

Science, Service, Stewardship



Atlantic Marine Assessment Program for Protected Species (AMAPPS)

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Northeast & Southeast Fisheries
Science Center**

**NOAA
FISHERIES
SERVICE**

Study Objectives

1. Collect broad-scale data on the seasonal distribution and abundance of marine mammals (cetaceans and pinnipeds), sea turtles, and sea birds.
2. Collect similar data at finer scales at sites of particular interest.
3. Conduct tag telemetry studies of sea turtles, pinnipeds and seabirds.
4. Explore alternative platforms and technologies to improve population assessment studies.
5. Assess the population size of surveyed species at regional scales
6. Develop models and associated tools to translate these survey data into seasonal, spatially-explicit density estimates incorporating habitat characteristics.

Multi-Agency Partnership

Participants include:

BOEMRE

NOAA National Marine Fisheries Service

U.S. Fish and Wildlife Service

U.S. Navy – Chief of Naval Operations

Each of these agencies has common goals for assessing the potential environmental impacts of human activities on marine wildlife.

Multi-Year Study Plan

Within a 5-year cycle conduct assessment surveys for marine mammals, sea turtles, and sea birds along the U.S. Atlantic coast.

Conduct aerial surveys over the continental shelf for marine mammals and turtles in four seasons.

Conduct summer and winter vessel surveys in oceanic waters collecting data on sea turtles, marine mammals, and sea birds.

Expand the spatial scope of migratory bird surveys conducted by USFWS.

Deploy satellite telemetry tags on sea turtles to collect data on movements and dive intervals.

Conduct tag and aerial survey studies of harbor seal and gray seal populations.

Multi-Year Study Plan

In addition to improved data collection efforts, enhance existing capabilities for spatial modeling and data collection

Explore advanced data collection technologies:

- Aerial imagery tools including high-altitude, high-resolution imagery, LIDAR, photogrammetry
- UAV Gliders to record marine mammal vocalizations, collect oceanographic data, and remotely report detections of interest

Multi-Year Study Plan

In addition to improved data collection efforts, enhance existing capabilities for spatial modeling and data collection

Integrate collected data and associated environmental data into a common database

Develop statistical models of habitat and spatial distribution

Implement decision support tools to allow users to query data and model products to support environmental assessments

Year 1 NMFS Activities

Aerial surveys for marine mammals and turtles conducted during July – August

Satellite telemetry tags deployed on sea turtles

Summer vessel surveys were planned, but vessels were diverted to support DWH efforts

Winter (Feb – March) surveys were recently completed

NMFS Aerial Surveys



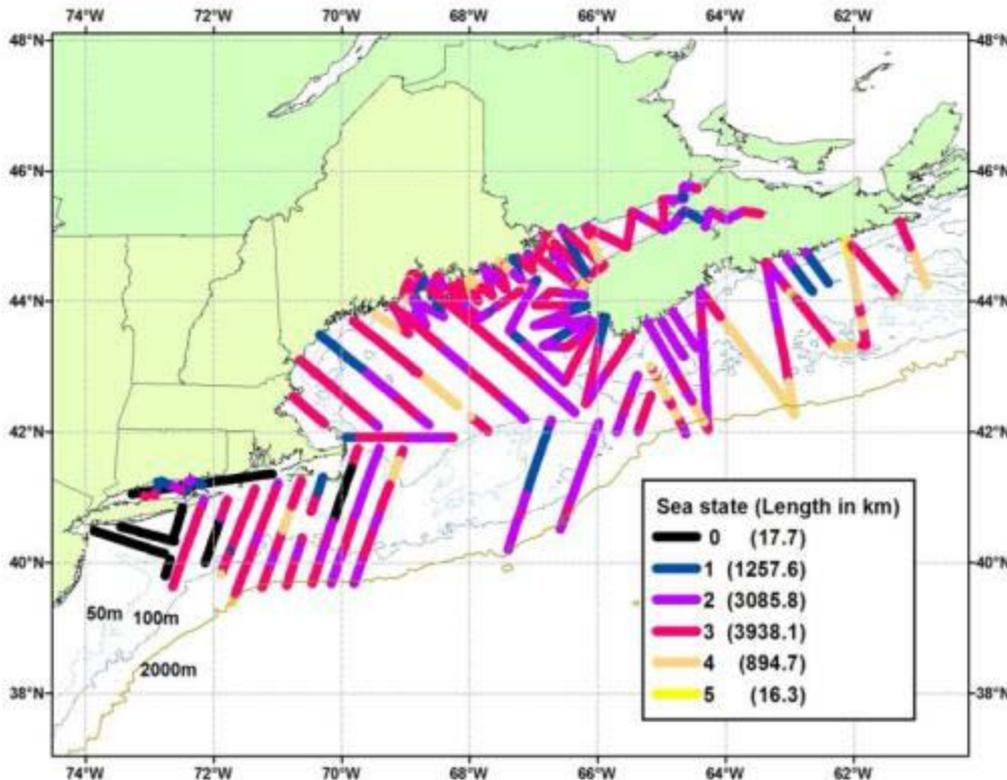
Broad-scale line transect surveys on NOAA Twin Otter

