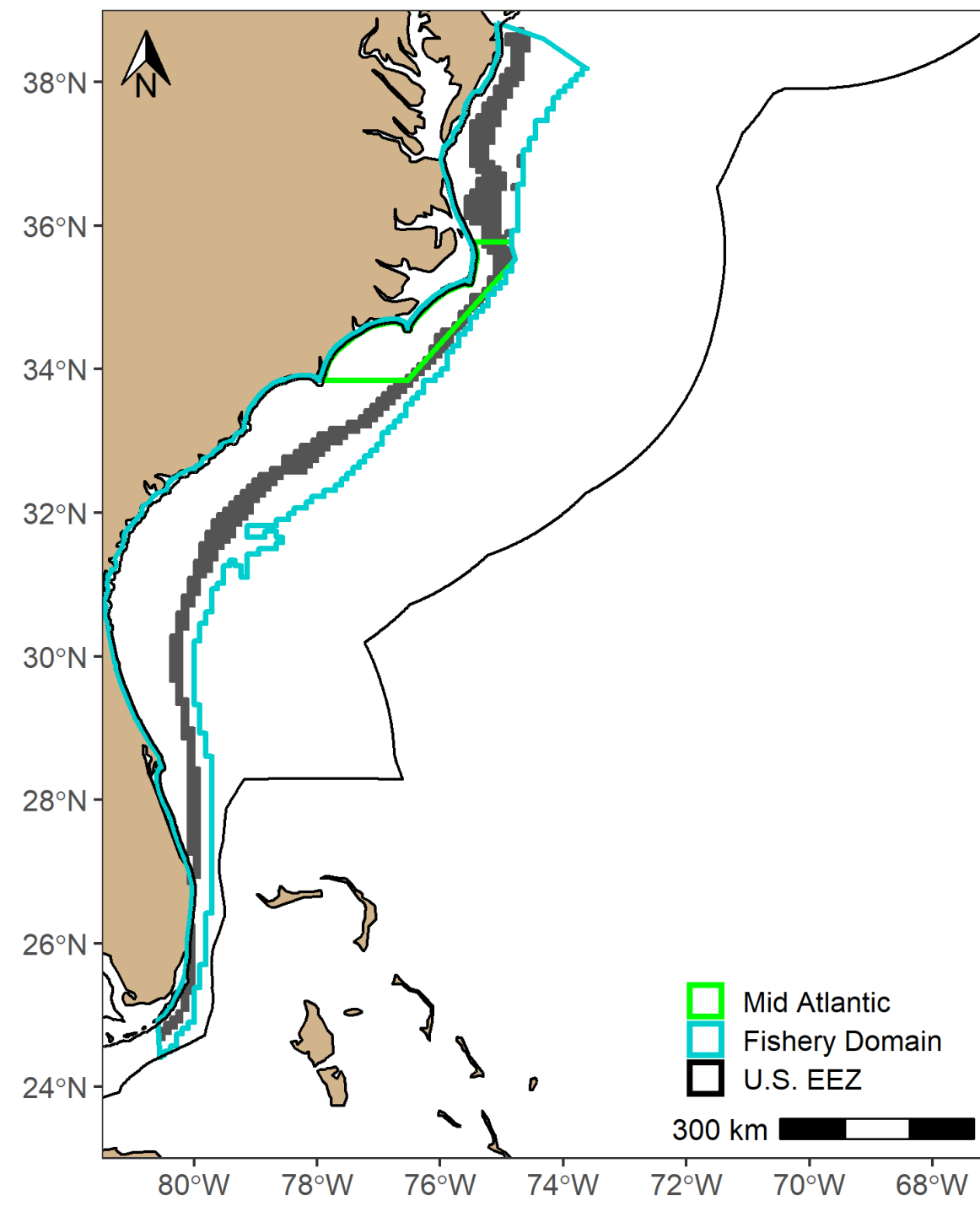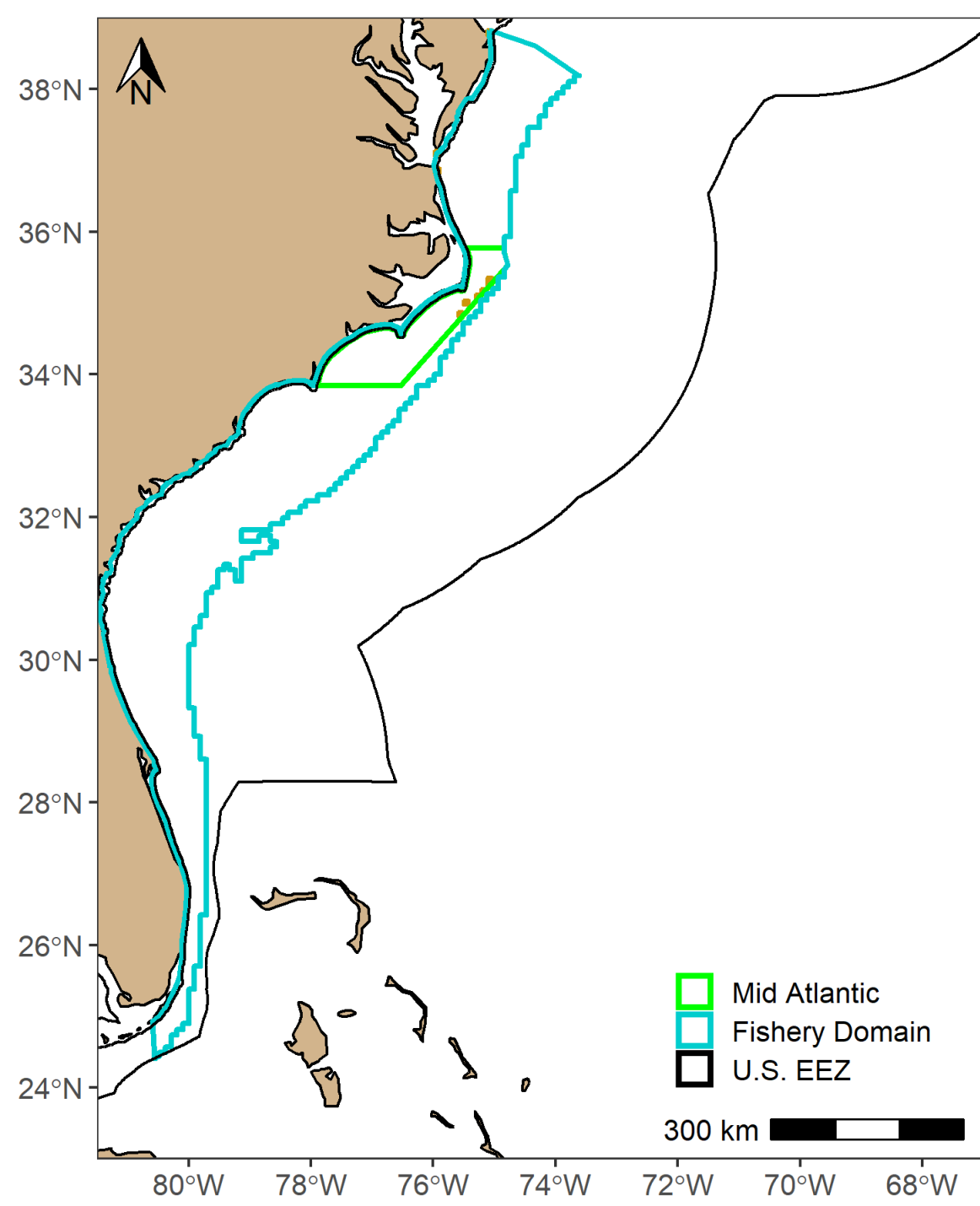
Mid Atlantic
Fishery Domain
U.S. EEZ
300 km

*Colored areas indicate higher probability of interaction.

Atlantic Highly Migratory Species
Draft Amendment 15

NOAA FISHERIES

Charleston Bump Spatial Management Area

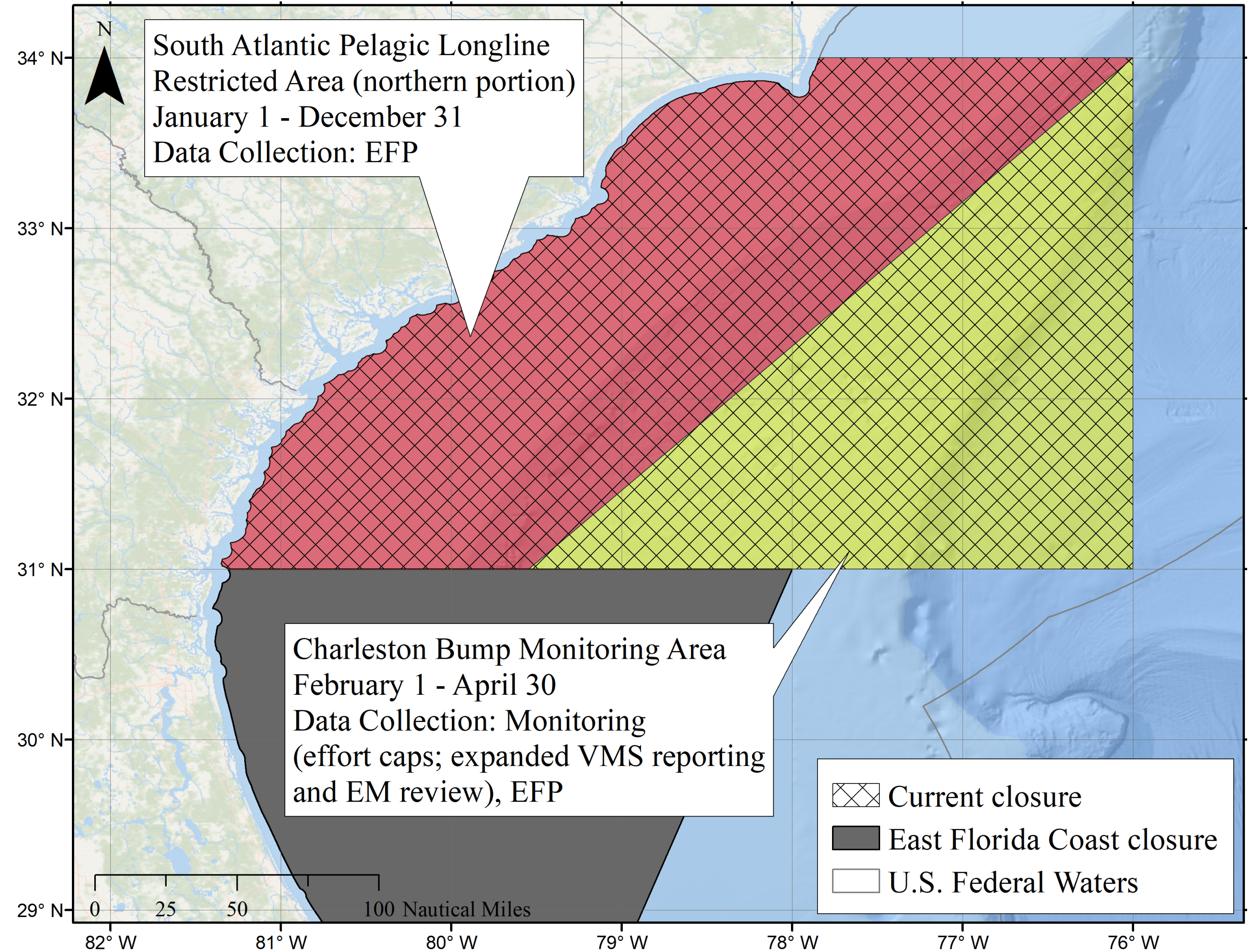### Preferred Alternatives

Spatial/Temporal Modification
- Shift eastern boundary to diagonal bisect
- Inshore high-bycatch-risk area year-round
- Offshore low-bycatch-risk area Feb. 1 - Apr. 30

Data Collection Programs
- High-bycatch-risk area (red)
  - Effective year-round
  - Cooperative Research via exempted fishing permit (EFP)
- Low-Bycatch-Risk Area (yellow)
  - Monitoring Area Feb. 1 - Apr. 30 with strict limits (see Monitoring Area box)
  - Continue normal pelagic longline fishing May 1 - Jan. 31
  - Cooperative Research via EFP Feb 1- Apr. 30

Evaluation Timing
- Evaluate every **3 years** (earlier if conditions warrant)

Map callouts:

South Atlantic Pelagic Longline Restricted Area (northern portion)
January 1 - December 31
Data Collection: EFP

Charleston Bump Monitoring Area
February 1 - April 30
Data Collection: Monitoring (effort caps; expanded VMS reporting and EM review), EFP

