Overview of cetacean stranding data from the Gulf of Mexico

2000-2014

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Cetacean stranding data collection

Level A data

- The stranding network is required to complete a standardized form for each stranded animal and submit it to the NOAA MMHSRP National Database within 30 days of the stranding

- Level A data include details of each stranding including as species, date, location, condition, human interaction, sampling and disposition

- NMFS provides training and Level A data entry policies to improve consistency of data collection

- The SEFSC reviews SER Level A data and validates the Level A data (using an established validation policy) as resources allow

Cetacean stranding data collection

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Level B and C data

- Includes things like measurement forms, gross necropsy reports, and results of any tissue analysis (e.g. histopathology, virology, etc.)

- Enhanced necropsy and sampling protocols and submission of Level B and C data may be required during event investigations (UMEs, oil spill response, mass strandings, etc.)

What are stranding data used for ?

Stranding data are important for research on:
- Species distribution and stock structure
- Health and disease
- Human interactions (e.g. Fishery interactions, vessel strikes)
- Other threats to marine mammal populations
- Life history parameters (including age, diet, reproductive biology)
- Anatomy and physiology

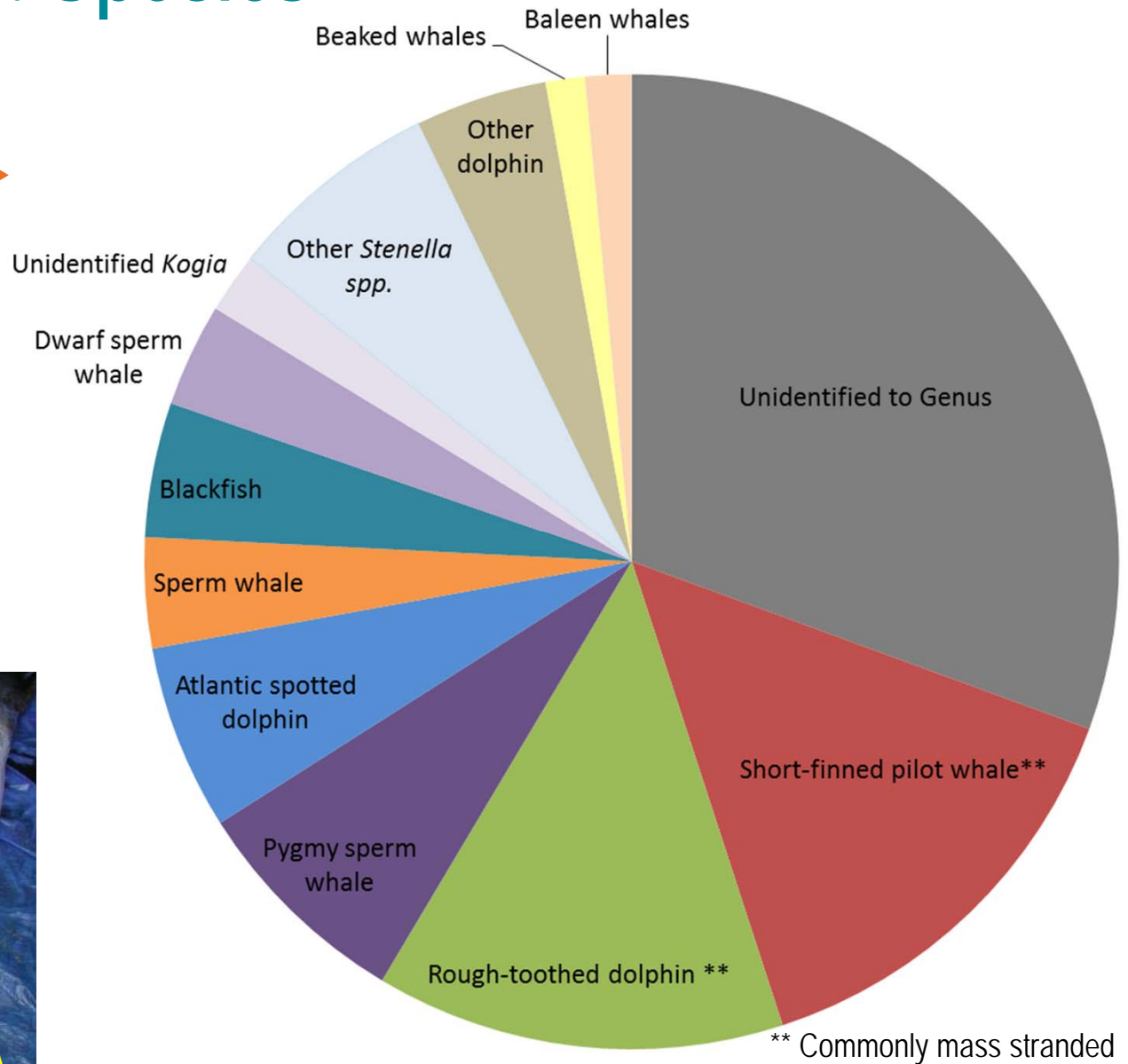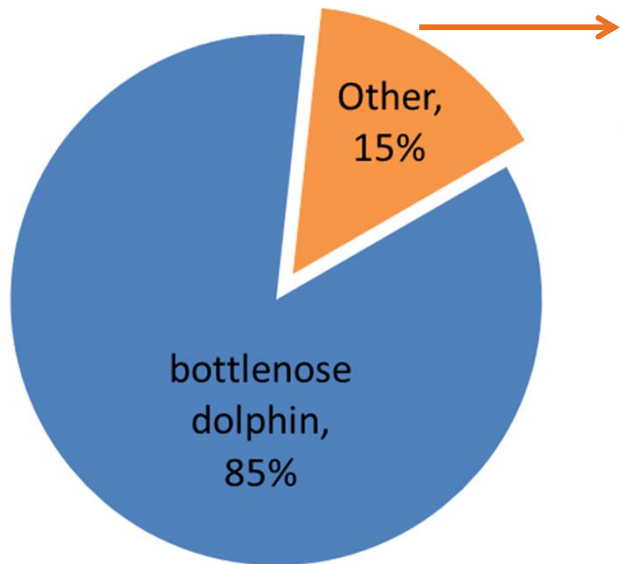Long-term consistent data sets from stranded animals are critical for:
- Informing management decisions
- identifying unusual events
- understanding changes to health and mortality trends

