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# Commercial Fisheries and Interactions with Marine Mammals in the Gulf of Mexico

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FISHERIES  
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## Commercial Fisheries Affecting Marine Mammal Stocks in the Gulf of Mexico

- In 2011, fishermen in the GOM landed 1.8 billion pounds of finfish and shellfish, earning \$818 million in landings revenue. Landings revenue was dominated by shrimp and menhaden.
- MMPA List of Fisheries Categories:
  - 1 Category I (frequent incidental Mortality/Serious injury)
  - 4 Category II (occasional incidental Mortality/Serious injury)
  - 15 Category III (remote incidental Mortality/Serious injury)

## 2015 List of Fisheries- Gulf of Mexico

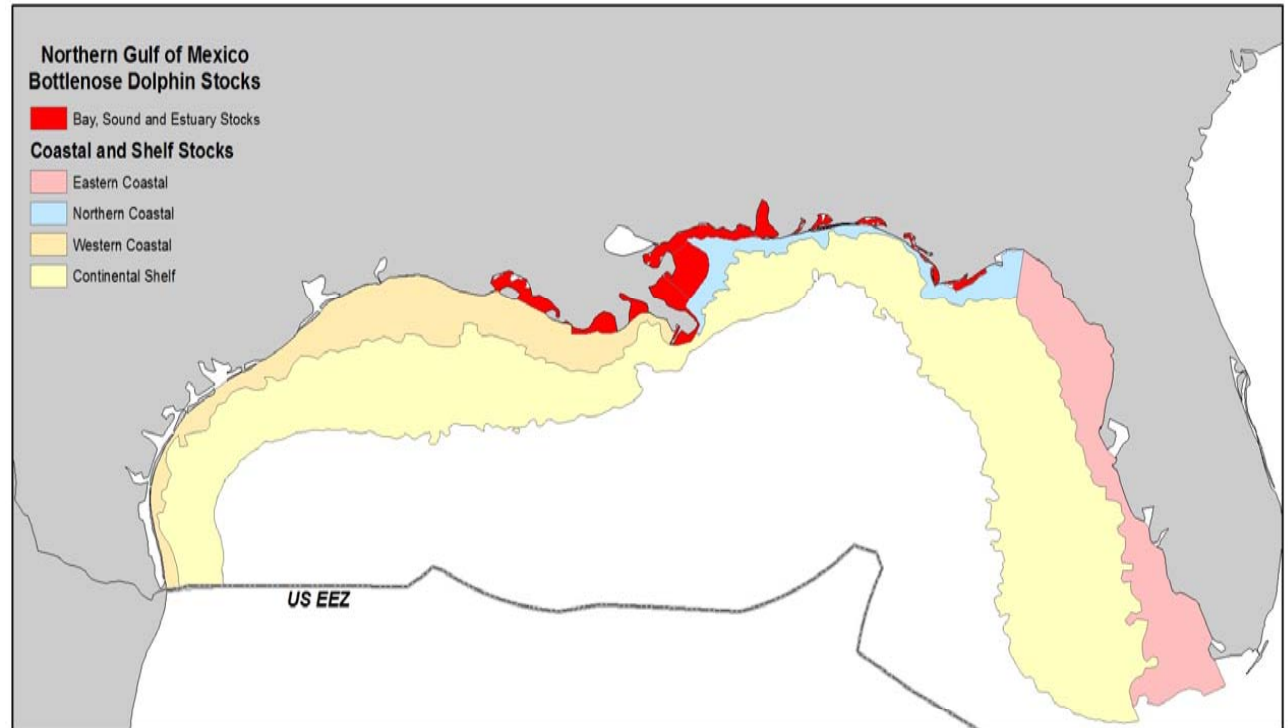
Fishery	Stocks Affected
<b>Category I</b>	
Pelagic Longline	Bottlenose dolphin (oceanic), spotted dolphin spp, Gervais beaked whale, killer whale, Risso's dolphin, short-finned pilot whale, sperm whale
<b>Category II</b>	
Menhaden purse seine	Bottlenose dolphin BSE and coastal
Shrimp Trawl	Bottlenose dolphin BSE, coastal, shelf, oceanic
Gillnet	Bottlenose dolphin BSE and coastal
Stone crab pot	Bottlenose dolphin BSE and coastal