Map legend:
- Current closure
- East Florida Coast closure
- U.S. Federal Waters

0 25 50 100 Nautical Miles

Monitoring Area
(Special access area for data collection)
- Limited pelagic longline effort to collect data
- Enhanced reporting requirements
  - Report all billfish, turtle, shortfin mako, & bluefin tuna interactions after each set
- Electronic monitoring video from 100% of sets reviewed
- Cap on total effort
  - 69 sets between Feb. 1 - Apr. 30
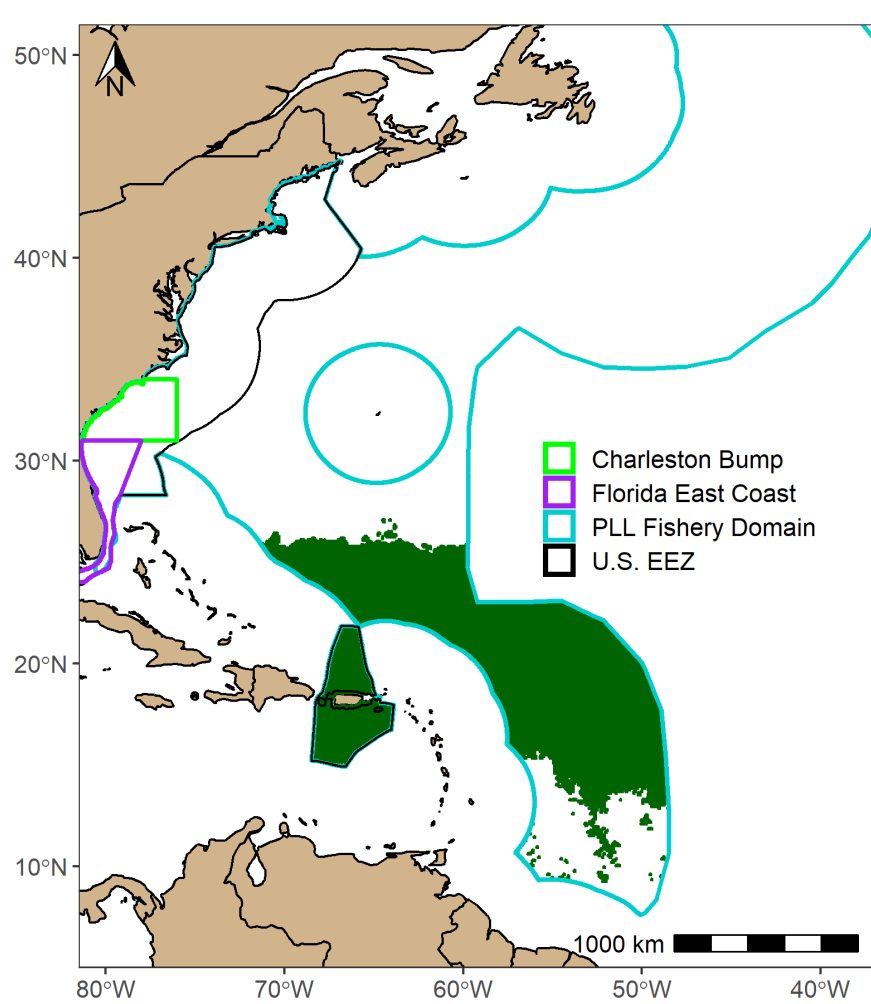- Can close and/or not reopen if conditions warrant

High-Bycatch-Risk Areas

High-bycatch-risk areas of all species across 12 months were used to delineate high- and low-bycatch-risk areas. Maps below provide examples for each species/species group for 2 seasons.
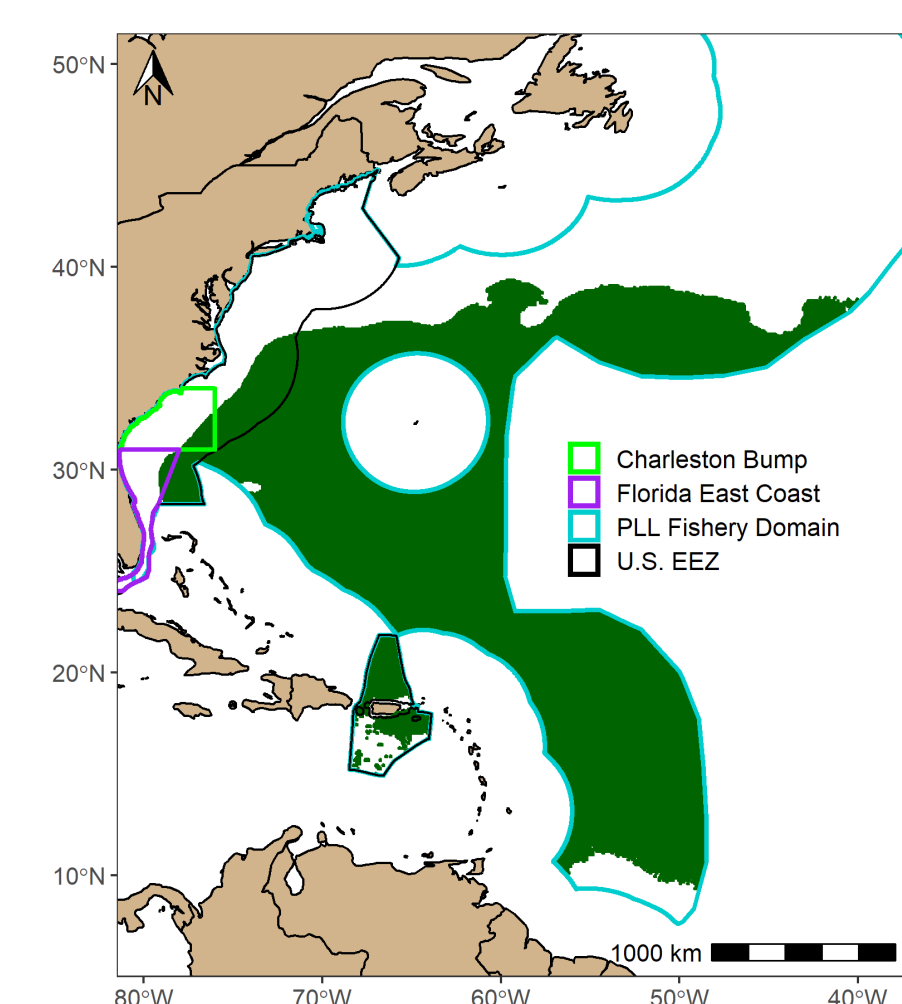
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Billfish Species Group
blue marlin, white marlin, roundscale spearfish, longbill spearfish, sailfish
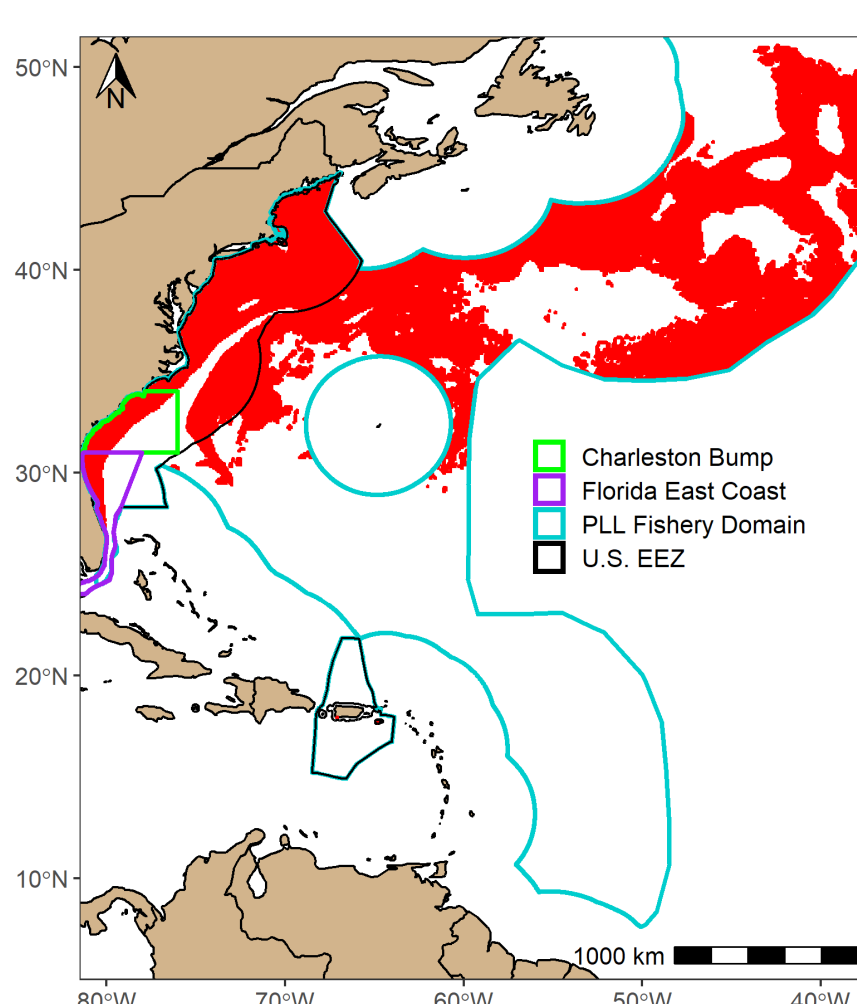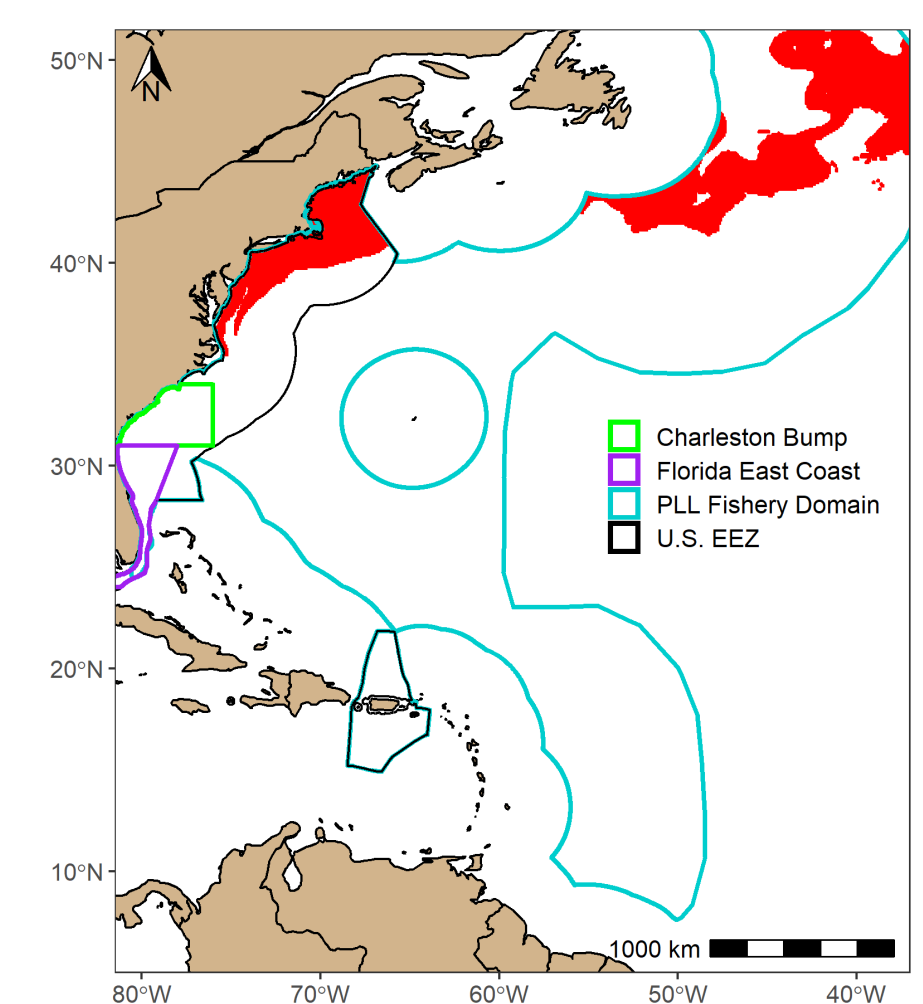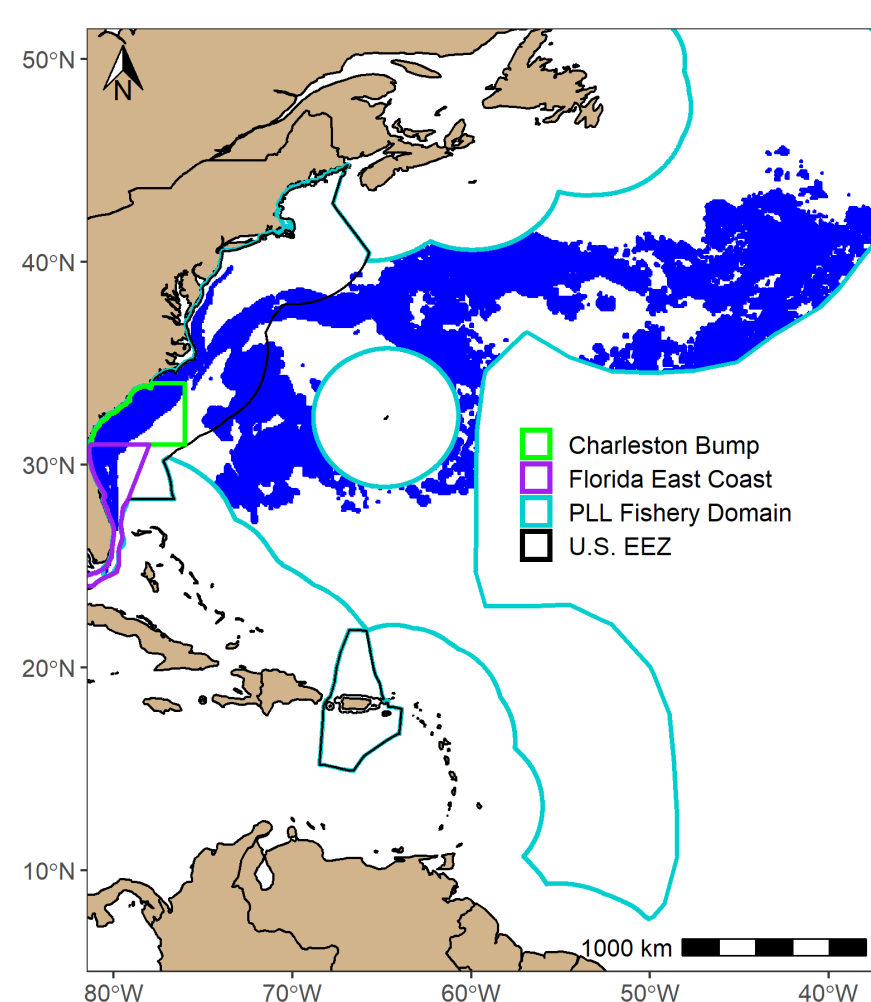
Map legend:
- Charleston Bump
- Florida East Coast
- PLL Fishery Domain
- U.S. EEZ

