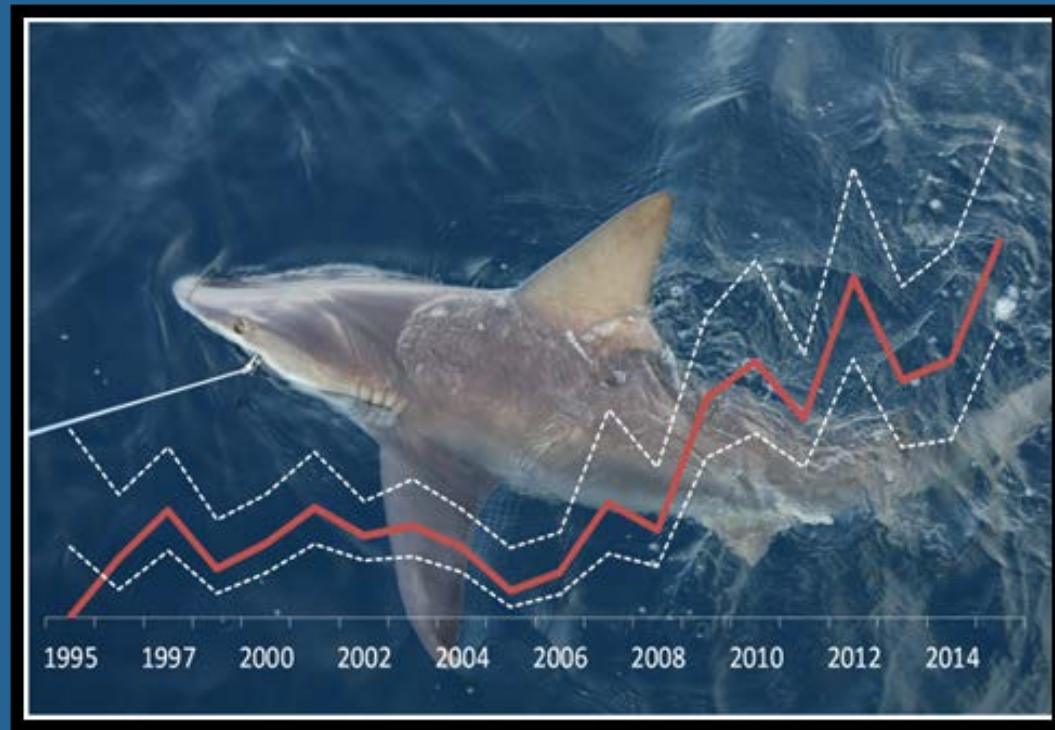SEFSC Longline Surveys

Mississippi Laboratories

SEFSC Bottom Longline Survey

The NMFS SEFSC MS Labs annual bottom longline survey is designed to monitor trends in abundance and distribution of coastal shark , snapper, grouper and tilefish species within the U.S. waters of the western North Atlantic Ocean.

The survey has the broadest geographical range of any fishery-independent longline survey.

Started in 1995, with the current protocol in use since 2001.

NOAA FISHERIES

Survey area

- Cape Hatteras, NC to West Palm Beach, FL; Dry Tortugas to Brownsville, TX
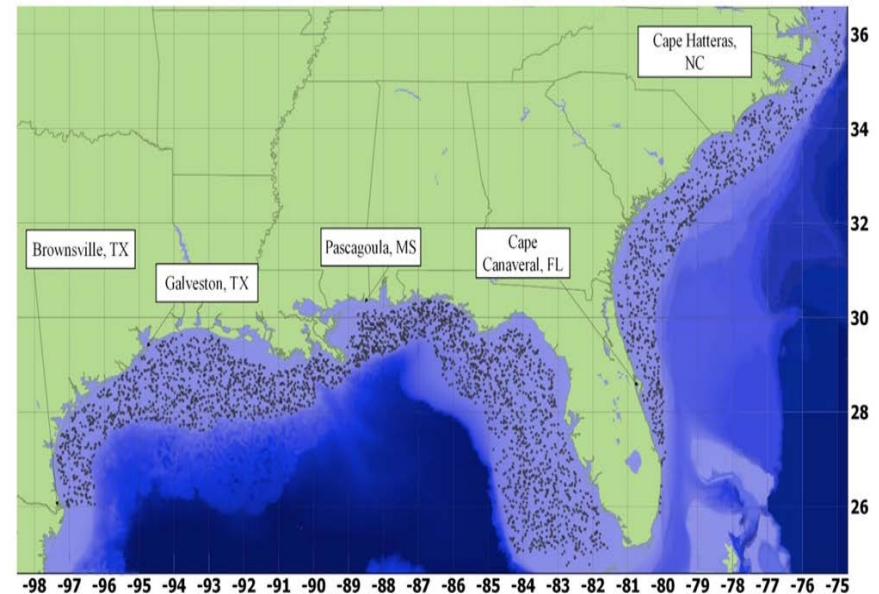
SEFSC Bottom Longline Survey