## Bottlenose dolphin stocks in the Gulf affected by commercial fisheries

### Total of 36 stocks:

- 1 oceanic ( $>200m$ )
- 1 continental shelf ( $20m-200m$ )
- 3 coastal (shore to  $20m$ )
- 31 inshore (bays, sounds, estuaries)





## Pelagic Longline Fishery in Gulf (Cat I)

**Target species:** Swordfish, tunas, Mahi, sharks

**Spatial distribution:** Within EEZ and high seas from Florida to Texas. Prohibited in DeSoto Canyon

**Effort:** In GOM in 2013--3,369 sets; 2,312,000 hooks

**Stocks affected:** Bottlenose dolphin (oceanic), spotted dolphin spp, Gervais beaked whale, killer whale, Risso's dolphin, short-finned pilot whale, sperm whale

**Observer coverage:** 24.7% sets observed in 2013 - variable by quarter; 100% observed for experimental fishing

**Interactions:** Serious injury, mortality, and interactions do occur, and are across a broad range of species



Pelagic longliners operate on the continental shelf (from 20 – 180 m isobaths) and deep continental shelf (> 180 m isobath) waters.

Light aqua: < 20 m

Stippled aqua: 20-180 m

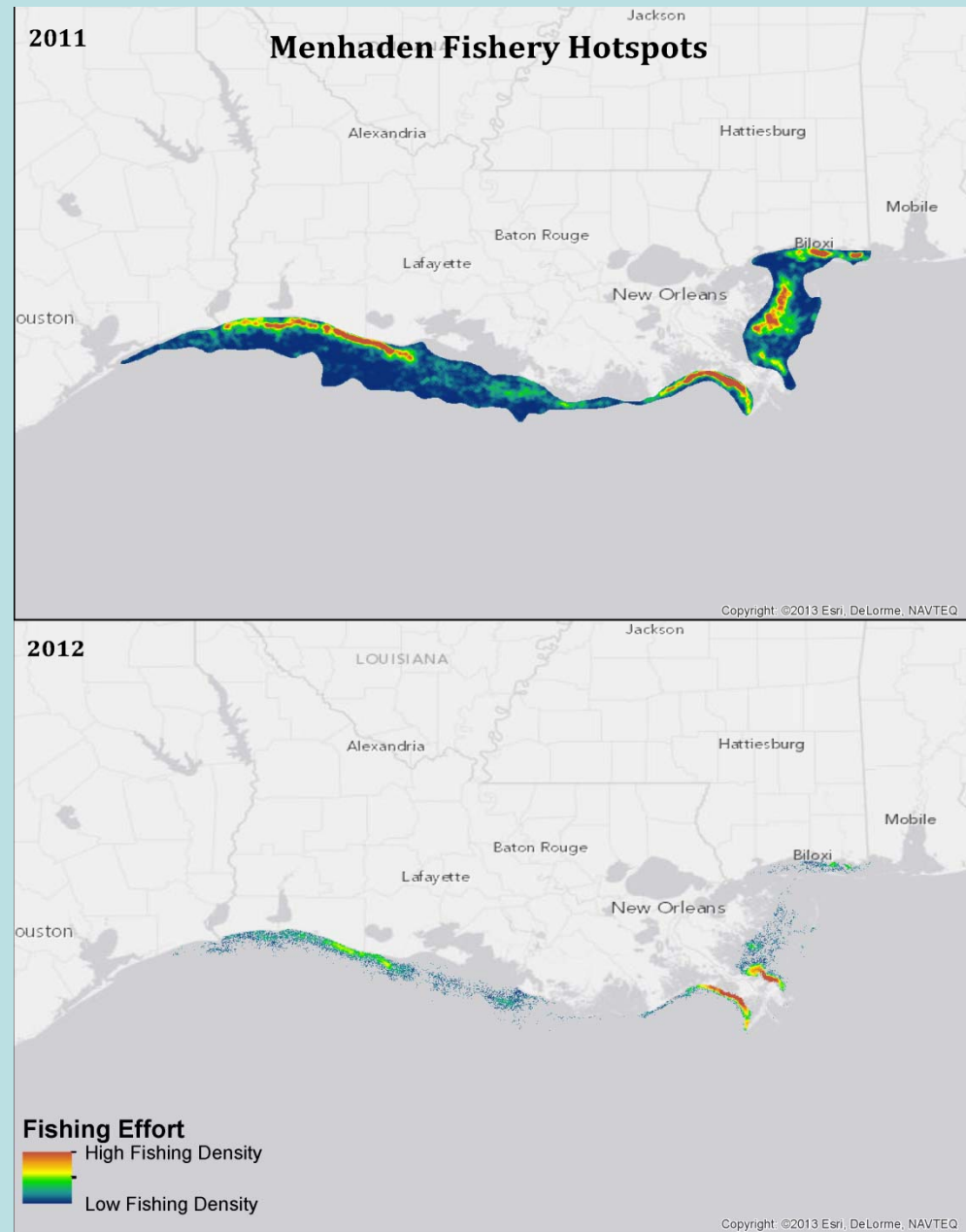
Light blue: <180 m

Dark blue: abyss

# Menhaden Fishery (Cat II)

## Spatial distribution:

- Fishery effort limited to northern Gulf
- Most fishing off LA (89.9% based on 2008-2011 average)  
Concentrated in LA
- Lower fishing activity off MS (7.8%); TX (2.3%); and AL (< 1%)





## Menhaden Fishery (Cat II)

**Effort:** ~ 37 to 40 vessels operating since 2007; avg. annual sets from 2007-2011-17,493

**Stocks affected:** Bottlenose dolphin coastal, bays, sounds, estuaries

**Observer coverage:** Pilot observer coverage May-September 2011; currently no observer program

**Interactions:**

- 3 observed takes in 2011
- 13 self-reported takes between 2000-2013
- Data collected from 1992-1995 suggest as many as 172 dolphins may have been taken with 57 mortalities





## Gillnet (Cat II)

**Target species:** various finfish, including Spanish mackerel, spotted seatrout, mullet, FL pompano, flounder

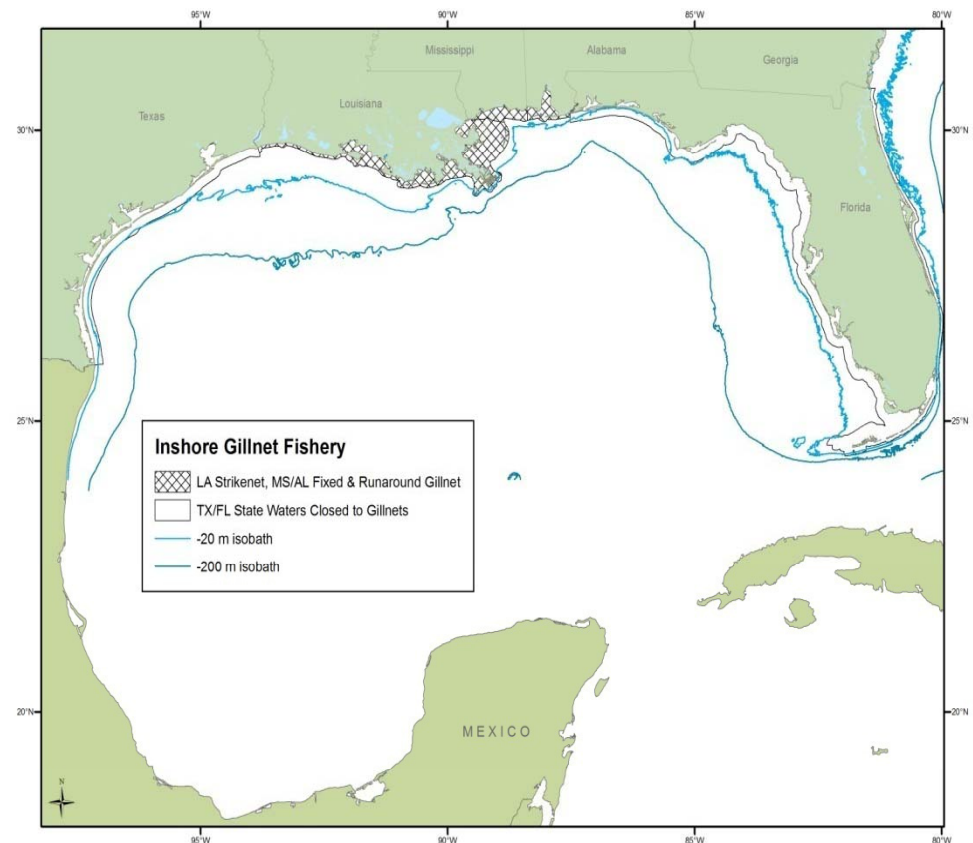
**Spatial distribution:** Prohibited in FL and TX state waters, allowed in AL, MS, LA