Surveys flown at 600 ft, airspeed of 100 knots

Tracklines oriented perpendicular to shoreline

Data collected for “Distance Analysis” to estimate abundance

Northeast U.S. Aerial Surveys



Surveys flown from August 17
September 26

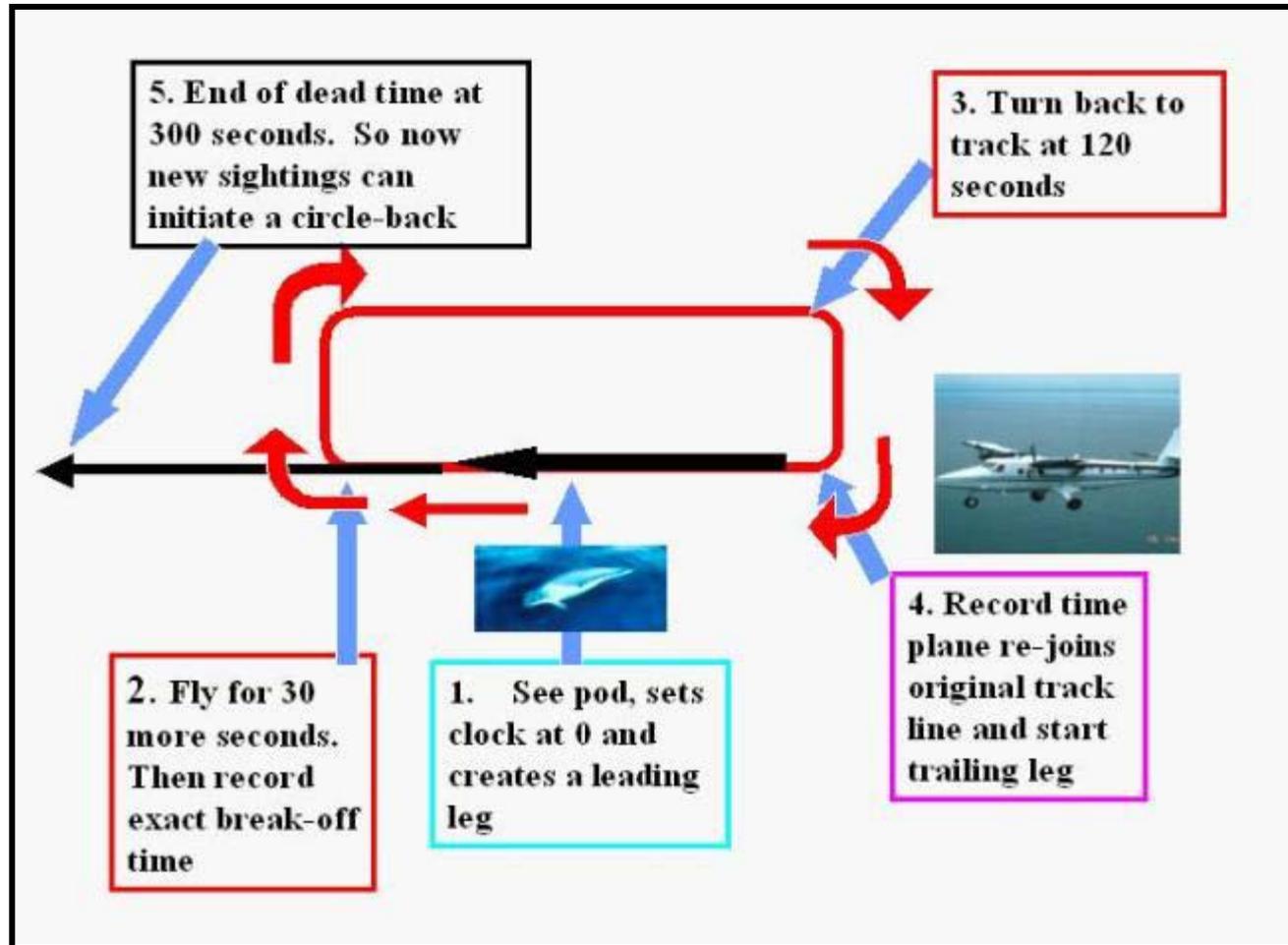