- Time series: 1995-present
- Number of stations: 200-300 per year
- Days at sea: 60 days: Four two-week legs.
- Timeframe: Late July – September

SEFSC Bottom Longline Survey Experimental Design

- Stratified- random sampling with proportional allocation based on continental shelf area

- Depth: East Coast: 9 – 55 m (60%), 55 – 183 m (40%)
  Northern Gulf of Mexico: 9 – 55 m (50%), 55 – 183 m (40%),
  183 – 366 m (10%)

- Sampling effort: East Coast: 1,016 sets, Gulf: 3,651 sets (1995-2018)
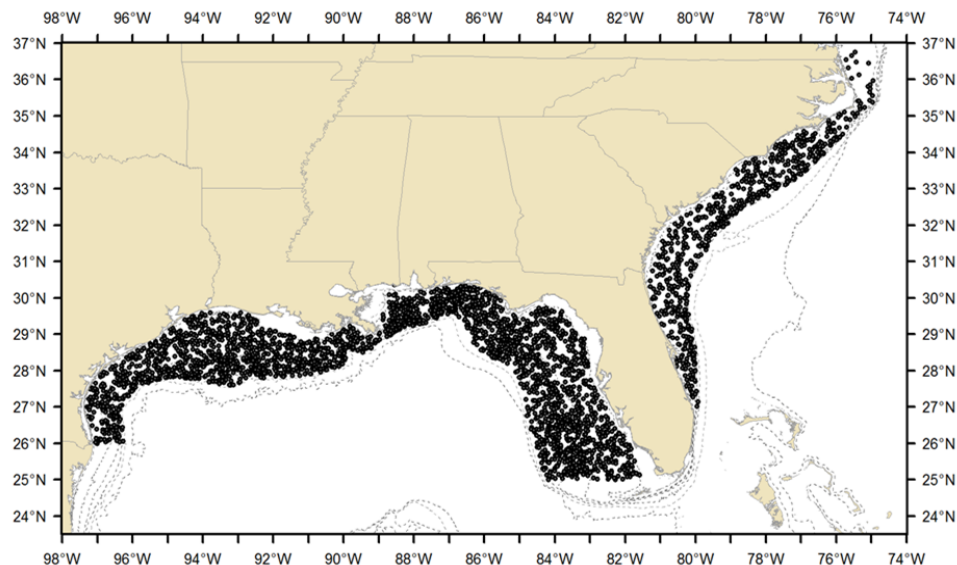
Gear characteristics:

- Gear: 1 nautical mile mainline (4mm monofilament) with 100, 3.7 m. gangions (3mm monofilament with 15/0 non-offset circle hook baited with Atlantic mackerel). One hour soak time, defined s time from deployment of second highflyer until retrieval of first highflyer.

- 1995-2000: Used #3 J-hooks. 2001- current: 15/0 circle hooks. Change due to increase in snapper/grouper catch with circle hooks.

Highflyer (2)

Weight (3)