**Effort:** ~ 200 licensed gillnetters

**Stocks affected:** Bottlenose dolphin BSE and coastal

**Observer coverage:** Nov. 2012 to present in LA, MS, AL state waters (~10% coverage of those selected)

**Interactions:** None observed to date but takes occur in fishery research gillnets







## Shrimp Fishery (Cat II)

From 2007-2011, Gulf shrimp landings averaged \$419.6 annually

**Spatial distribution:** estuarine, near coastal, and offshore continental shelf

**Effort:**

- fleet includes >4,000 permitted vessels of which ~1,500 federally permitted
- From 2007-2011, mean of 2.9 mil hours of actively fished per year

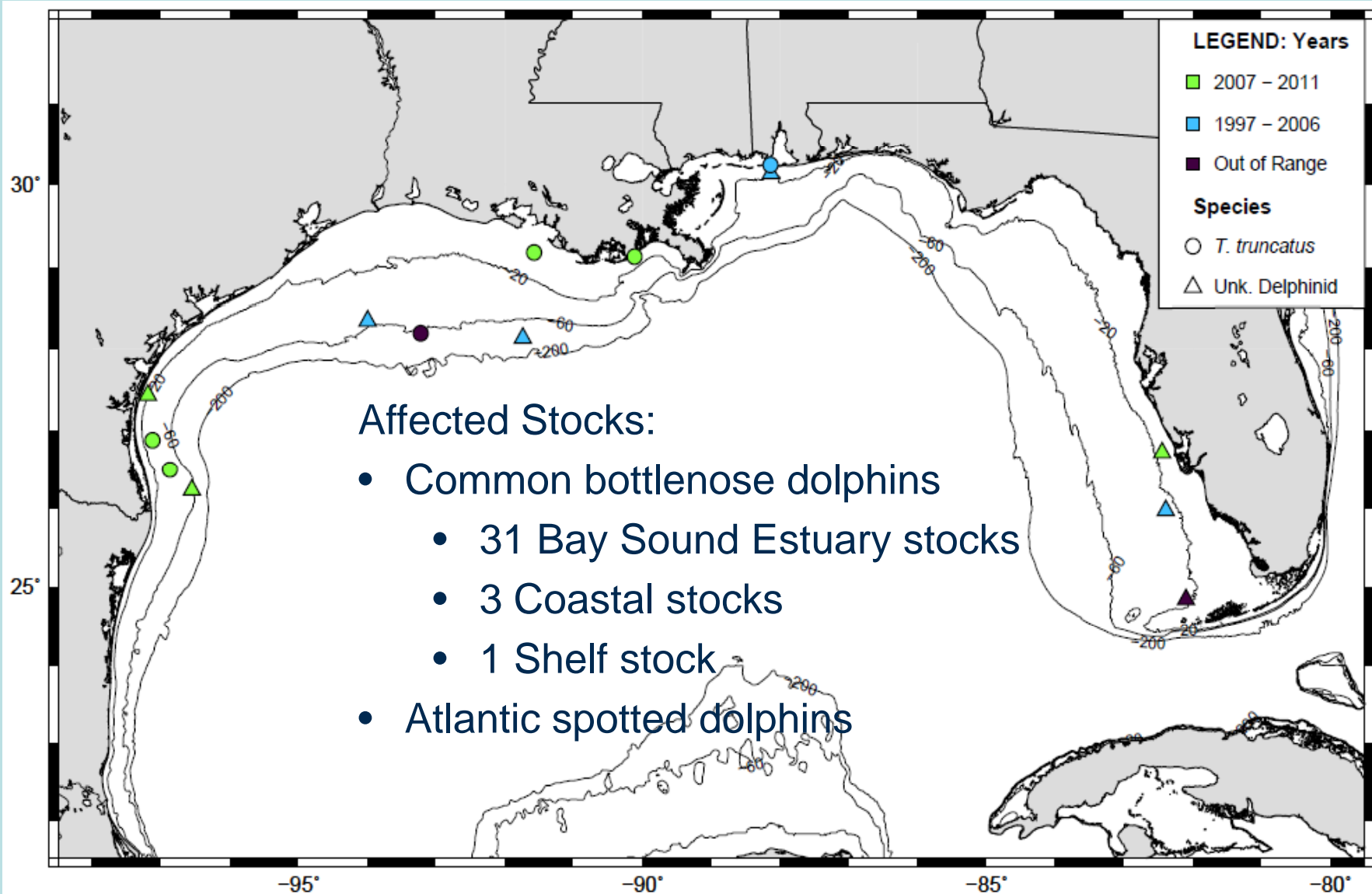
**Stocks affected:** Bottlenose dolphin BSE, coastal, shelf; Atlantic spotted dolphin