Total of 9,604 km of trackline
covered

Sightings included:
373 cetacean groups (15 sp)
21 seal groups
69 turtles
222 other species (fish)

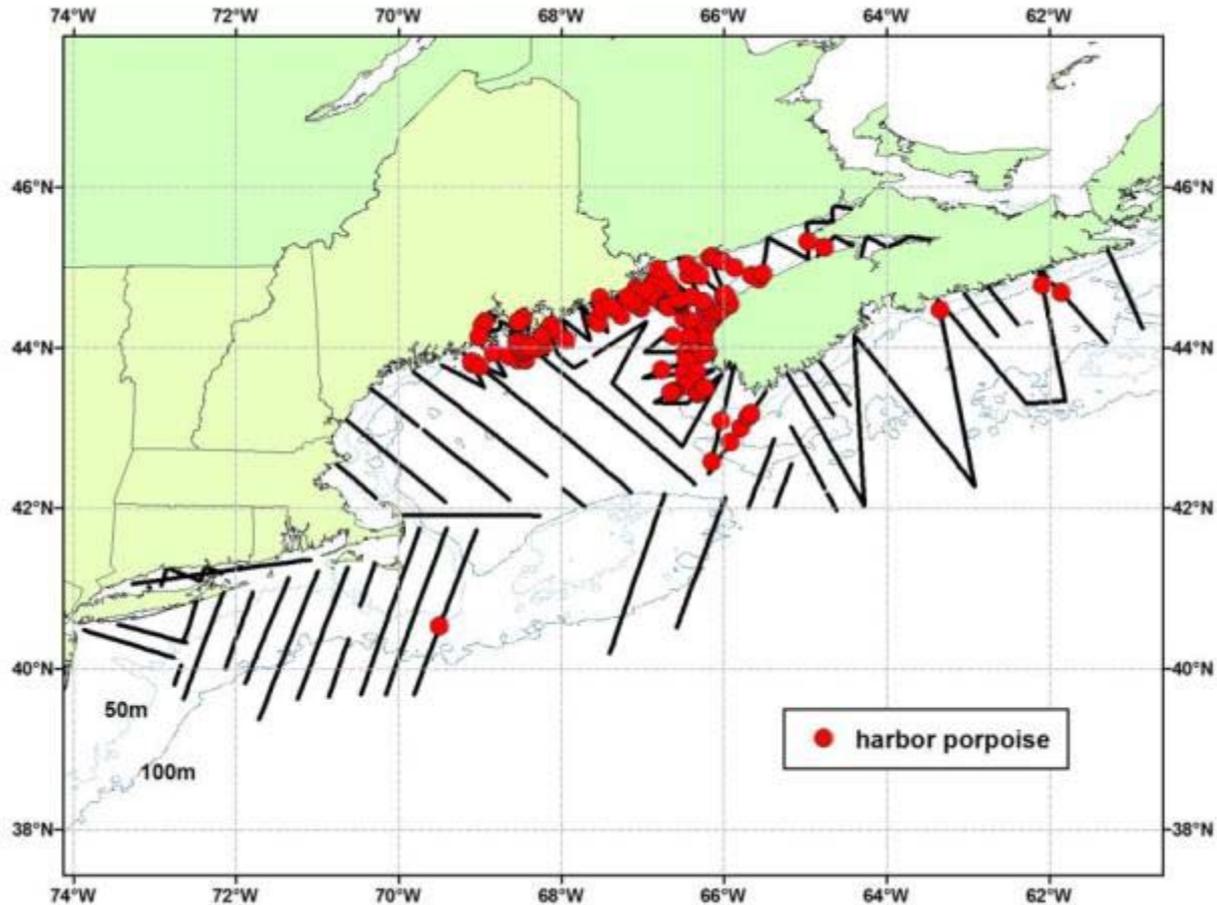
Employed “circle-back”
approach to correct for visibility
bias