Gangion (100):
3.7 m monofilament and 15/0 circle hook

a. b.
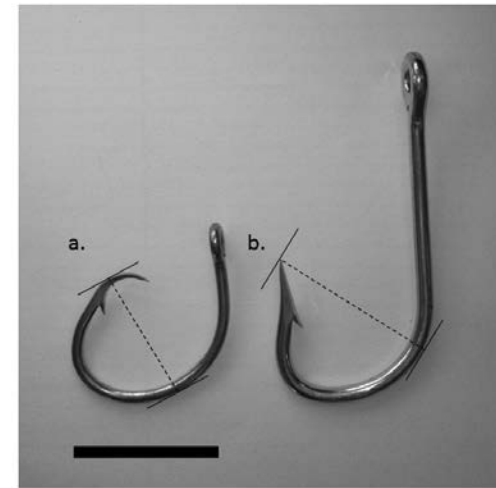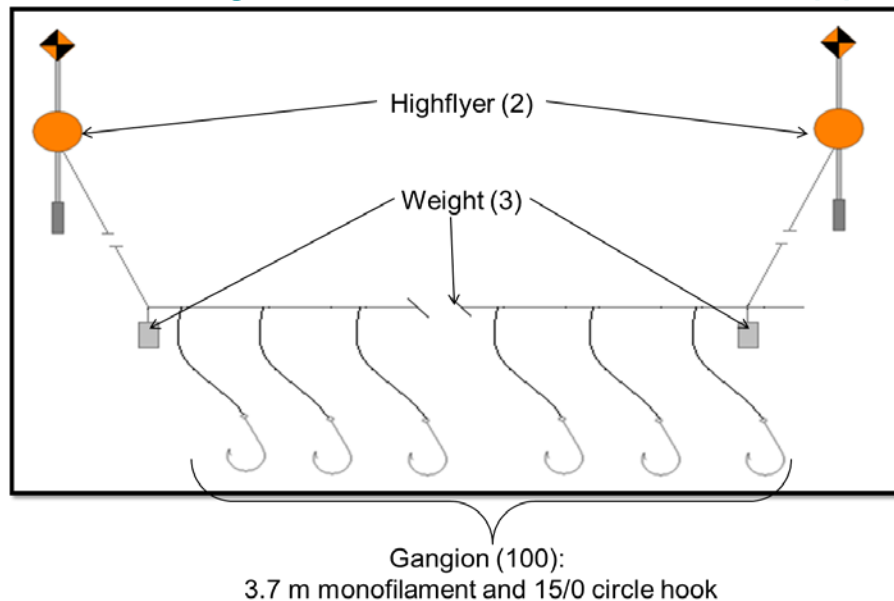
Fig. 1. (a) 15/0 circle (Mustad, model no. 39960D) and (b) #3 J (Mustad, model no. 34970D) hooks used in study. Dashed line indicates minimum width of each hook. Scale bar represents 5 cm.

Setting gear:

SEFSC Bottom Longline Survey

- Gear monitored via SELLIT (SouthEast LongLine Input Technology) developed at Chuck Schroeder at MSLABS

- Multiple aspects of gear configuration are monitored during setting and haulback

- Each gear element deployed and retrieved has individual data associated with time, position, depth, environmental data, etc.

- A similar biological sampling program is used for data entry

- Data are ingested directly into ACCESS to remove possibility of transcription errors and runs real time QA/QC checks

Setting gear:

Setting gear:

Environmental Data
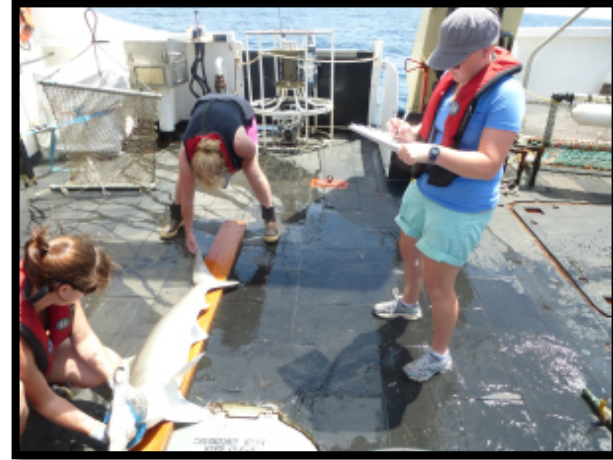
Collect a suite of environmental data at each sampling location