**Observer coverage:** Mean annual observed effort was 0.24 +0.21 % of total fishery effort from 1997 to 2011

**Interactions:**

- Observed (1993-2013) = 14 (6 identified as bottlenose dolphins)
- Relocation and research trawls (2000-2013) = 10

# Gulf of Mexico Shrimp Fishery Observed Takes & Affected Stocks

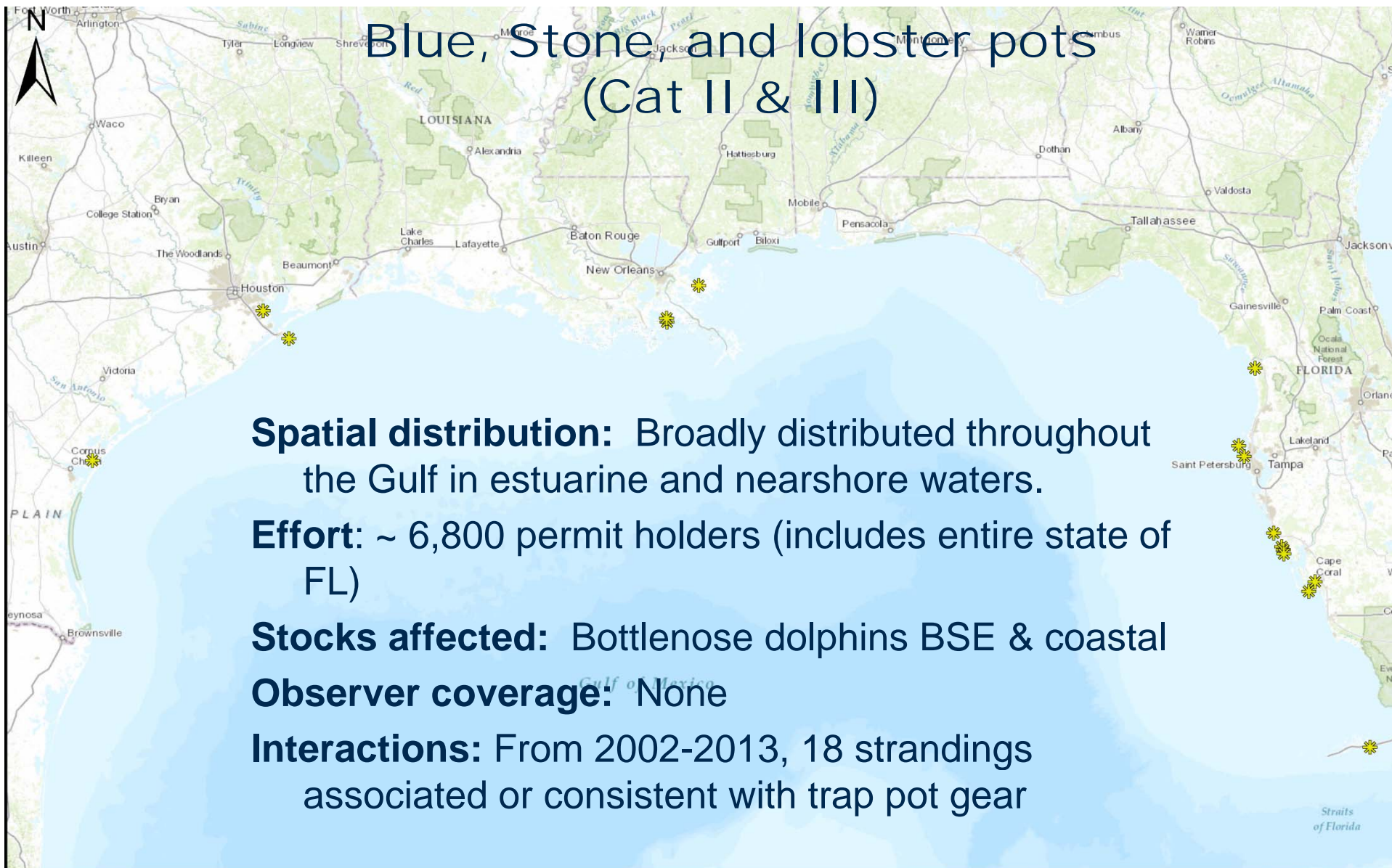




## Shrimp Fishery (Cat II)

### Mean Annual Mortality Estimates from 2007-2011:

- Exceed 10% of PBR for Western and Northern coastal bottlenose dolphin stocks
- Possibly exceed PBR for LA and AL/MS bottlenose dolphin estuarine stocks; further data on both abundance and bycatch rates in inshore waters are needed to determine whether this has occurred
- Other stocks at risk from shrimp otter trawl fishery bycatch are TX and FL bottlenose dolphin estuarine and Atlantic spotted dolphin



## Gulf of Mexico Bottlenose Dolphin Strandings

☼ Trap Pot Gear Interactions (2002 - 2013)

### Data Source:

NOAA National Marine Mammal Health and Stranding Response Database, 15 September 2014  
NOAA Southeast Regional Office unpublished data