March **September**

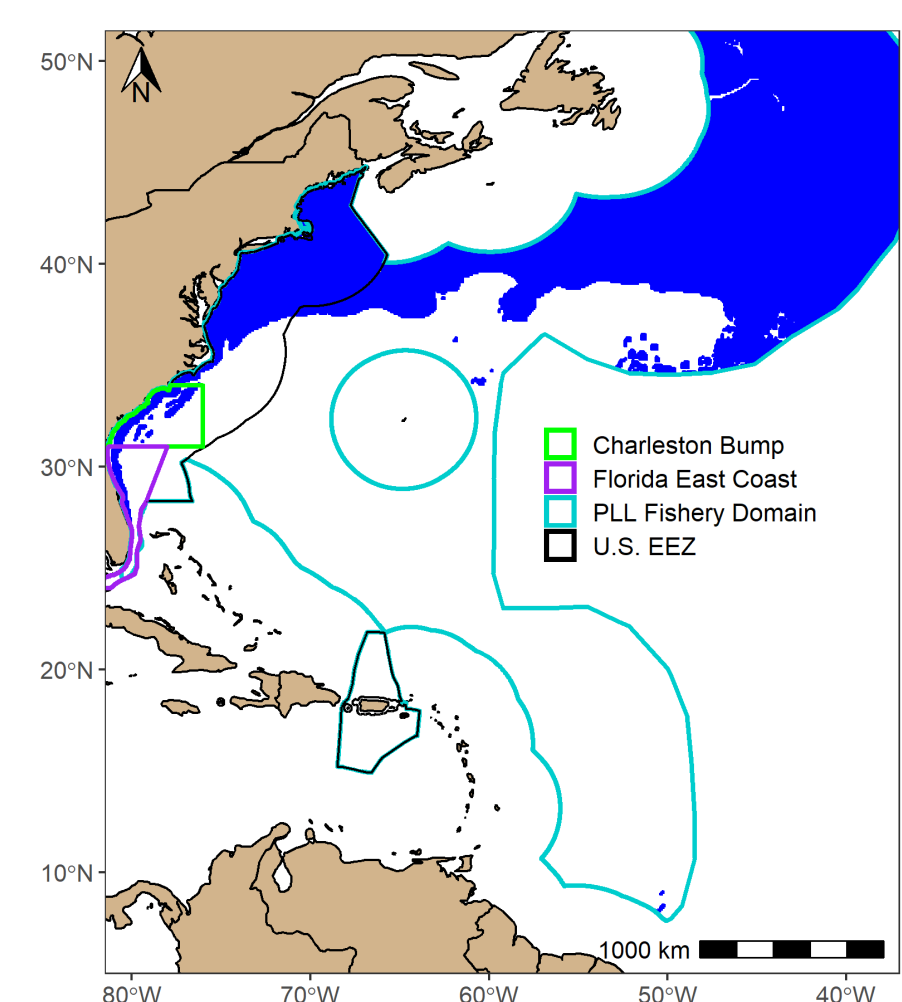### Shortfin Mako Shark
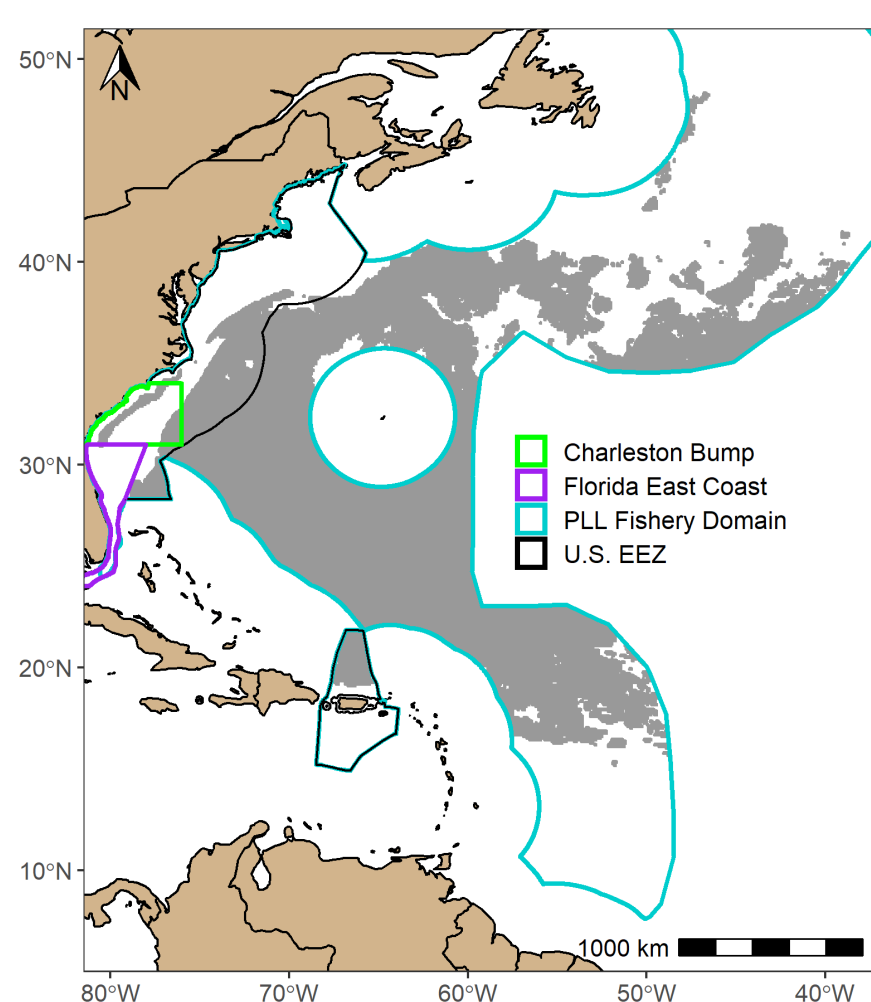
March **September**

Leatherback Sea Turtle

March **September**

Loggerhead Sea Turtle

March **September**

*Colored areas indicate higher probability of interaction.
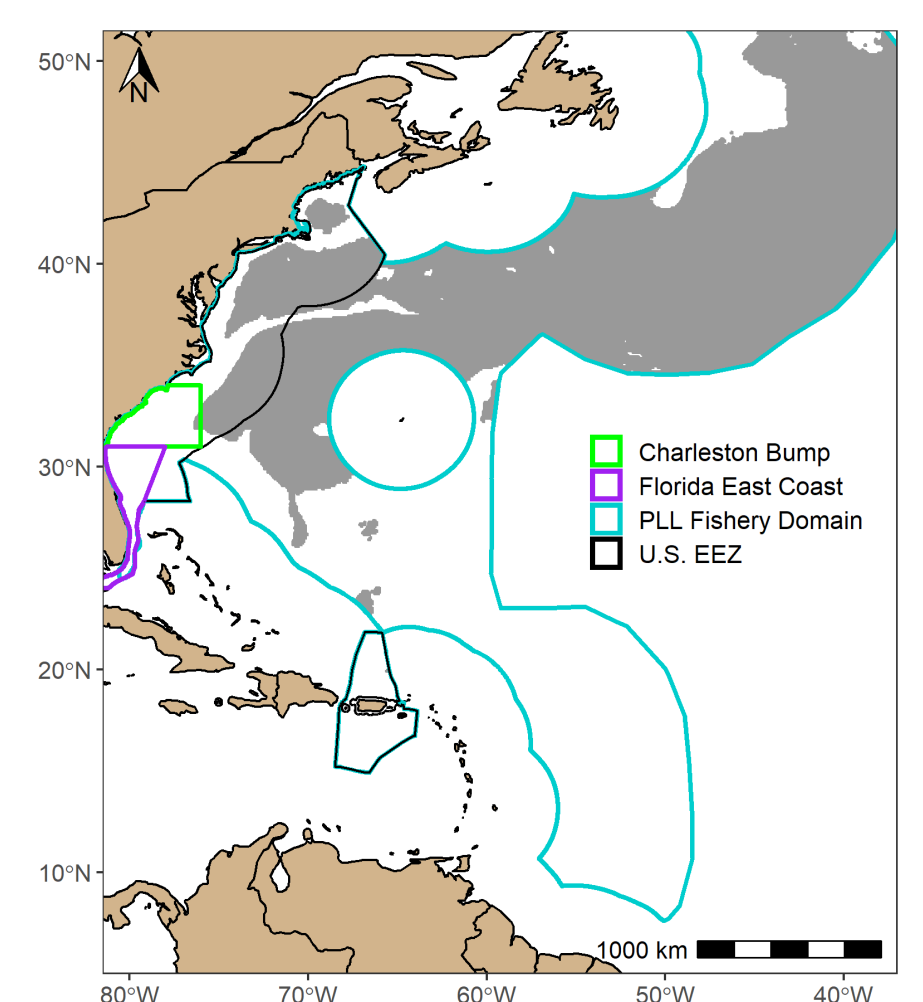
Atlantic Highly Migratory Species
Draft Amendment 15
East Florida Coast Spatial Management Area

Preferred Alternatives

Spatial/Temporal Modification
- Shift northeastern boundary to 79° 32' 46" W longitude
- Maintain year-round timing of high- (red) & low- (yellow) bycatch-risk areas

Data Collection Programs
- High-bycatch-risk area (red)
  - Effective year-round
  - Cooperative Research via exempted fishing permit (EFP)
- Low-Bycatch-Risk Area (yellow)
  - Monitoring Area year-round with strict limits (see Monitoring Area box)
  - Cooperative Research via EFP

Evaluation Timing
- Evaluate every **3 years** (earlier if conditions warrant)

East Florida Coast Monitoring Area
January 1 - December 31
Data Collection: Monitoring
(effort caps; expanded VMS reporting and EM review), EFP

South Atlantic Pelagic Longline Restricted Area (southern portion)
January 1 - December 31
Data Collection: EFP

Legend:
- Current closure
- Charleston Bump closure
- U.S. Federal Waters

Monitoring Area
(Special access area for data collection)
- Limited pelagic longline effort to collect data
- Enhanced reporting requirements
  - Report all billfish, turtle, shortfin mako, & bluefin tuna interactions after each set
  - Electronic monitoring video from 100% of sets reviewed
- Cap on total effort
  - 124 sets/year
- Can close and/or not reopen if conditions warrant

High-Bycatch-Risk Areas

High-bycatch-risk areas of all species across 12 months were used to delineate high- and low-bycatch-risk areas. Maps below provide examples for each species/species group for 2 seasons.