- Temperature
- Salinity
- Transmissivity (water clarity)
- Dissolved oxygen
- Chl a concentration (fluorometer)
- Bottom type
- Weather conditions (air temperature, barometric pressure, wind speed and direction)
- Cast data collected throughout water column
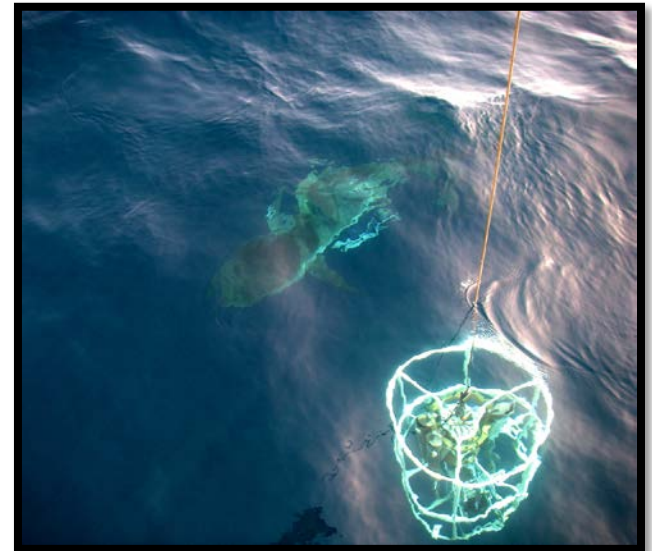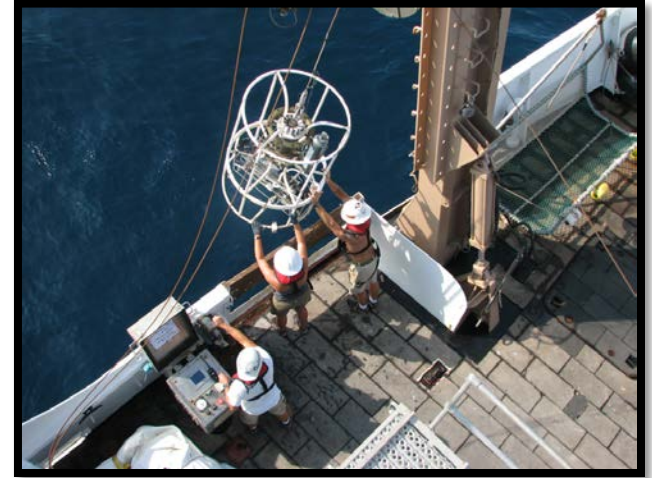
Haulback:
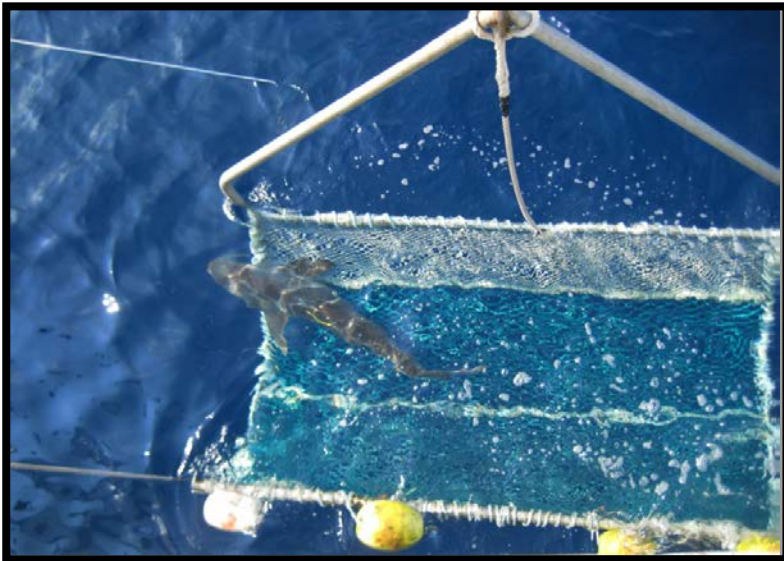
- Biological data collected: Species, length, weight, sex, disposition, state of maturity, brood size, hard parts for ageing (FMP teleosts, some sharks), movement patterns (tagging), tissues for genetic analyses, etc.

- All captured fishes, unless moribund, are released alive, with the exception of teleosts retained for life history studies.

- Most shark species are tagged prior to release.

Haulback:

Monitor the status of each hook (e.g. time retrieved, lat, lon, depth, catch, bait condition, hook timer data, etc.)

Haulback cont.

# Biological sampling module:

Includes popup widows to enter tag numbers and track samples with barcodes.

Longline Assessment Support

Data presented to 13 SEDARs and used in base model for 14 assessments for stocks/species complexes

- GOM and Atlantic Large coastal sharks (SEDAR 11)
- GOM and Atlantic Small coastal sharks (SEDAR 13)
- GOM Sandbar shark, Atlantic sandbar shark (SEDAR 11, 21, 54)
- GOM Blacknose shark, Atlantic blacknose shark (SEDAR 13, 21)
- GOM Blacktip shark, Atlantic blacktip shark (SEDAR 11, 29, 65)
- Atlantic sharpnose shark (SEDAR 13, 34)
- Smoothhound sharks (SEDAR 39)
- Red Grouper (SEDAR 12, 42, 61)
- Red Snapper (SEDAR 7, 31)
- Tilefish (SEDAR 22)
- Yellowedge grouper (SEDAR 22)