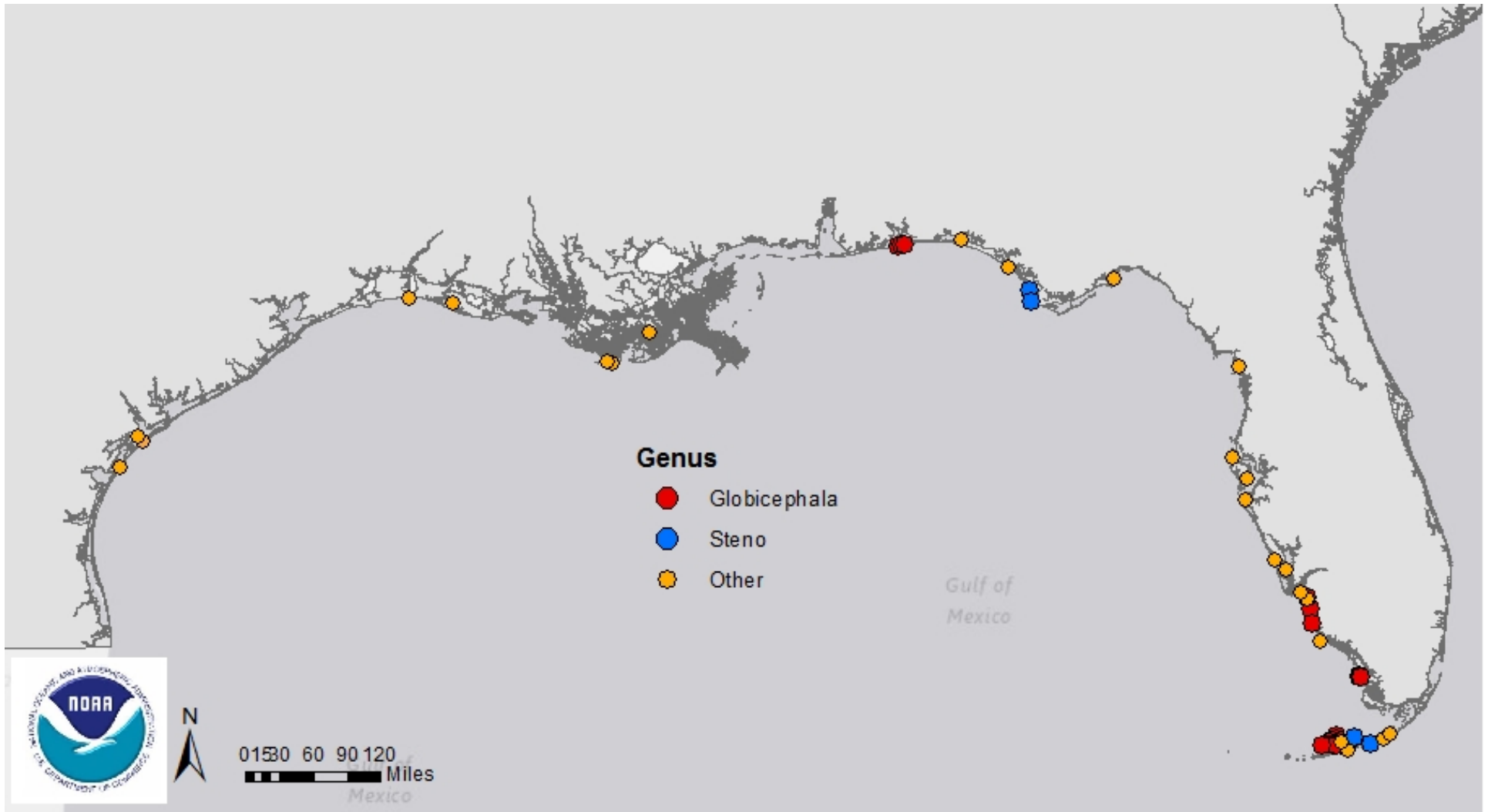NOAA FISHERIES

Summary of GoM Cetacean strandings

- Using 15 year Level A data set – 2000-2014

- Data from Monroe County, FL to Texas

- GoM averages 375 strandings per year

- 85% bottlenose dolphins

- Highest strandings January – April; peak in March

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GoM Strandings: Species

Pie chart 1: Other, 15%; bottlenose dolphin, 85%

Pie chart 2: Beaked whales, Baleen whales, Other dolphin, Other *Stenella* spp., Unidentified *Kogia*, Dwarf sperm whale, Blackfish, Sperm whale, Atlantic spotted dolphin, Pygmy sperm whale, Rough-toothed dolphin **, Short-finned pilot whale**, Unidentified to Genus

** Commonly mass stranded

NOAA

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Mass Strandings 2000 - 2014

Genus
- 🔴 Globicephala
- 🔵 Steno
- 🟠 Other

Gulf of Mexico

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GoM Strandings - Observation Condition