Take a picture to view online content & submit comments

Billfish Species Group
blue marlin, white marlin, roundscale spearfish, longbill spearfish, sailfish

March

September

Shortfin Mako Shark
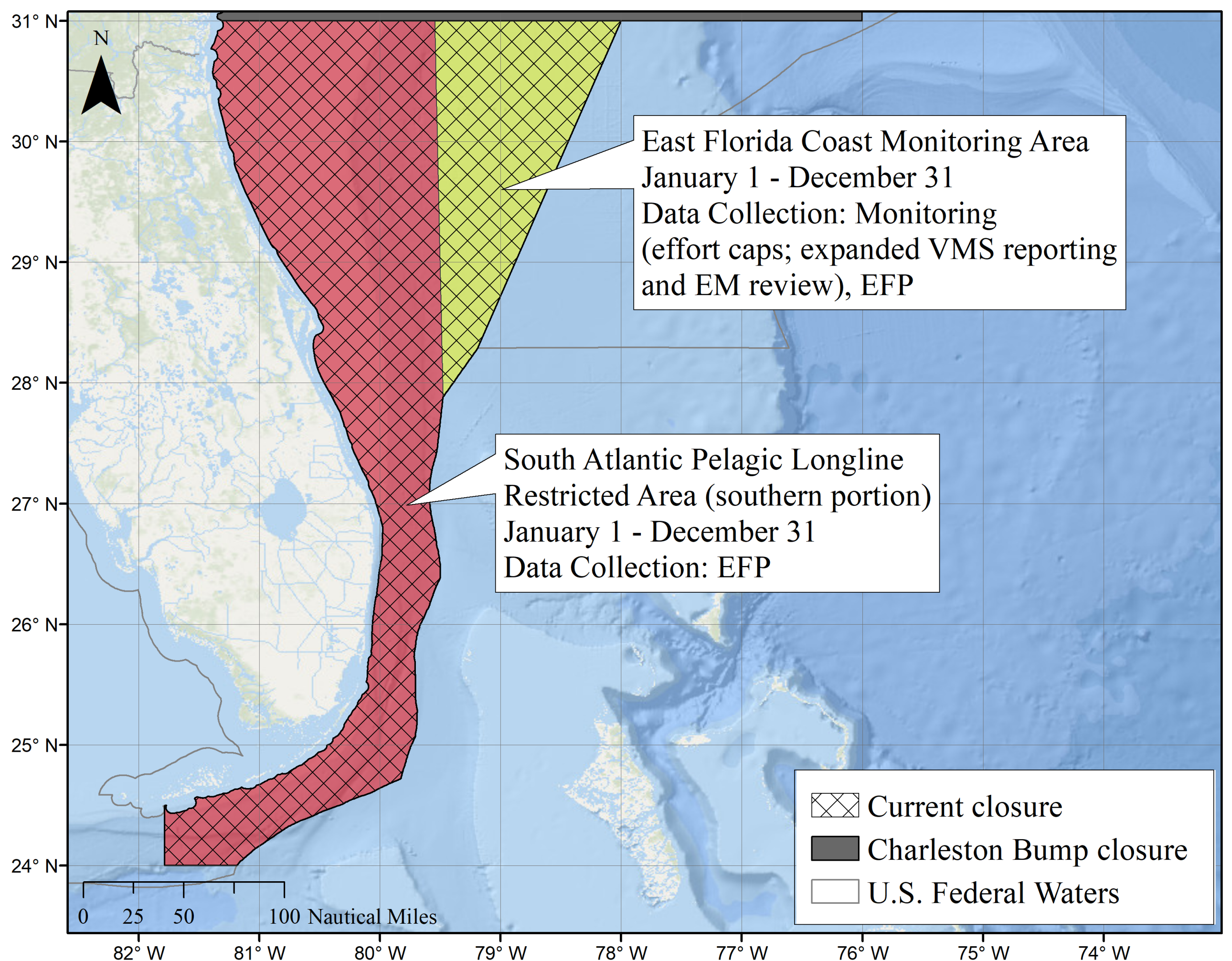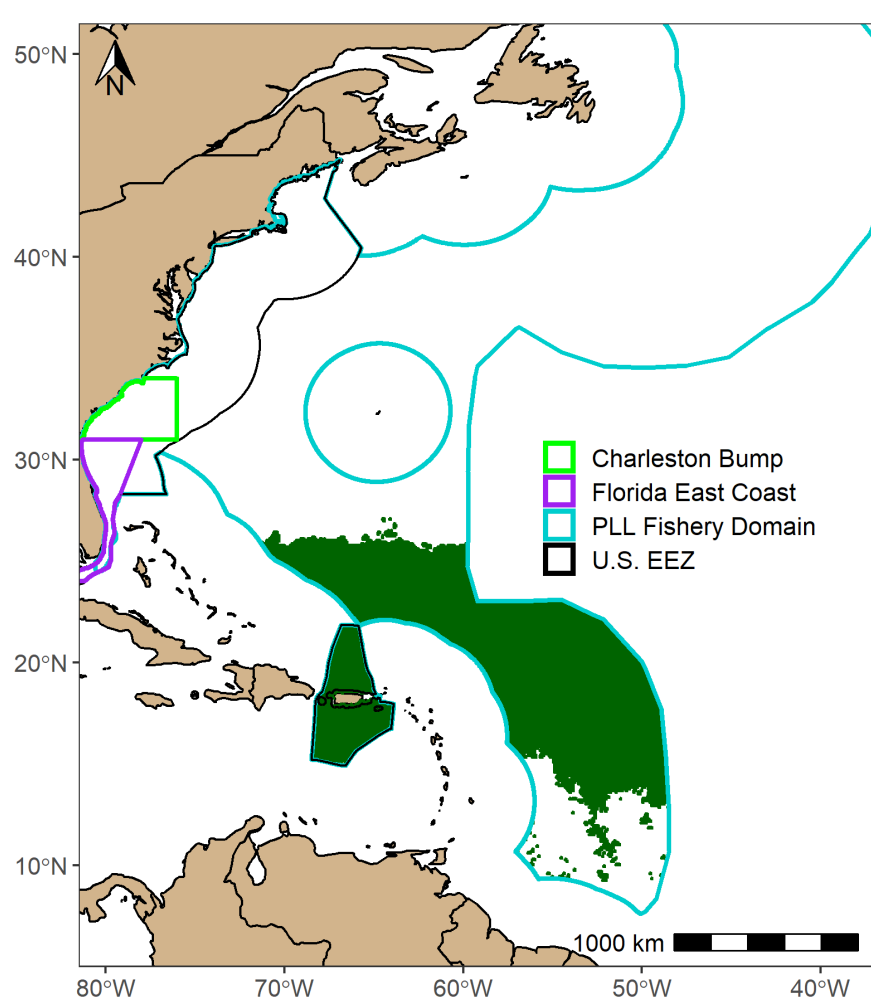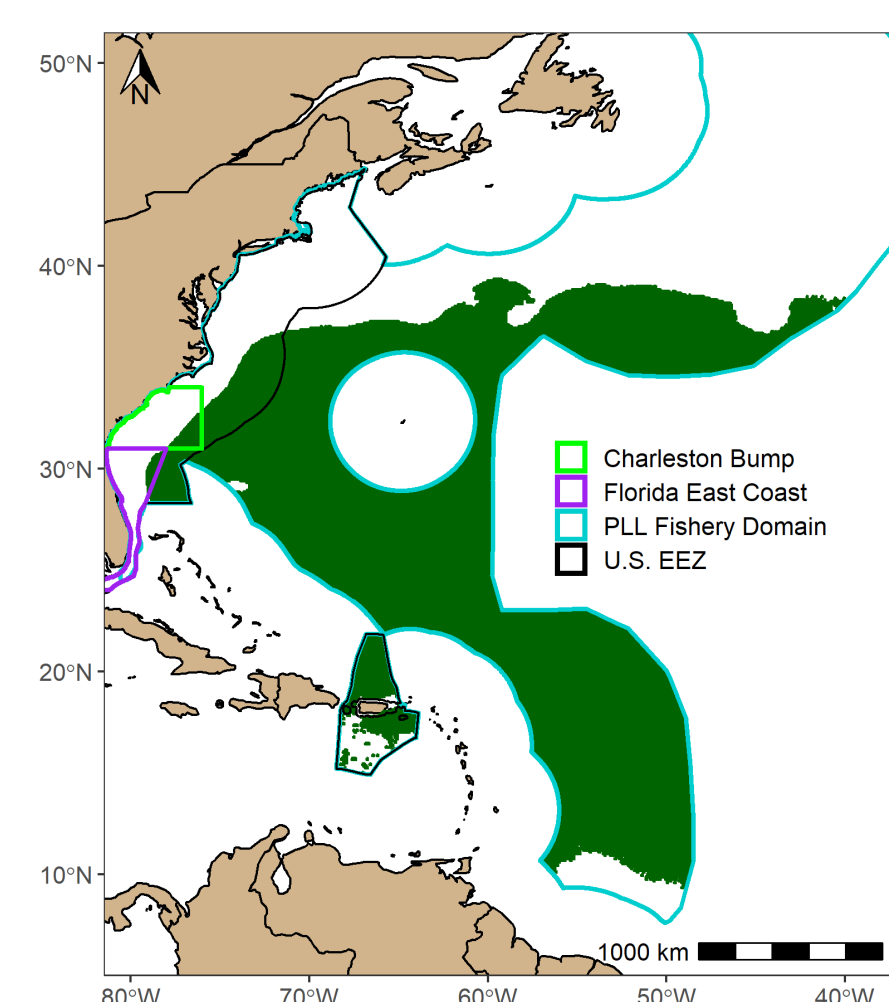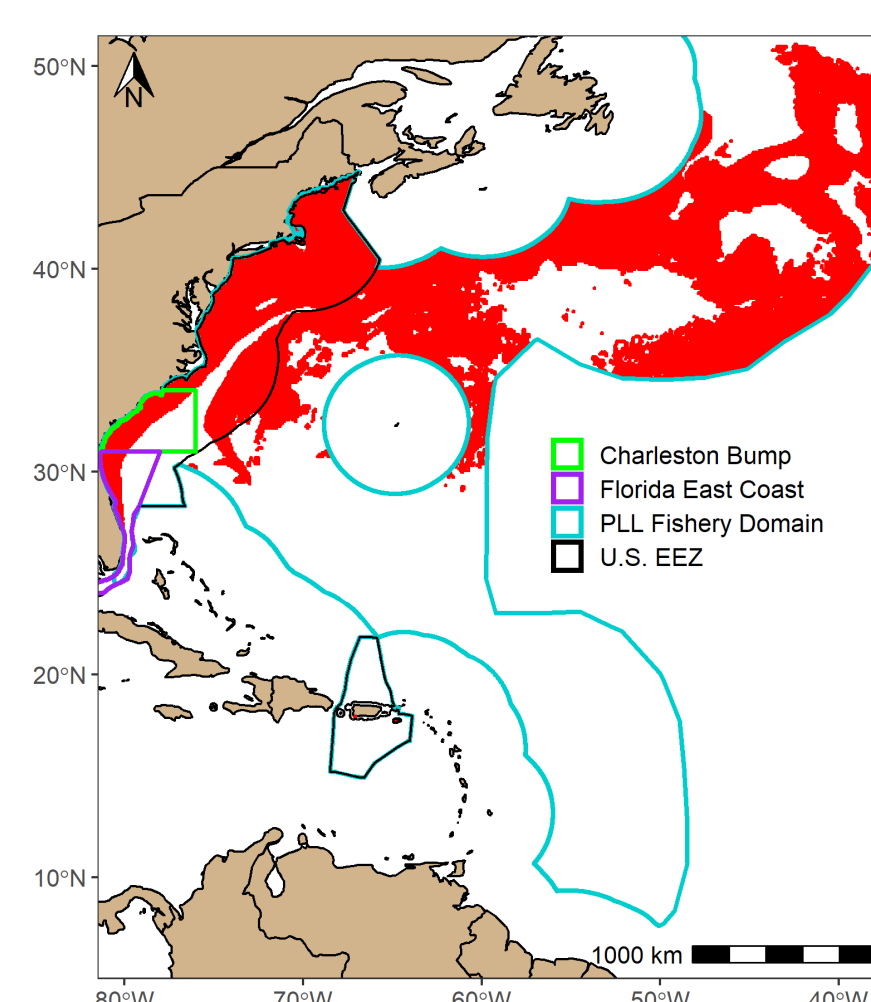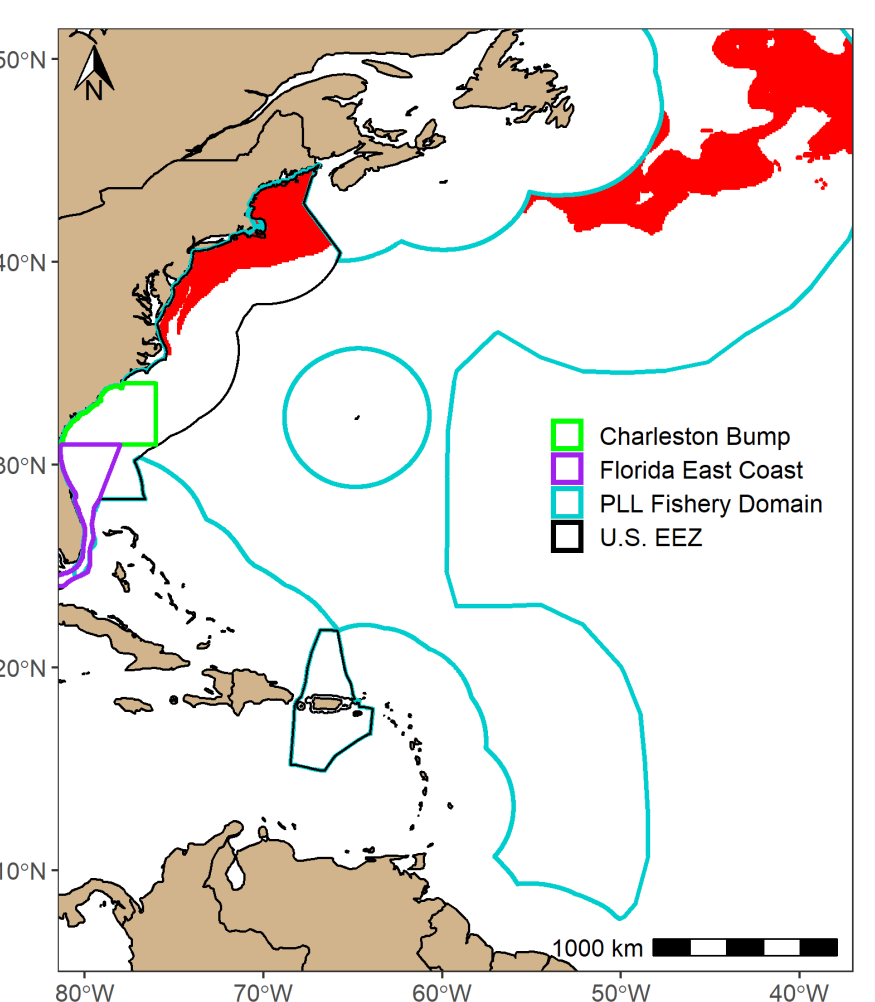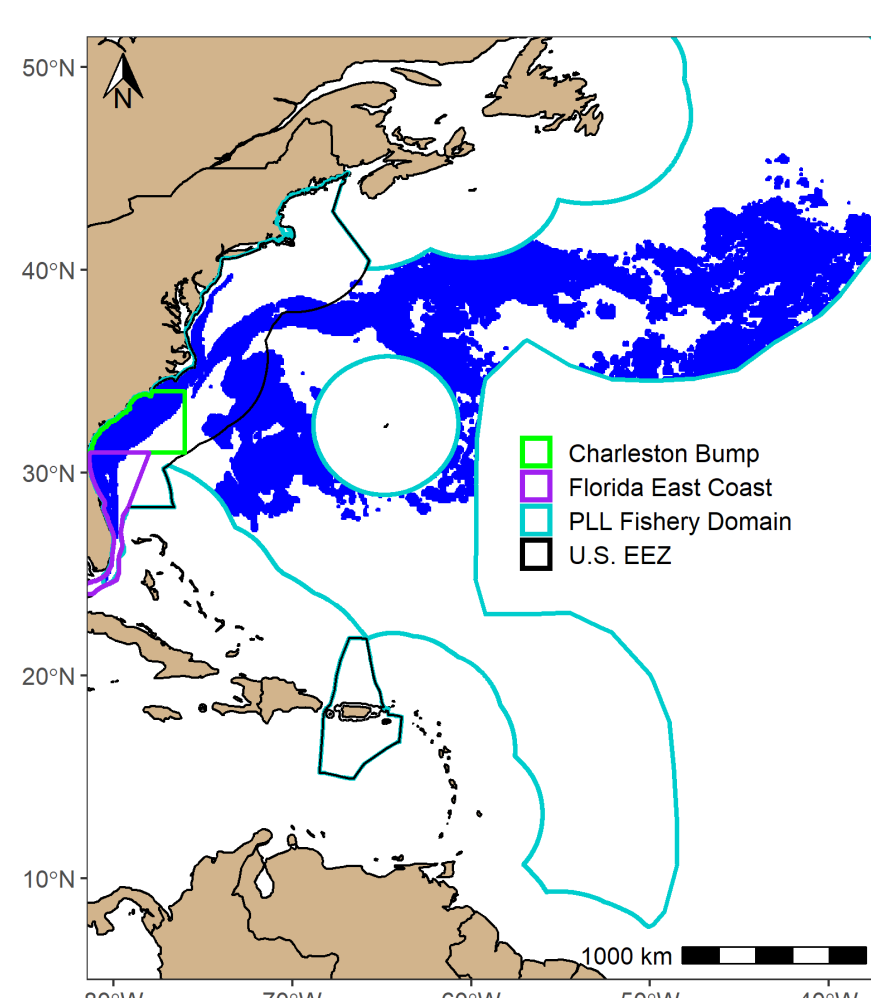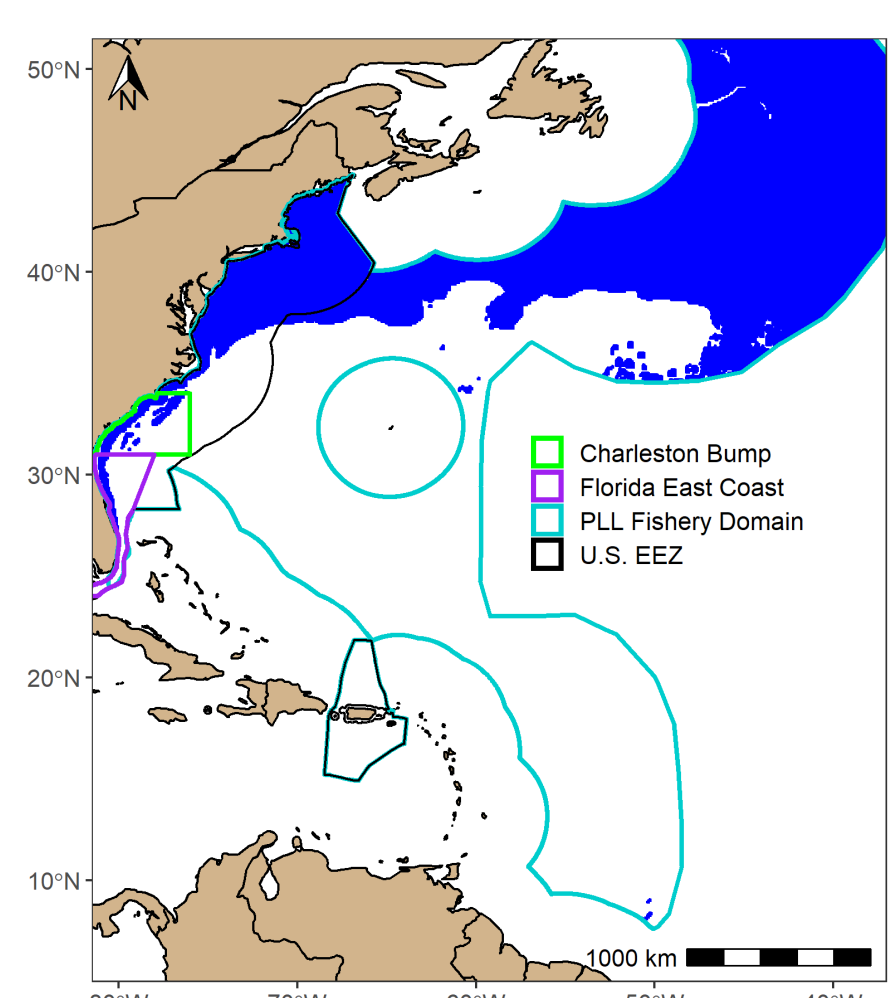