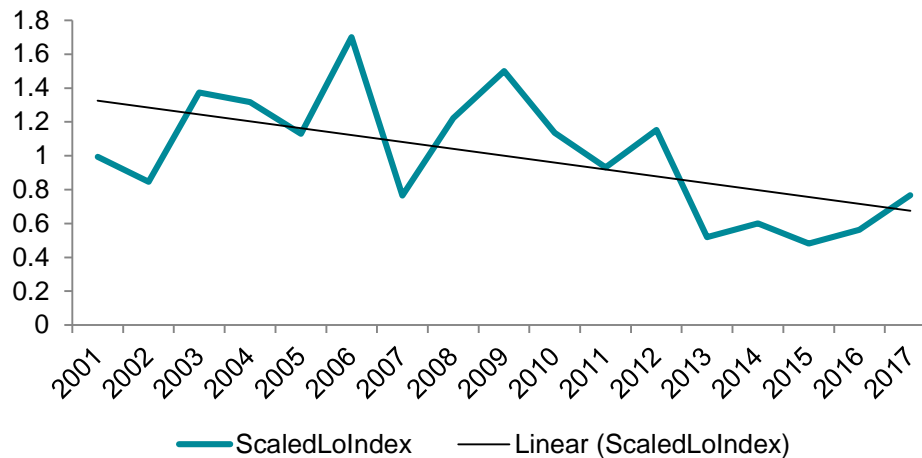- 139 species captured during survey
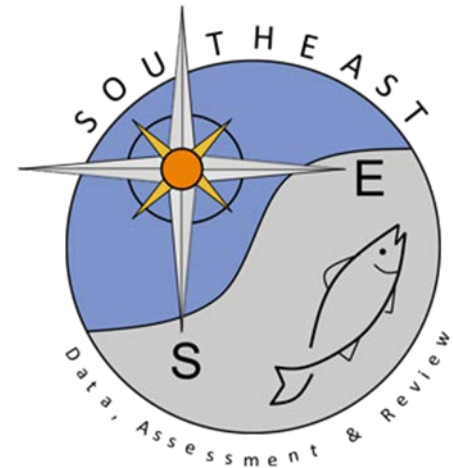
Indices of abundance 2001-2017:

Atlantic sharpnose shark