Tursiops

Other Species

- ALIVE
- FRESH DEAD
- MODERATE DECOMPOSITION
- ADVANCED DECOMPOSITION
- DEAD - CONDITION UNKNOWN
- MUMMIFIED/SKELETAL
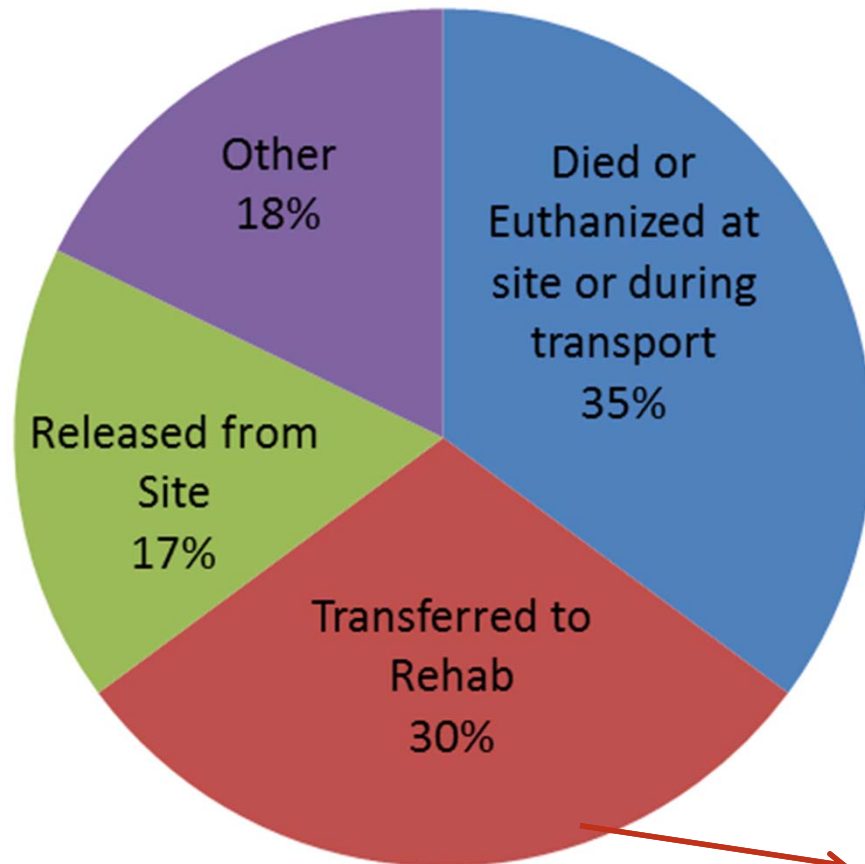
- <20% of *Tursiops* strand alive or fresh dead

- 74% of other species strand alive or fresh dead

- Approx. 75% of live stranded (then died) or fresh dead carcasses were necropsied

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GoM Strandings – Disposition of live strandings

Pie chart:
- Died or Euthanized at site or during transport 35%
- Transferred to Rehab 30%
- Released from Site 17%
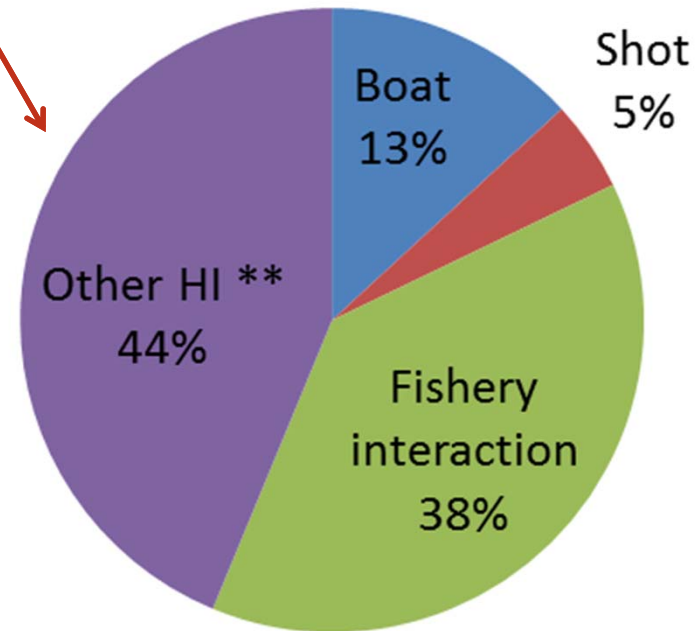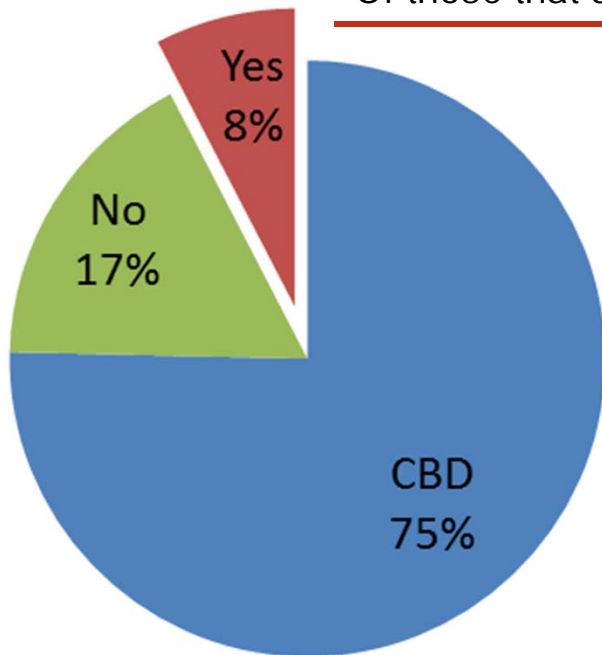- Other 18%