March

September

Leatherback Sea Turtle

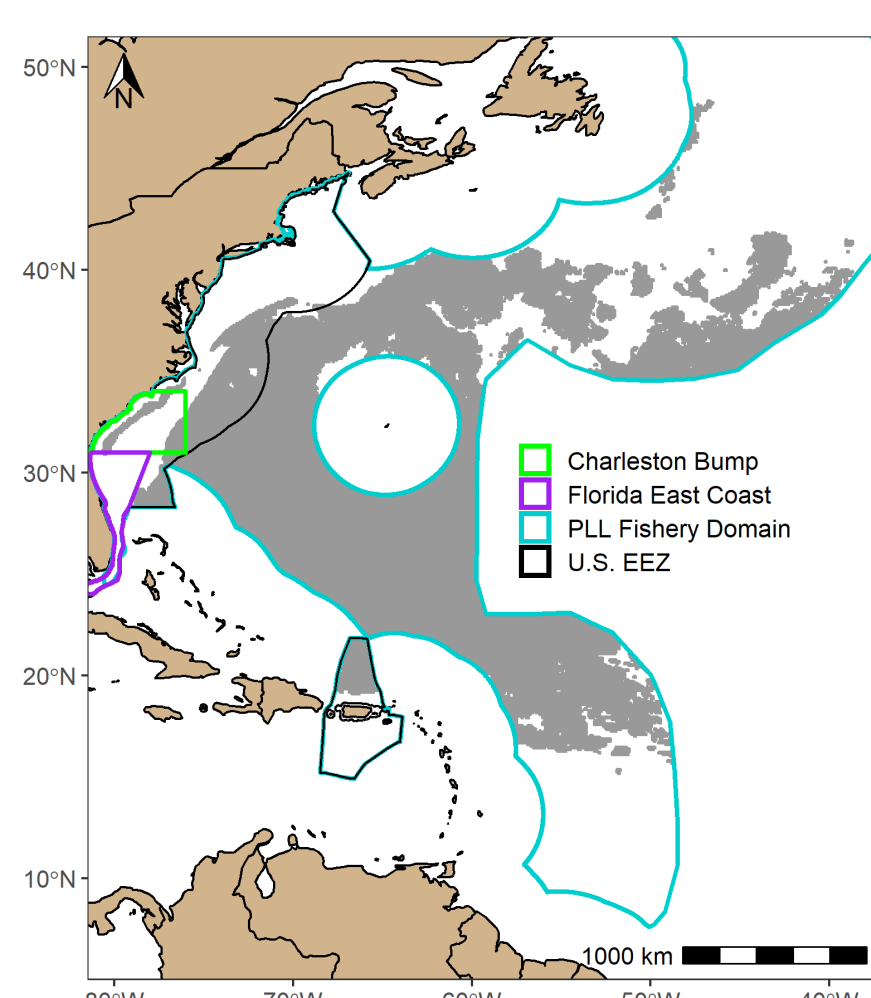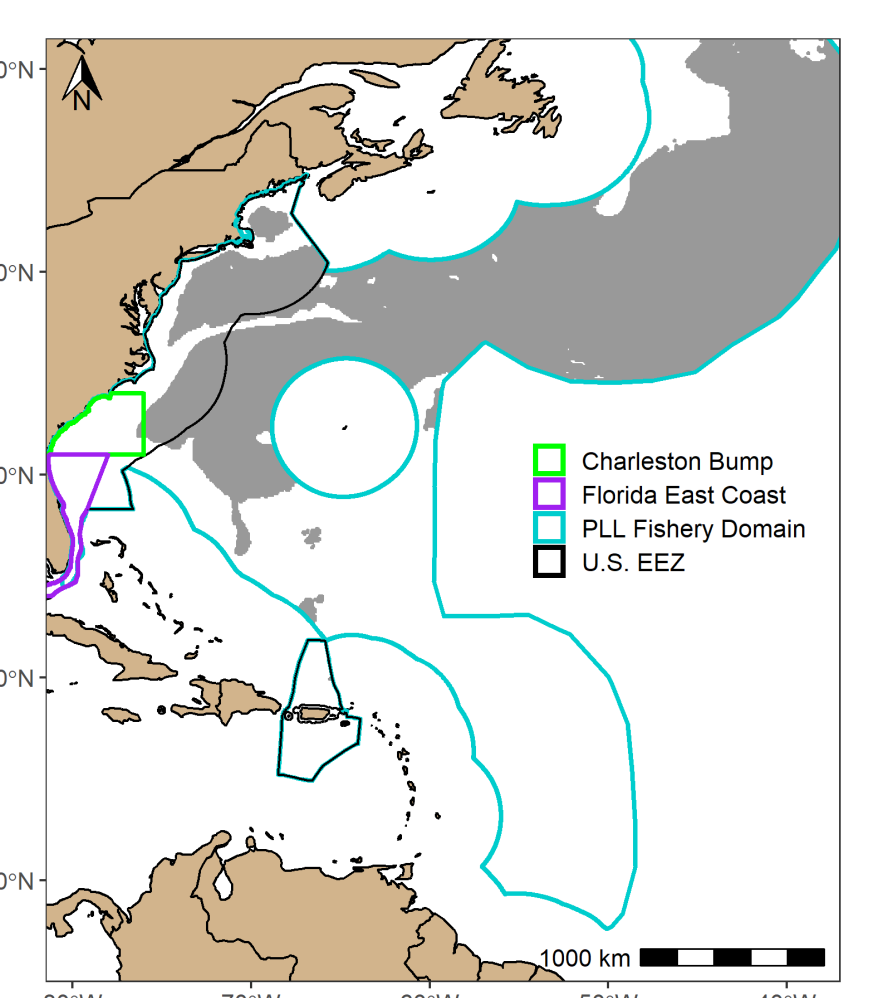March

September

Loggerhead Sea Turtle

March

September

*Colored areas indicate higher probability of interaction.