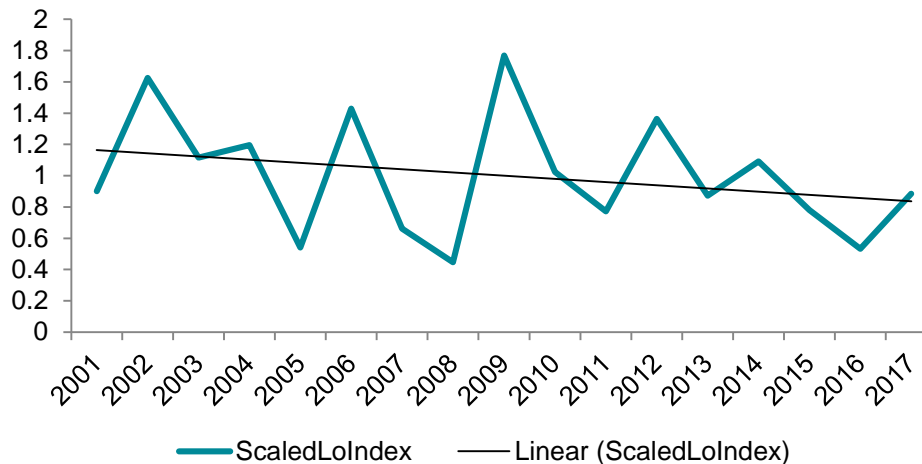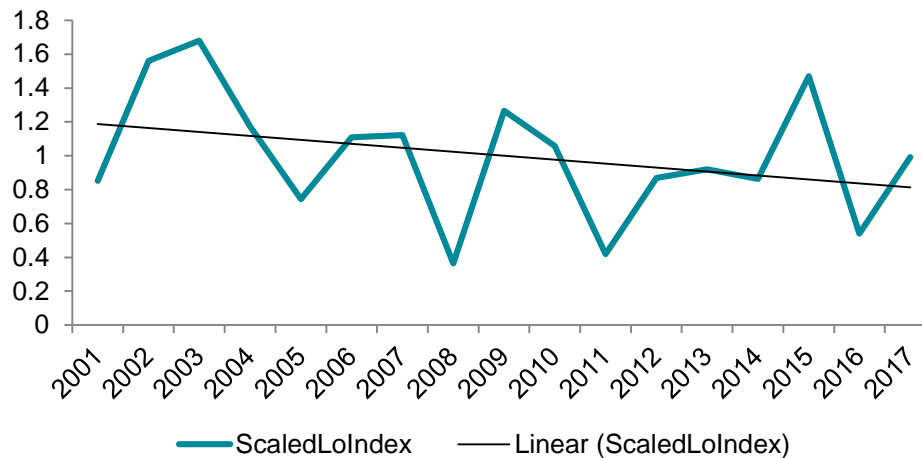
Indices of abundance 2001-2017:
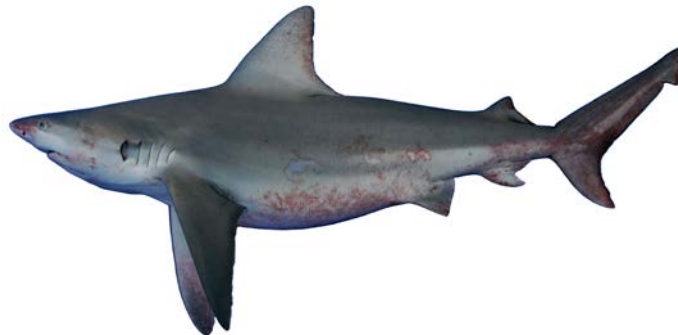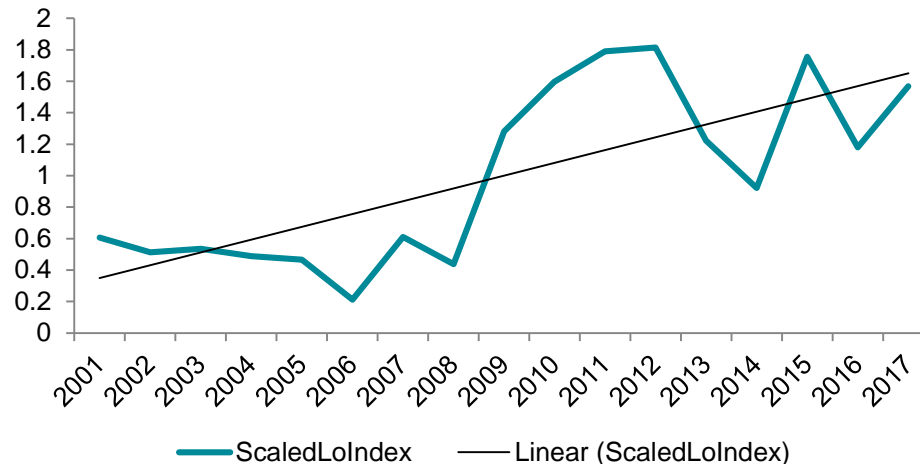
Blacknose shark