Northeast U.S. Aerial Surveys

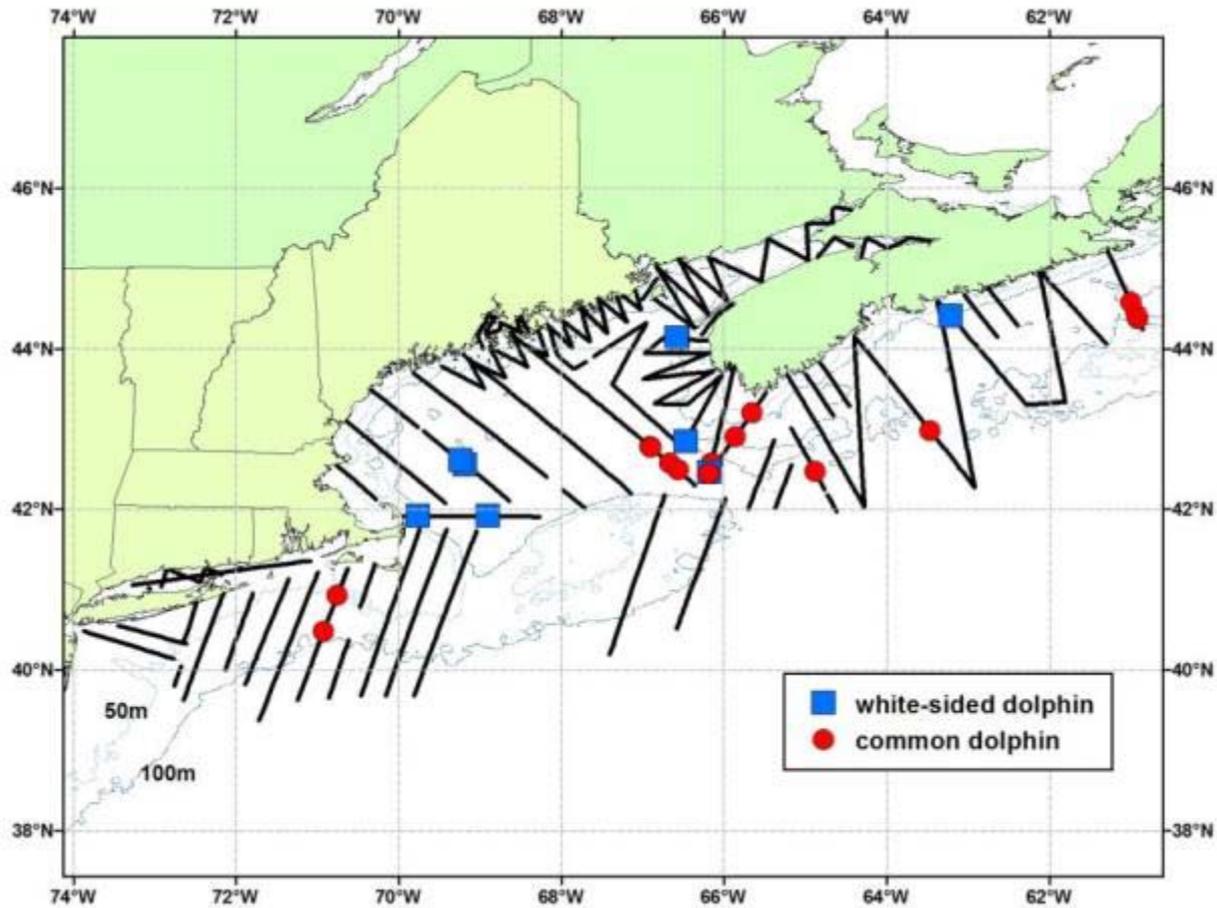
Circle-back method to estimate visibility bias