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Of those to rehab:
65 % died or were euthanized
19 % were released
16 % were deemed non-releasable

GoM Strandings Human Interactions

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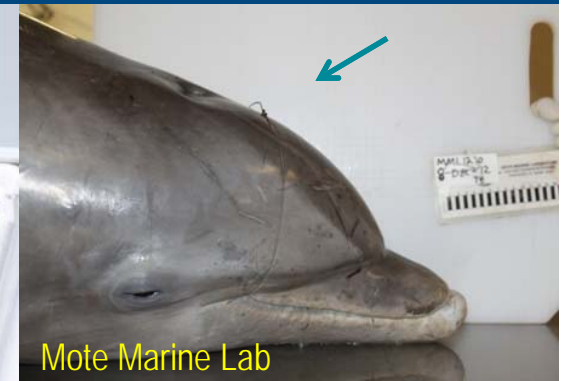
Of those that are Yes:

Yes 8%
No 17%
CBD 75%

Boat 13%
Shot 5%
Other HI ** 44%
Fishery interaction 38%
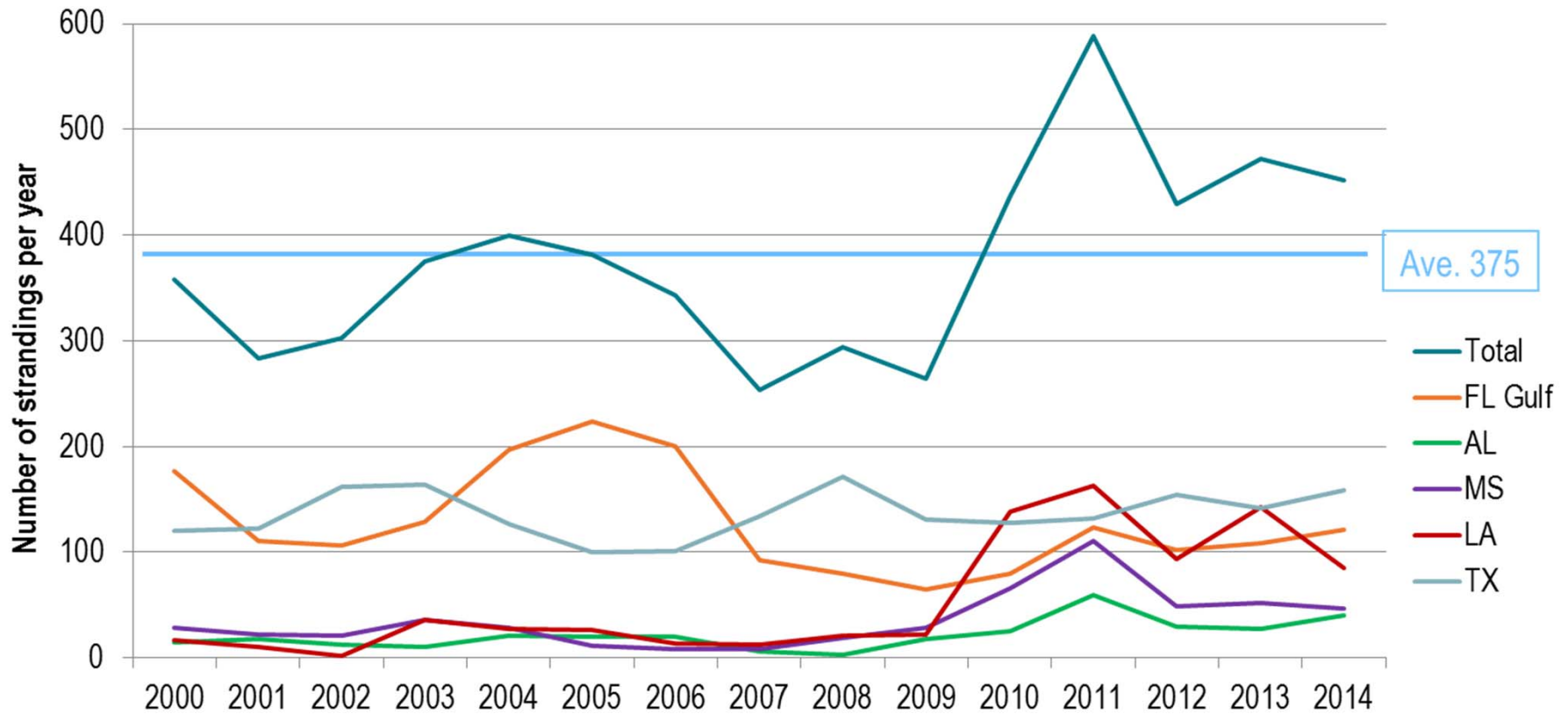
** includes: marine debris, mutilation, rope marks, etc.