Indices of abundance 2001-2017:

Blacktip shark

Indices of abundance 2001-2017:

Sandbar shark

Questions?

Contact William Driggers
William.driggers@noaa.gov or 228-549-1630
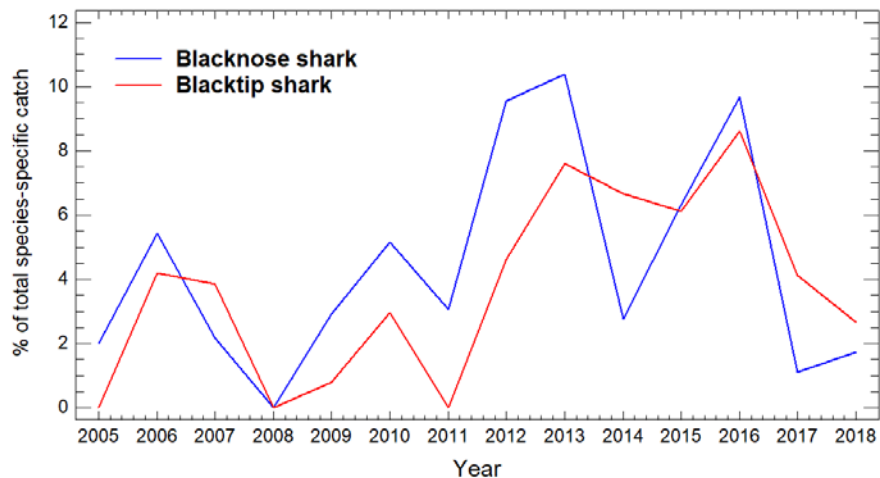
Depredation in Research
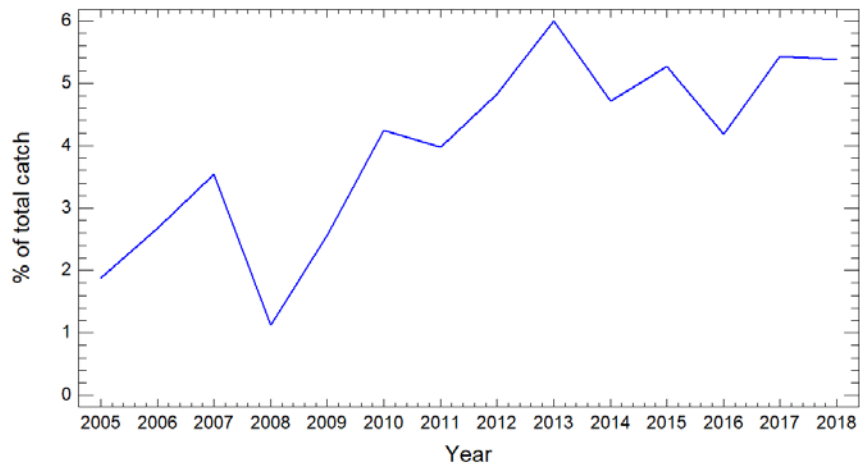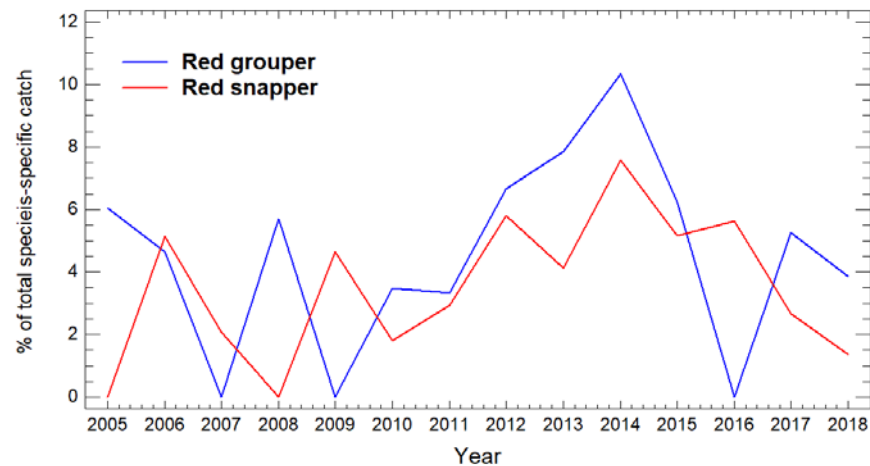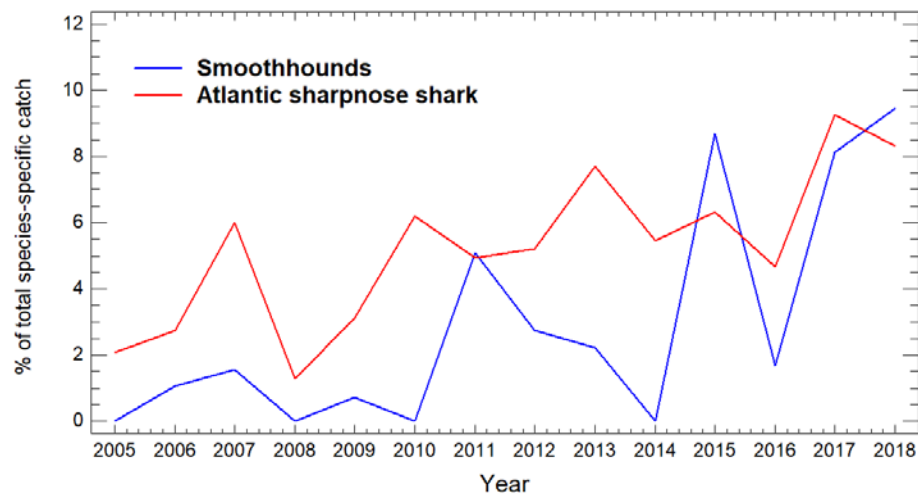
Caught in the act!