0 100 200 400 Miles

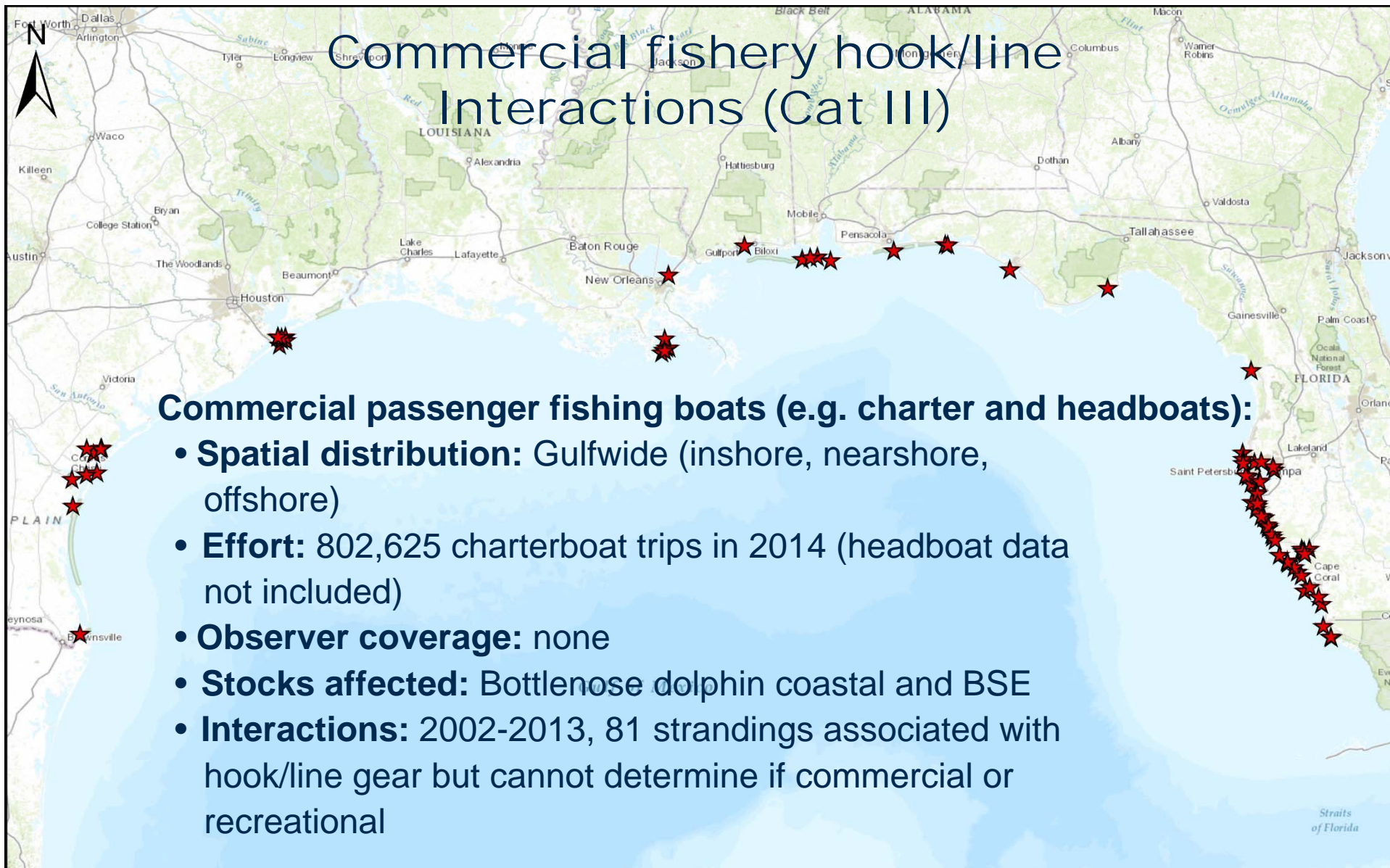


## Commercial fishery hook/line Interactions (Cat III)

### **Snapper-Grouper and Other Reef fish hook and line:**

- **Spatial distribution:** Grouper fishing occurs along the NE Gulf coast primarily along the west coast of FL. Snapper fishing occurs along the northern and western Gulf coast, in federal waters generally less than 33 fathoms.
- **Effort:** 819 permitted vessels (subset of 100 use bottom longline) (2012)
- **Observer coverage:** Target level is 8% in (2012)
- **Stocks affected:** Bottlenose dolphin continental shelf
- **Interactions:** 2 observed takes (2010; 2012)





## Gulf of Mexico Bottlenose Dolphin Strandings

0 100 200 400 Miles

★ Hook and Line Gear Interactions (2002 - 2013)

### Data Source:

NOAA National Marine Mammal Health and Stranding Response Database, 15 September 2014  
NOAA Southeast Regional Office unpublished data