Atlantic Highly Migratory Species
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DeSoto Canyon Spatial Management Area

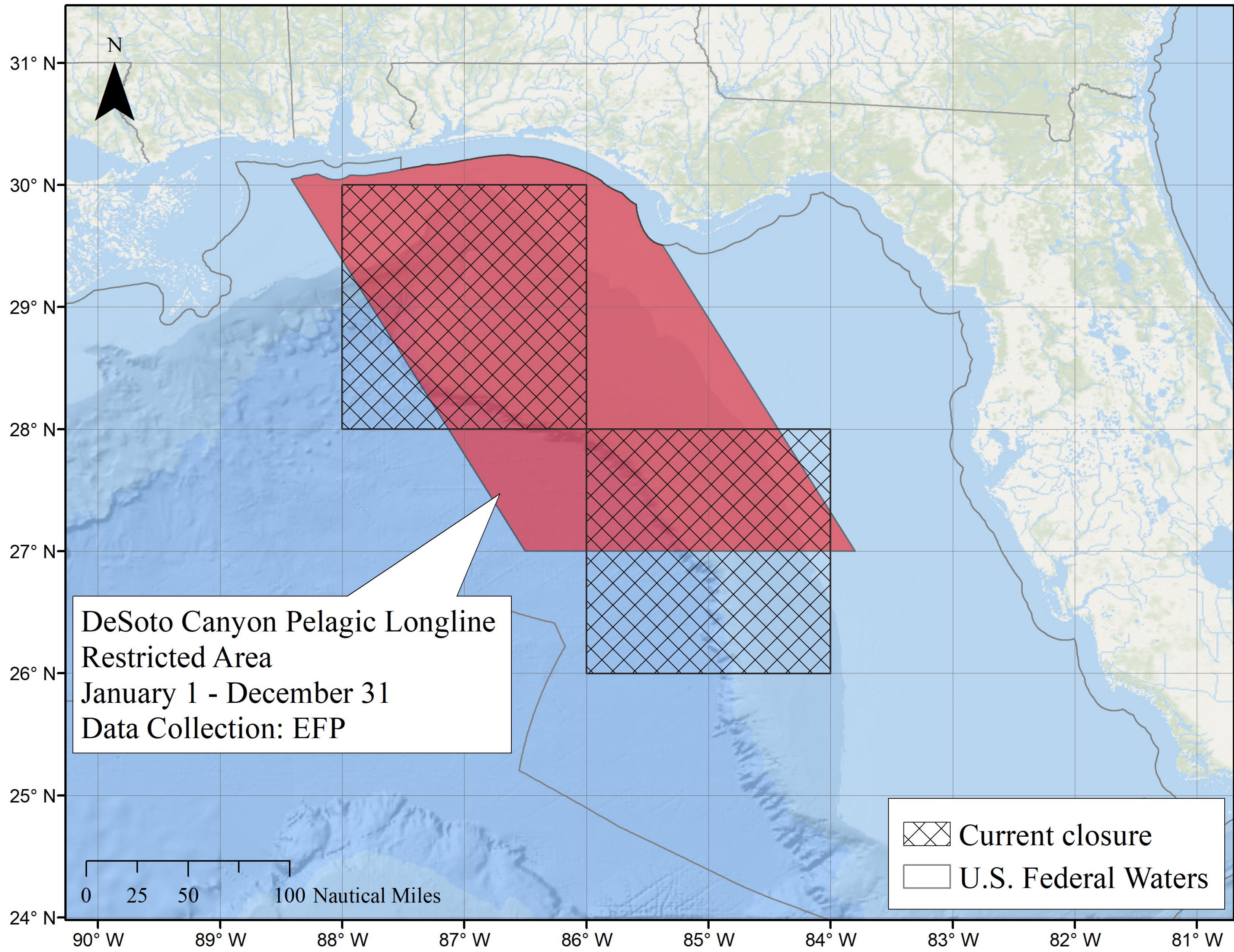### Preferred Alternatives

Spatial/Temporal Modification
- Parallelogram
- Year-round high-bycatch-risk area

Data Collection Programs
- High-bycatch-risk area (red)
  - Cooperative Research via exempted fishing permit (EFP)
- Low-Bycatch-Risk Area (unshaded cross-hatched area)
  - Open to normal commercial fishing

Evaluation Timing
- Evaluate every **3 years** (earlier if conditions warrant)

DeSoto Canyon Pelagic Longline Restricted Area
January 1 - December 31
Data Collection: EFP

Legend:
- Current closure
- U.S. Federal Waters
- 0 25 50 100 Nautical Miles

High-Bycatch-Risk Areas

High-bycatch-risk areas of all species across 12 months were used to delineate high- and low-bycatch-risk areas. Maps below provide examples for each species/species group for 2 seasons.

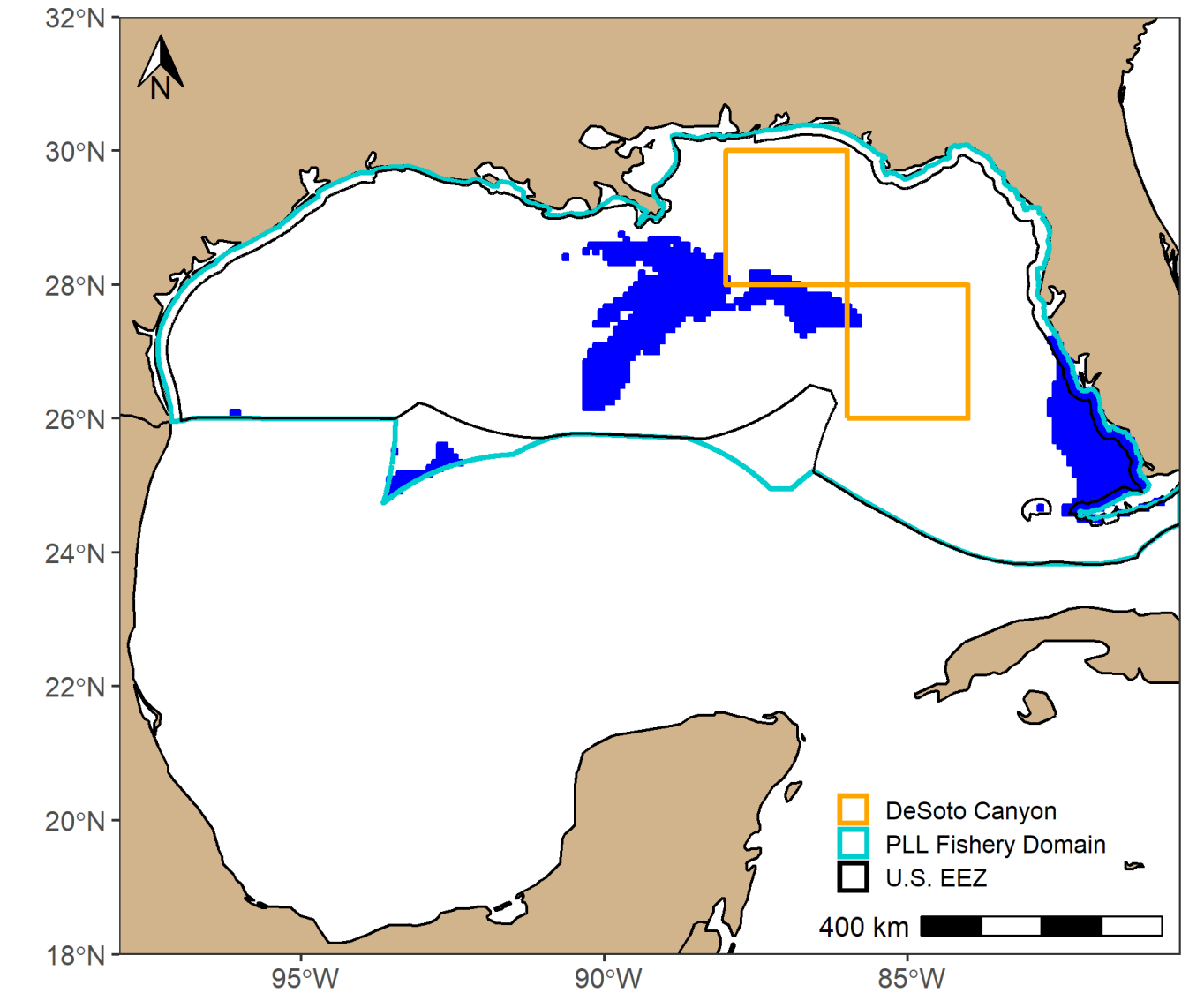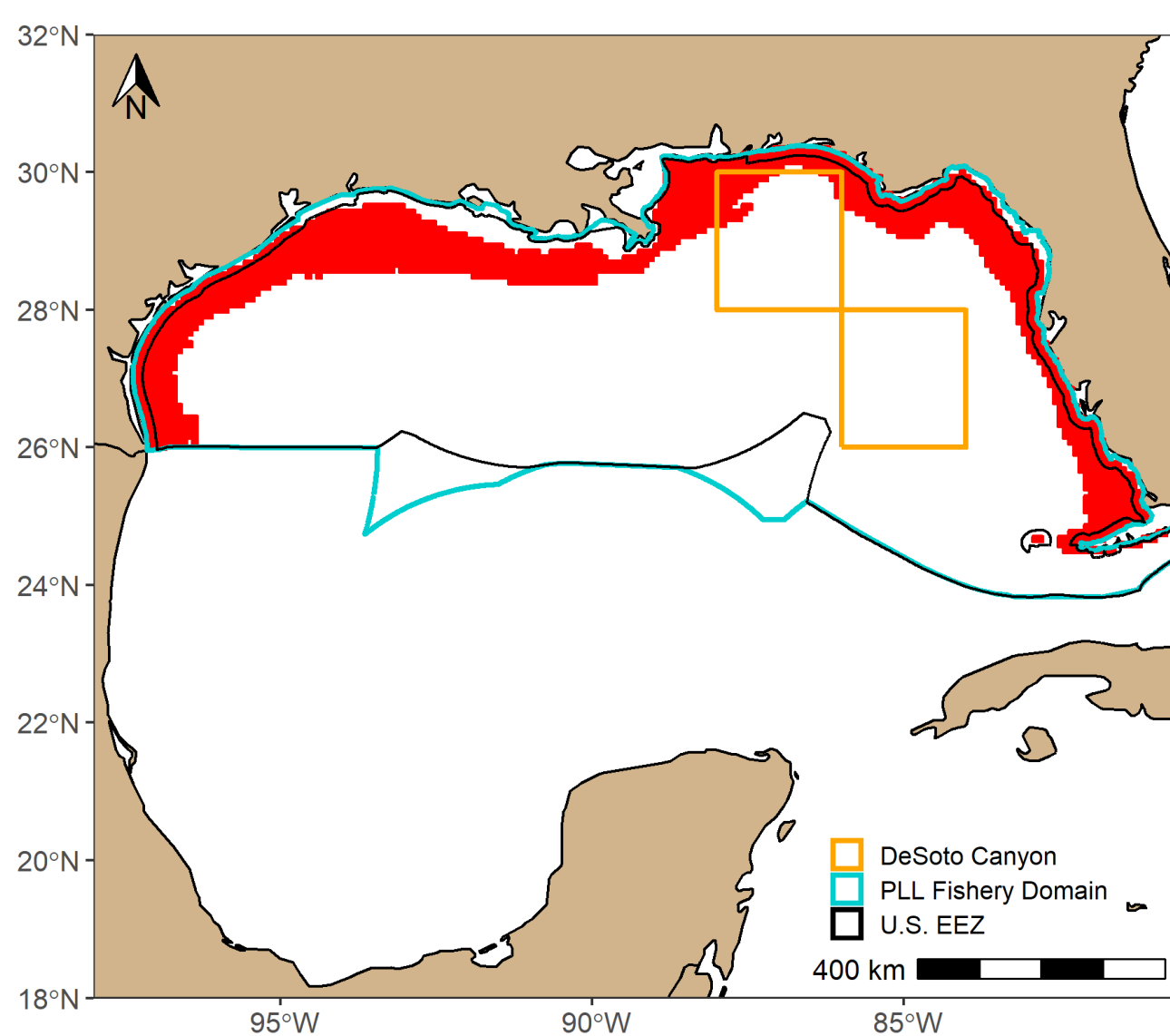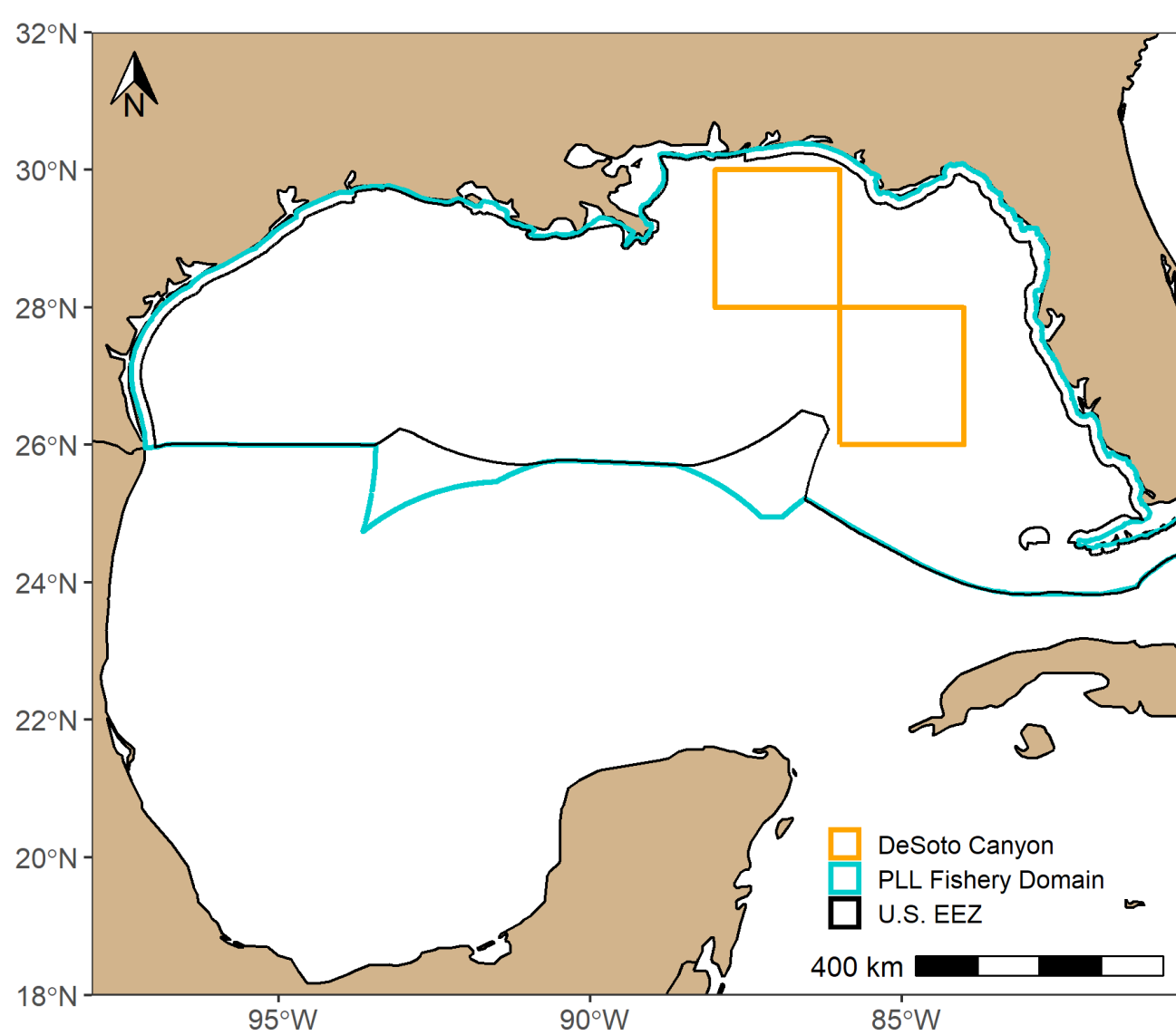**Take a picture** to view online content & submit comments