Most of the FIs in the GoM *Tursiops* consist of line markings, trap pot gear, or are hook and line

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GoM Strandings by State and Year

Litz et al. (2014) Dis. Aq. Org.

UMEs

FL Panhandle (3) and Central West FL UMEs
All confirmed biotoxin events

Texas UMEs – both (Feb – Mar)
Cause unknown

2011 TX UME – Investigation ongoing

NGUME –2010 to present -
Event and investigation ongoing

Northern Gulf of Mexico Cetacean Unusual Mortality Event (NGUME)

Gulf of Mexico

- Largest die-off of bottlenose dolphins in the Gulf of Mexico

- UME was initially declared for the FL Panhandle, AL, MS, LA with a start date Feb 2010

- ~1350 cetacean strandings through March 2015

- 87% were bottlenose dolphins

- 94% stranded dead

- Over 30,000 tissue samples have been collected

NGUME website: http://www.nmfs.noaa.gov/pr/health/mmume/cetacean_gulfofmexico2010.htm

Ongoing NGUME Investigation

- Morbillivirus and biotoxins have been ruled out as primary causes

- Analysis through June 2013 showed the UME had multiple clusters of bottlenose dolphin mortalities. All but one of which occurred after the DWH spill

- The largest most prolonged cluster was in Barataria Bay, LA (Aug 2010 – 2011). One of the most heavily oiled areas

- The Florida Panhandle, though part of the original UME declaration, was not consistently high for *Tursiops*

- Texas and the west coast of Florida were not consistently high

Venn-Watson et. al. 2015. Demographic clusters identified within the northern Gulf of Mexico common bottlenose dolphin (*Tursiops truncatus*) unusual mortality event: January 2010- June 2013. PLoS ONE 10(2): e0117248. doi:10.1371/journal.pone.0117248

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2011 Texas UME – Investigation ongoing

- Nov. 2011 – March 2012, 126 bottlenose dolphins

- Marked increase in the number of juveniles and yearling age classes

- Histopathology sent for 7 animals, majority too decomposed

- Concurrent HAB blooms Sept 2011-Feb 2012 (PbTx, DA, OA)

- Fish, bird and coyote mortalities; shellfish closures

- Investigation is continuing to evaluate all potential contributing factors including the role of HABs

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TX UME website: http://www.nmfs.noaa.gov/pr/health/mmume/bottlenosedolphins_texas.htm

Summary

- GoM Stranding data has important uses for management of marine mammals including:

  - Monitoring health trends and population threats

  - Understanding stock structure & species distribution

  - Assessing and monitoring human impacts

- Standings are an important source of data and samples for research including topics such as:

  - Life history, anatomy and physiology, ecosystem health, marine mammal health, emerging diseases, biotoxins, and much more

Summary

Continued needs for:

- Enhancing the stranding network capacity

- Continued long-term standardized data collection

- Increase diagnostic and analytical capacity Gulf wide

- Shared/collaborative databases among NOAA, the network partners and researchers with access to Level B and C data

- Integrate stranding data with other health and environmental datasets

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THANK YOU !!!!

Thank you to our Gulf of Mexico Stranding Network partners for all of your hard work!

The collection of stranding data would not be possible without you!