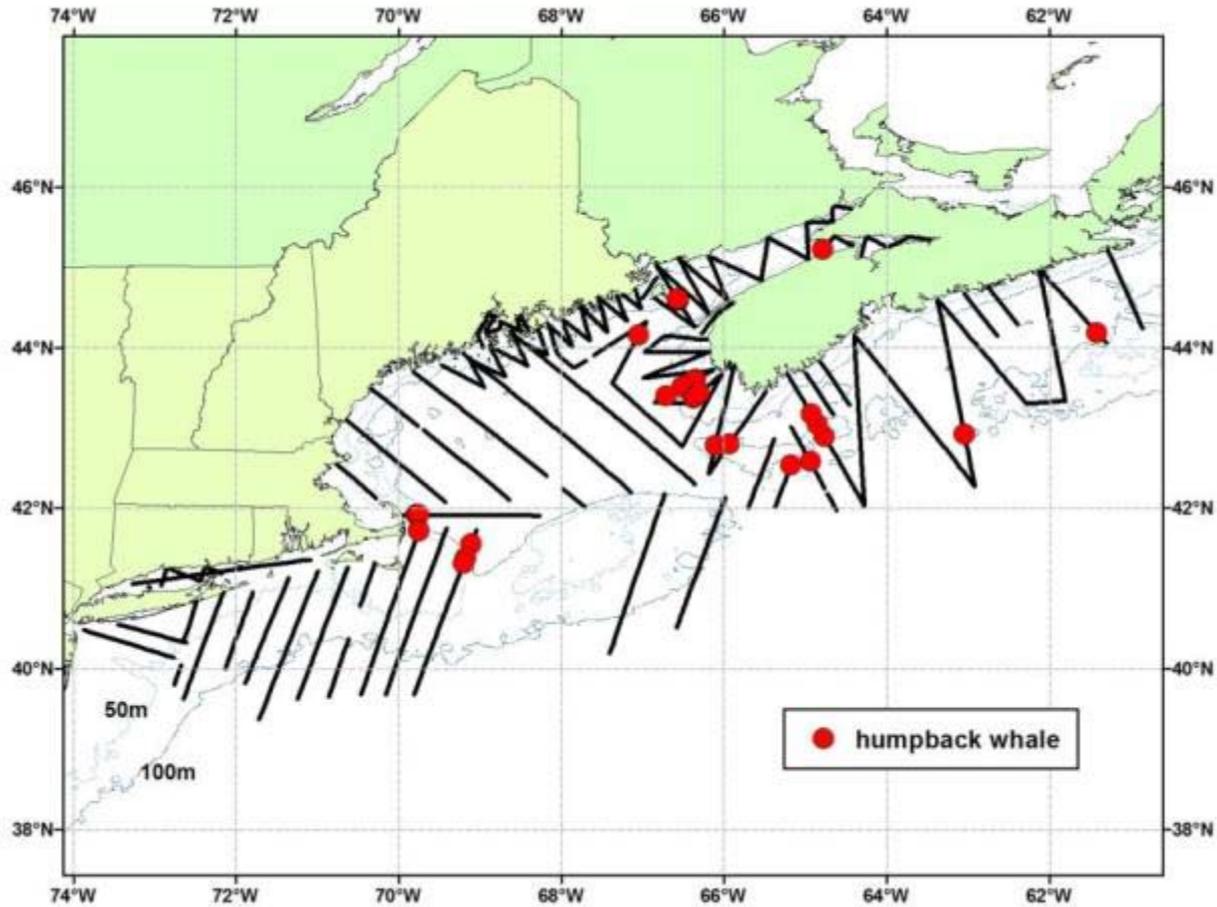
Northeast U.S. Aerial Surveys