Apex Predators depredation data
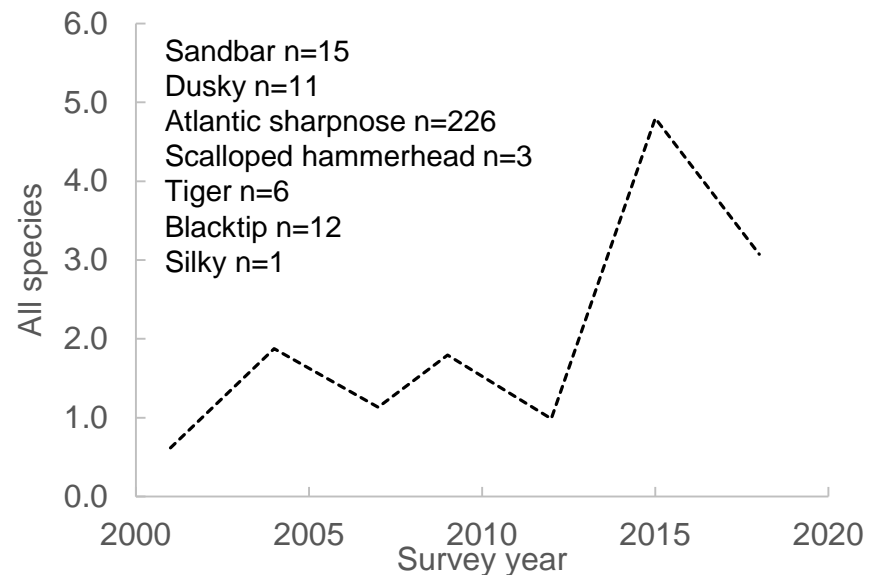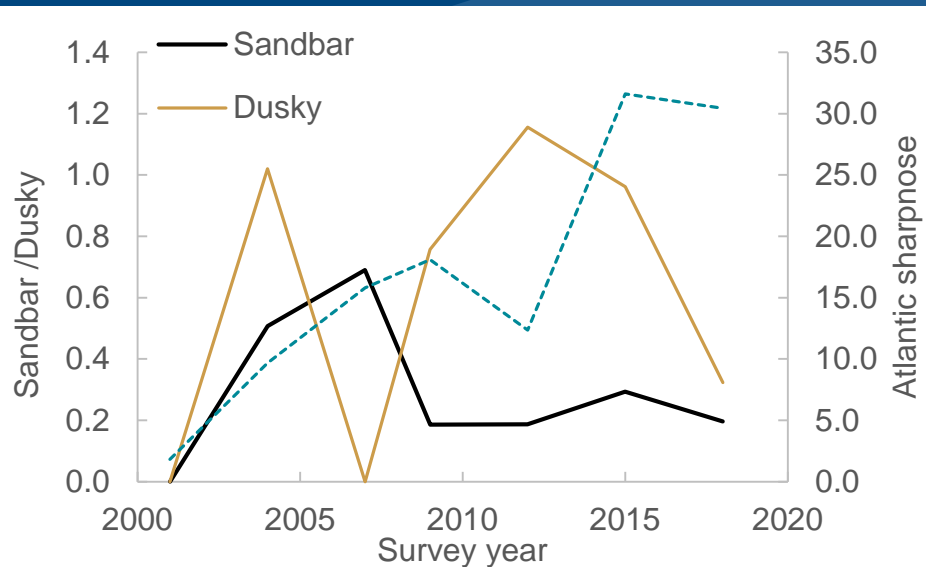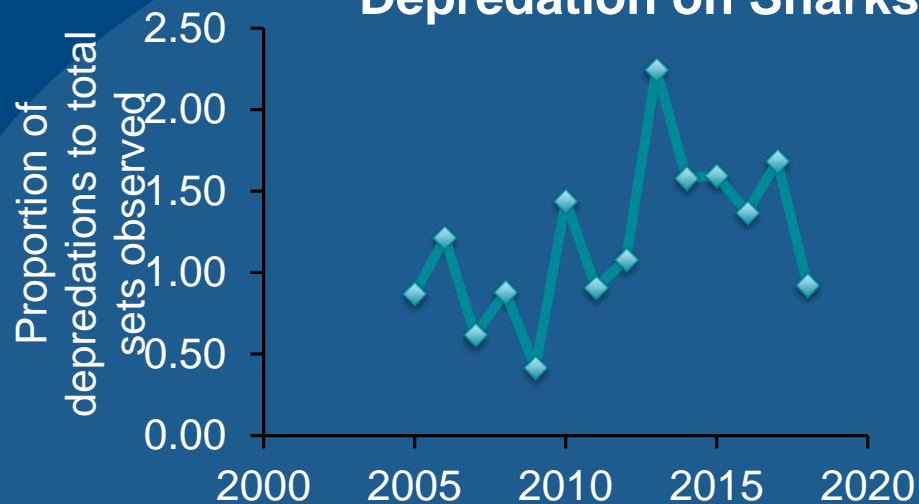
Pascagoula depredation data

Pascagoula continued

Bottom longline observer program

Depredation on Sharks

Depredation on Teleosts

Provided by J. Carlson

COASTSPAN Large Hook Longline Surveys

COASTSPAN Small Hook Longline Surveys