Billfish Species Group
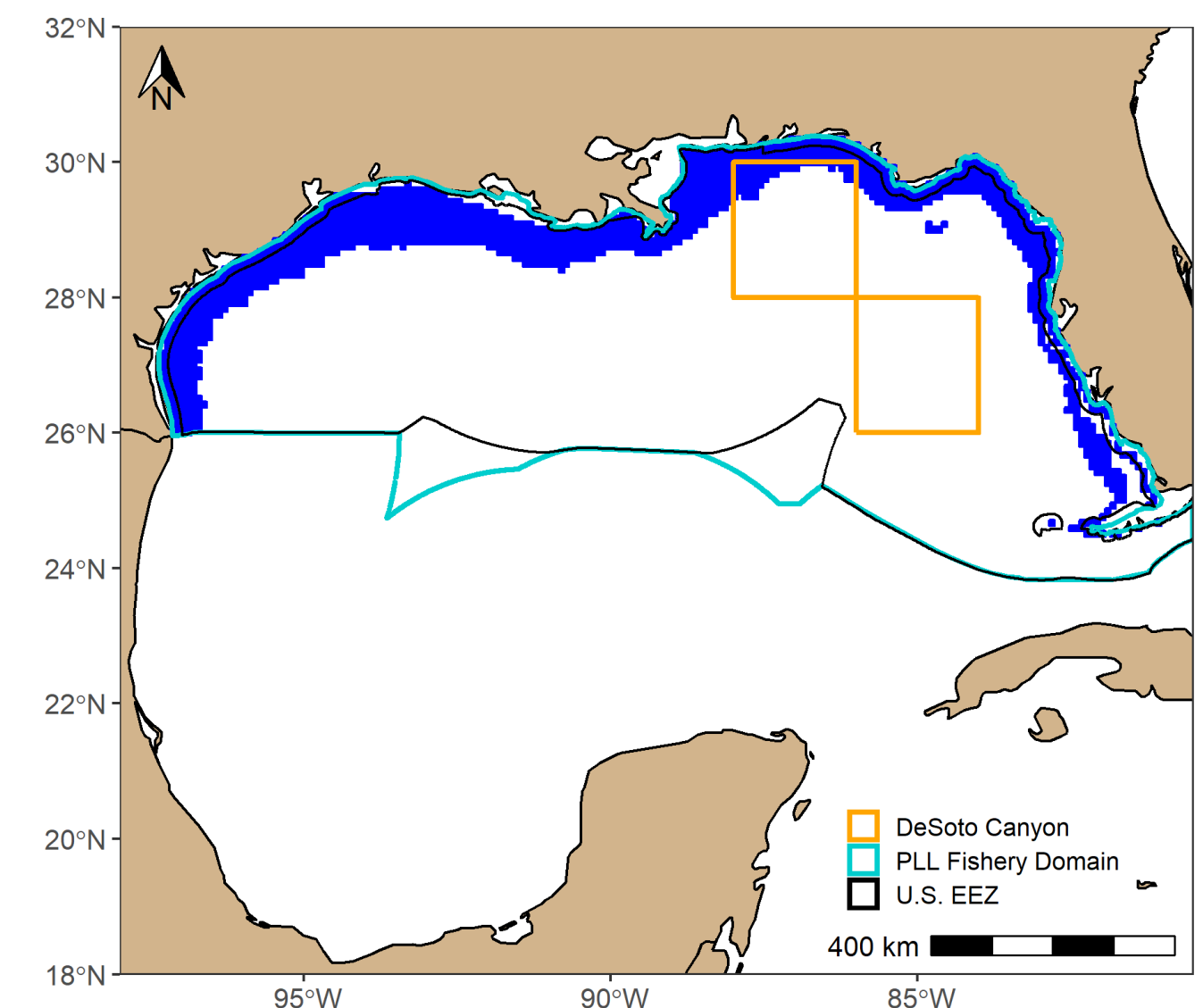blue marlin, white marlin, roundscale spearfish, longbill spearfish, sailfish

Shortfin Mako Shark

Leatherback Sea Turtle
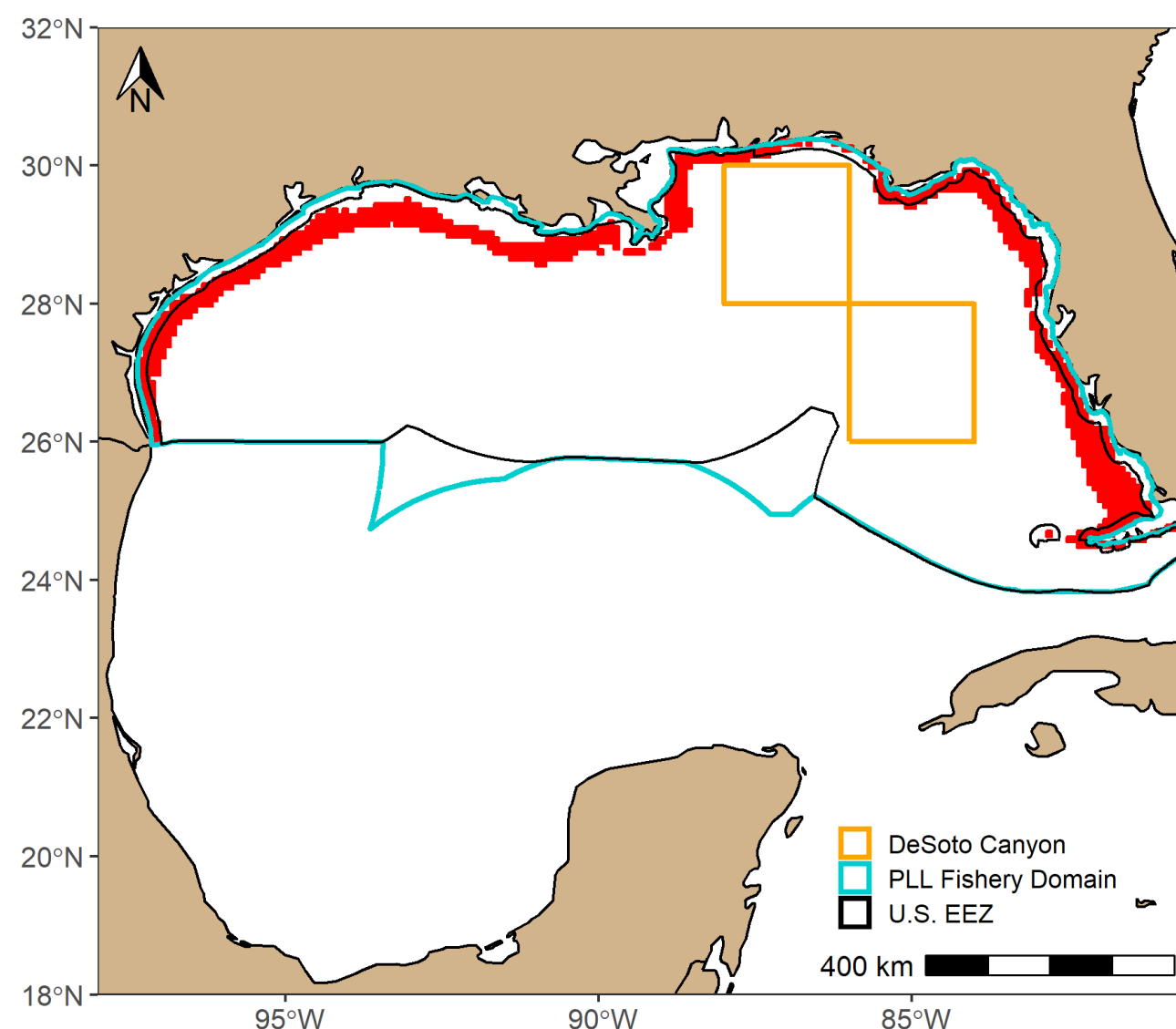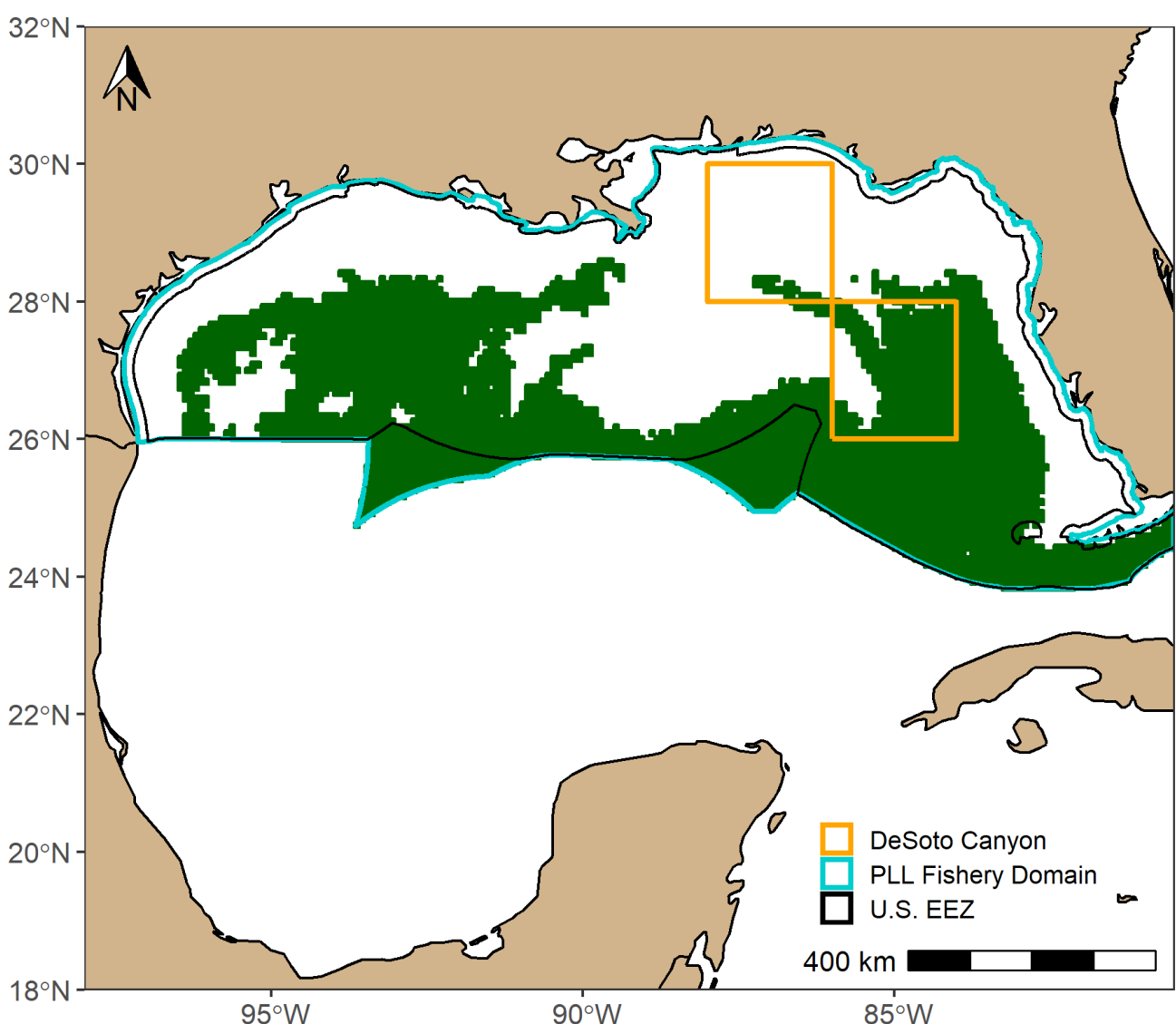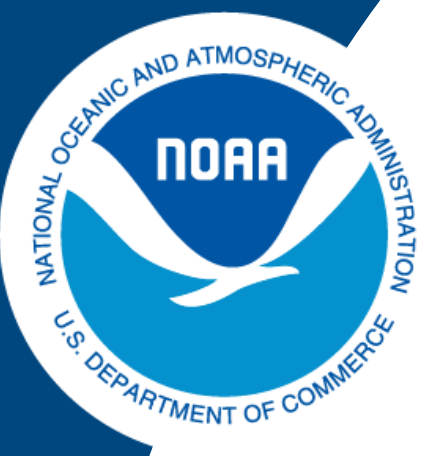
March