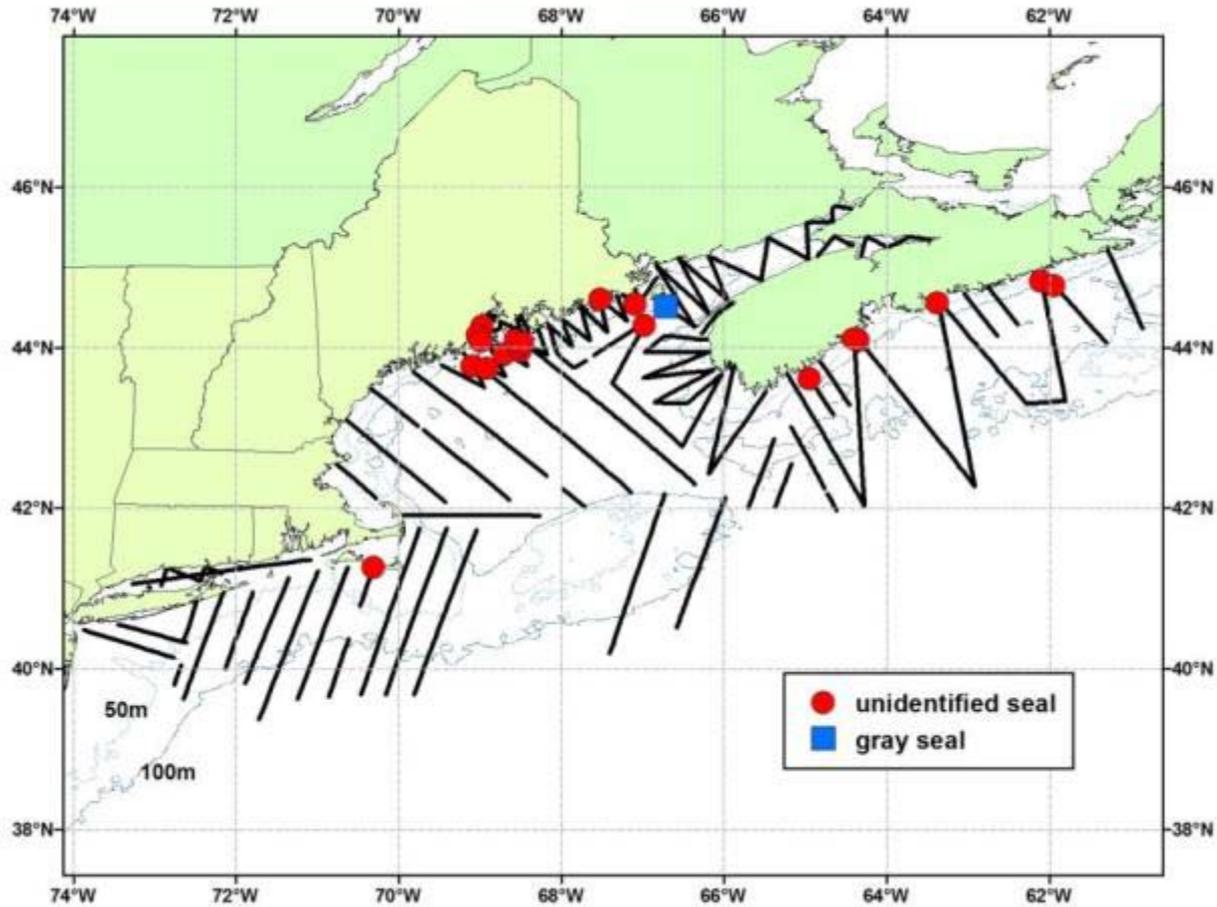
Northeast U.S. Aerial Surveys



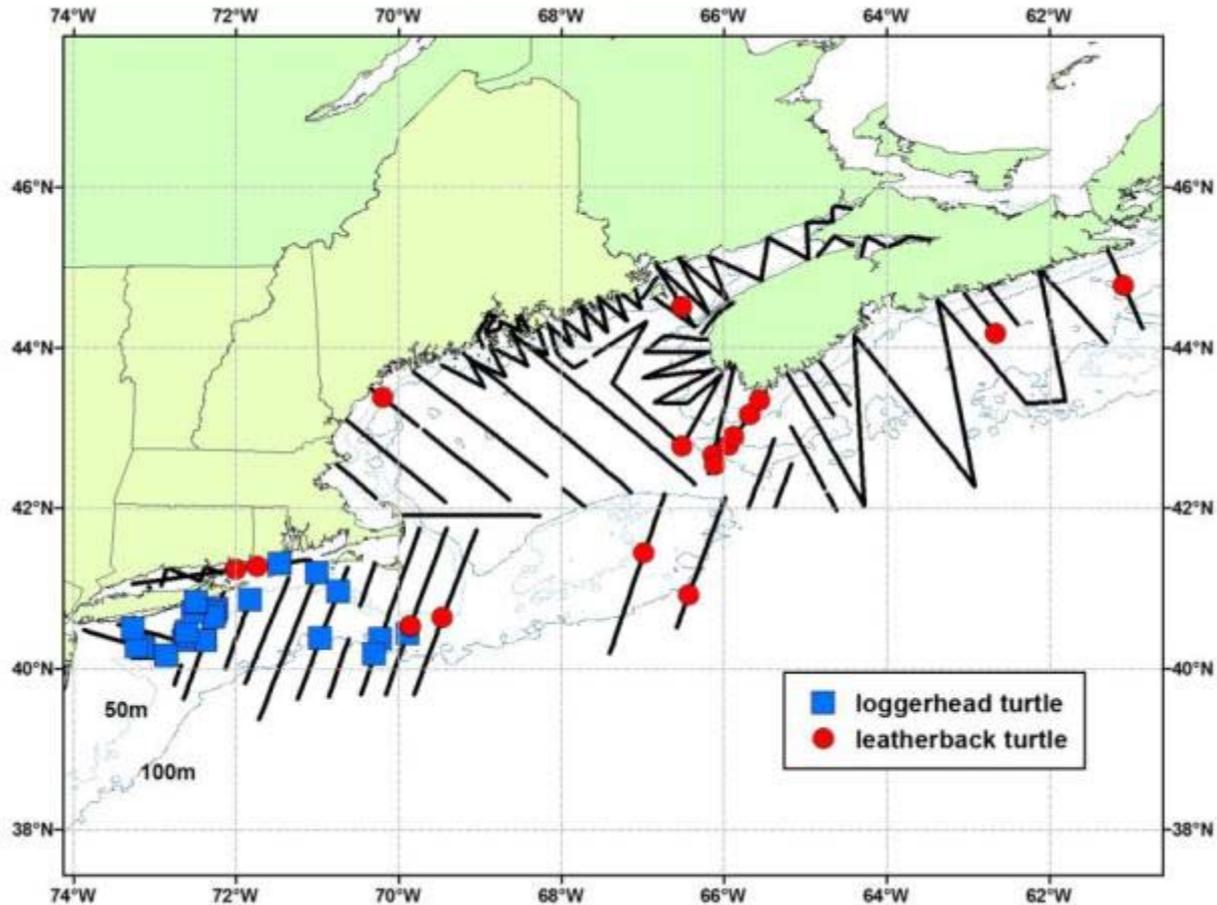