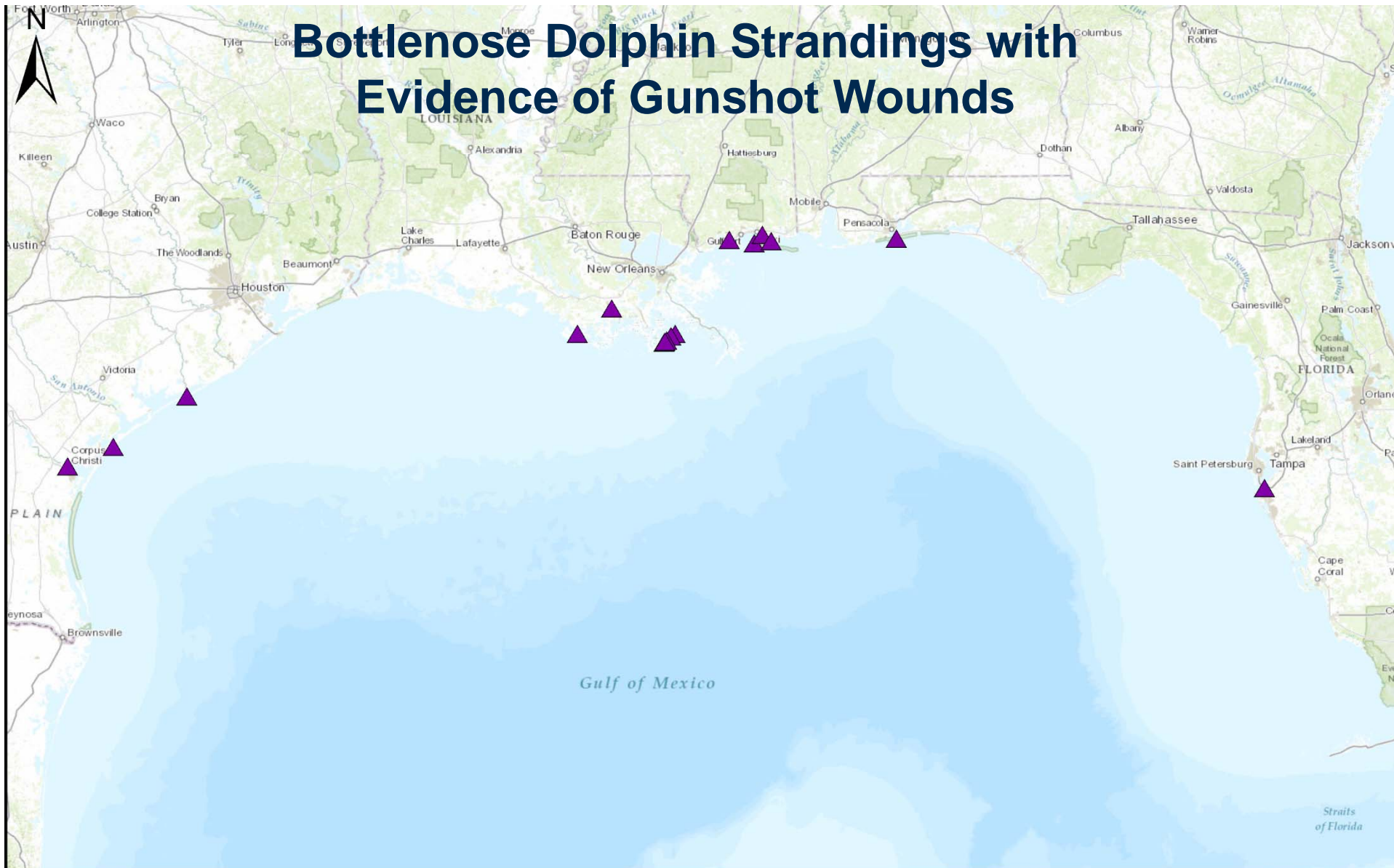




## Take home messages

- 12 Category I, II and III fisheries, along with recreational fisheries, interacting with multiple stocks of bottlenose dolphins, many of them estuarine
- Only 5 of commercial fisheries have systematic observer coverage and this coverage may be limited; therefore documentation of commercial fishery interactions comes from various sources (e.g. strandings, fishermen self reports) and represent minimum counts
- There is not enough information to determine total annual fishery-related impacts to stocks
- Dolphins depredating on gear and scavenging discarded fish are a concern and frustrated fishermen are taking extreme action
  - Prosecuted cases for shooting at dolphins and throwing pipe bombs documented for shrimp fishery, longline, charterboat

# Bottlenose Dolphin Strandings with Evidence of Gunshot Wounds



## Gulf of Mexico Bottlenose Dolphin Strandings

▲ Shootings (2002 - 2013)

### Data Source:

NOAA National Marine Mammal Health and Stranding Response Database, 15 September 2014  
NOAA Southeast Regional Office unpublished data

0 100 200 400 Miles



## Informational Needs

- Abundance surveys for bottlenose dolphins stocks at highest risk of bycatch interactions in commercial fisheries
- Augmented observer coverage of the shrimp fishery and gillnet in inshore state waters
- Enhanced understanding of fishery distribution in inshore and nearshore waters
- Explore ways to observe and monitor fisheries where traditional observer coverage is challenging (e.g. menhaden and crab pot fisheries)