September

Legend (each map):
- DeSoto Canyon
- PLL Fishery Domain
- U.S. EEZ
- 400 km

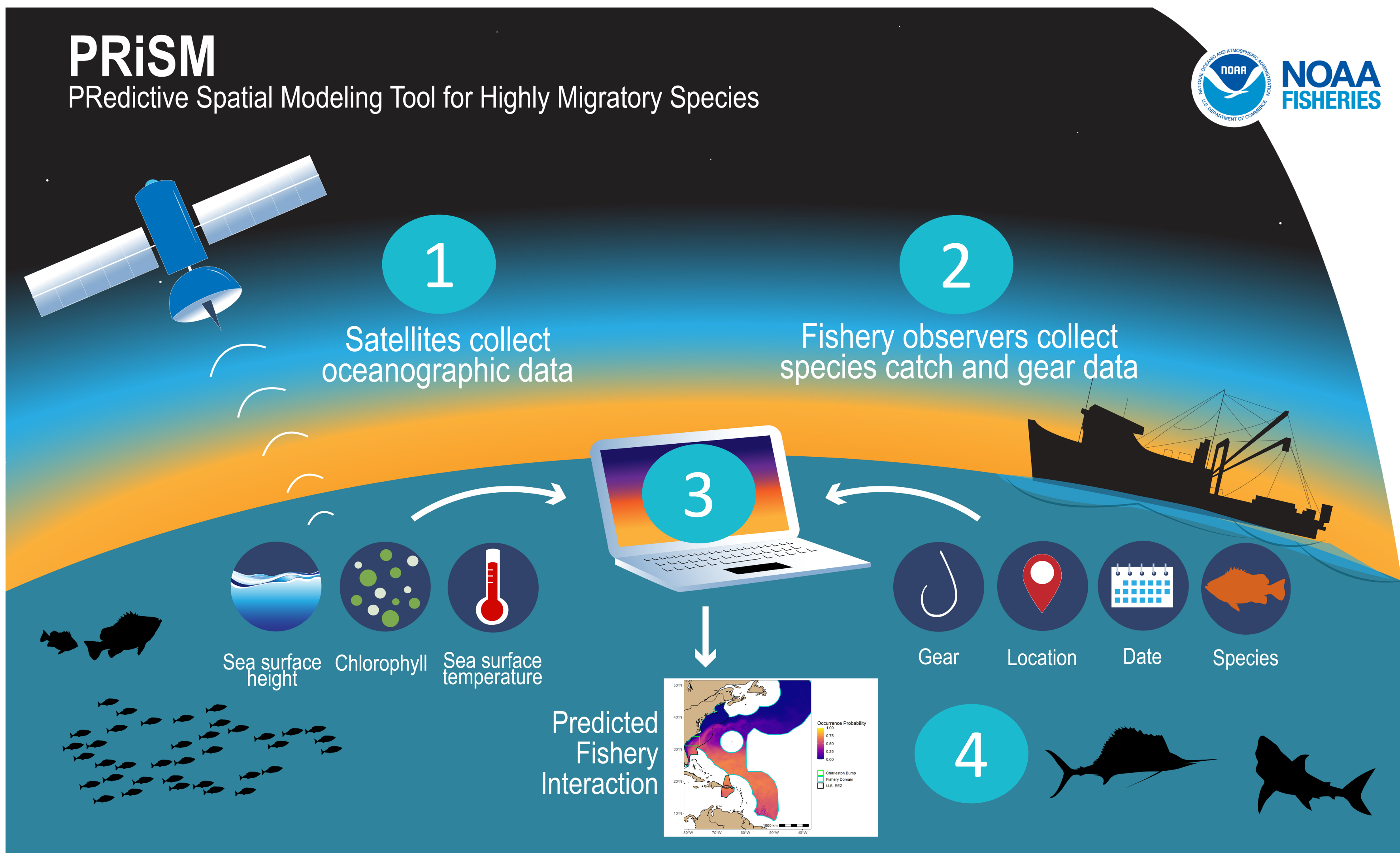*Colored areas indicate higher probability of interaction.

Atlantic Highly Migratory Species
Draft Amendment 15

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HMS Predictive Spatial Modeling (PRiSM)

Goal: Assess the performance of closed areas by combining observer data and environmental data to predict where and when fishery interactions may occur.

PRiSM
PRedictive Spatial Modeling Tool for Highly Migratory Species

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1 Satellites collect oceanographic data

2 Fishery observers collect species catch and gear data

3

Sea surface height · Chlorophyll · Sea surface temperature

Gear · Location · Date · Species

Predicted Fishery Interaction
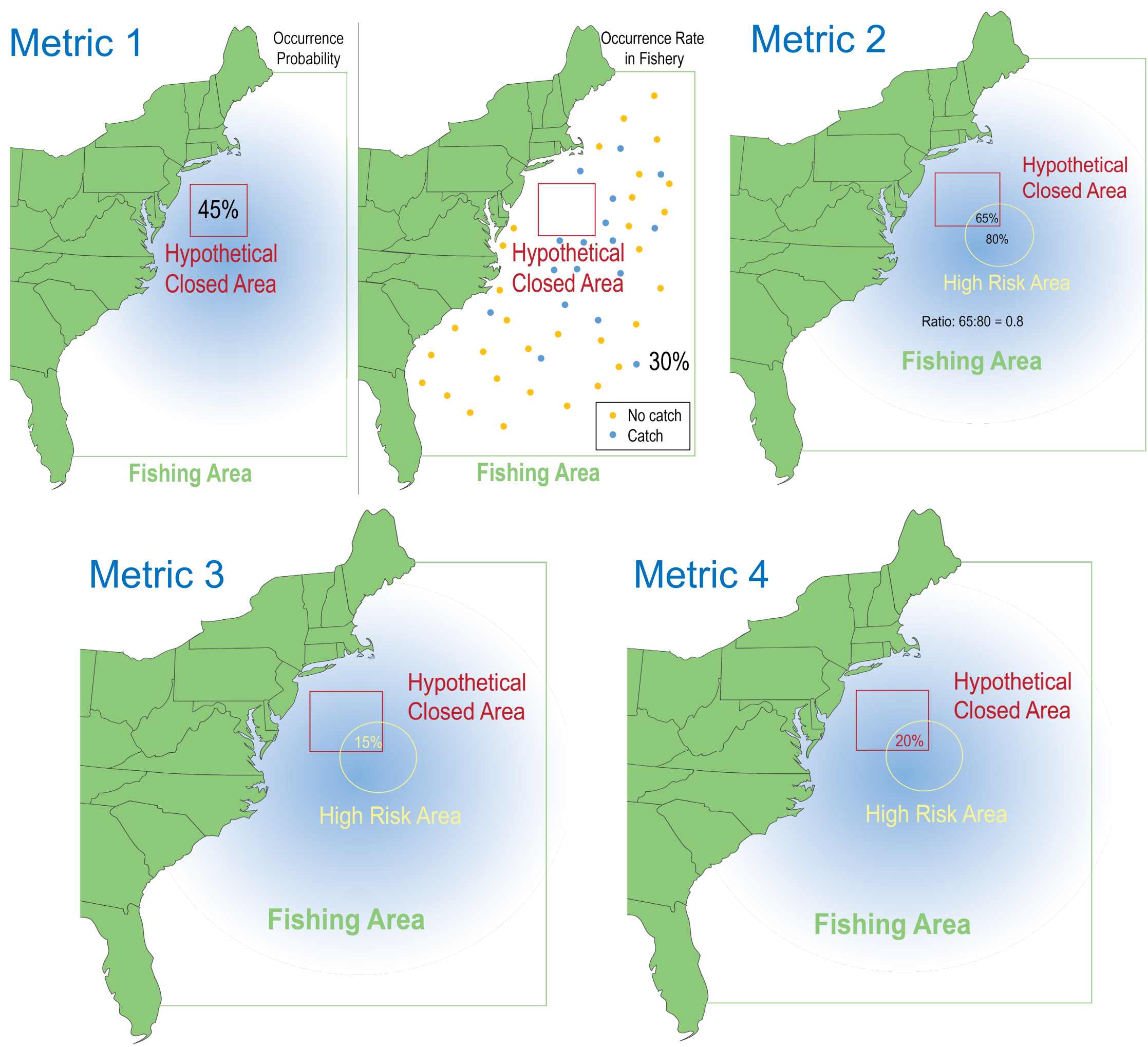
Occurrence Probability

4

5

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1 Oceanographic data collected via satellites, survey vessels, and buoys are used to create oceanographic models to estimate ocean conditions over time and space. These data are matched to each set based on the location and date of each set.

2 HMS PRiSM models are based on data from commercial bottom longline (2005 through 2019) and pelagic longline (1997 through 2019) fishing trips collected by at-sea observers.

3 Using fishery observer data, gear information, and environmental data, a separate model is developed for each bycatch species to understand the relationship between each species and likelihood of fishery interaction.

4 PRiSM predicts fishery interaction probabilities for each month for each species based on recent environmental data.

5 Four metrics were developed that use the fishery interaction probabilities to assess the current closed areas and suggest potential spatial and temporal modifications to the closed areas.

Metric 1
Occurrence Probability
45%
Hypothetical Closed Area
Fishing Area

Occurrence Rate in Fishery
Hypothetical Closed Area
30%
Fishing Area
No catch · Catch

Metric 2
Hypothetical Closed Area
65%
80%
Ratio: 65:80 = 0.8
High Risk Area
Fishing Area

Metric 3
Hypothetical Closed Area
15%
High Risk Area
Fishing Area

Metric 4
Hypothetical Closed Area
20%
High Risk Area
Fishing Area

Metric 1: How does the probability of interaction inside the closed area compare to occurrence rate in the areas fished outside the closed area?

Metric 2: Does the closed area protect the most at risk areas? How does the probability of fishery interaction inside the closed area compare to outside the closed area?

Metric 3: What percent of total high-bycatch-risk area across whole fishery domain does the closed area protect?

Metric 4: What percentage of the closed area protects high-bycatch-risk area?

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