Northeast U.S. Aerial Surveys



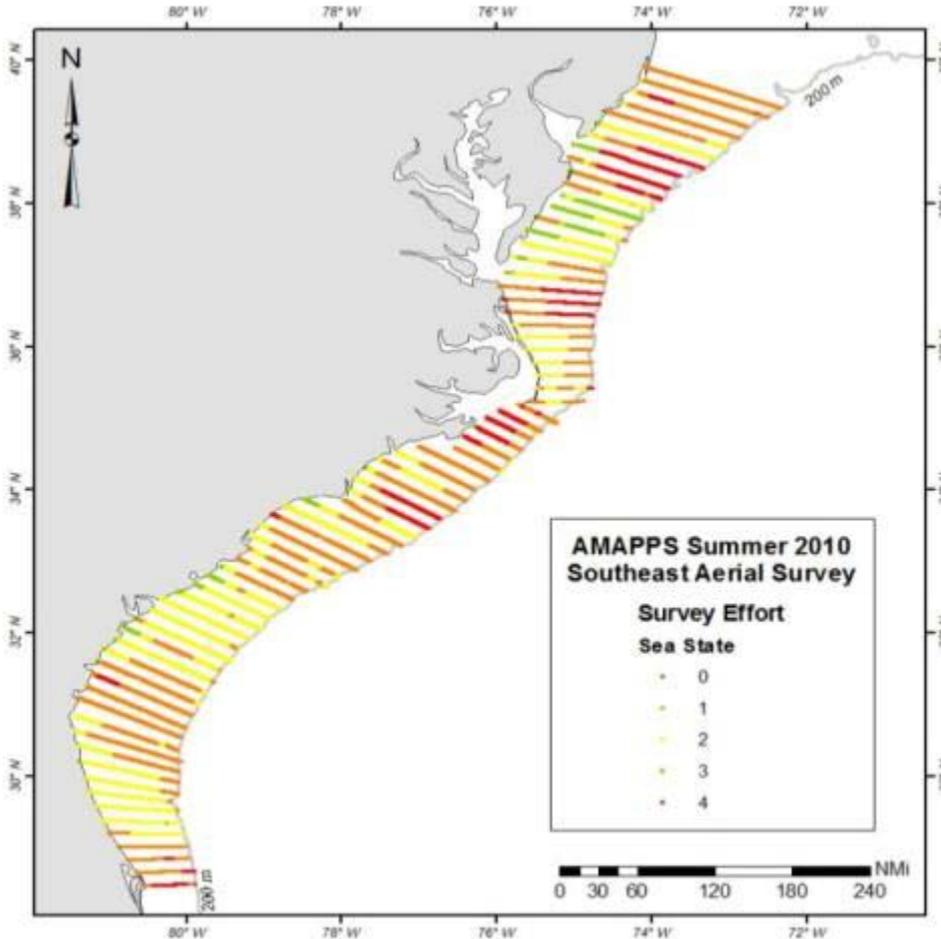
Northeast U.S. Aerial Surveys



Northeast U.S. Aerial Surveys



Southeast U.S. Aerial Surveys



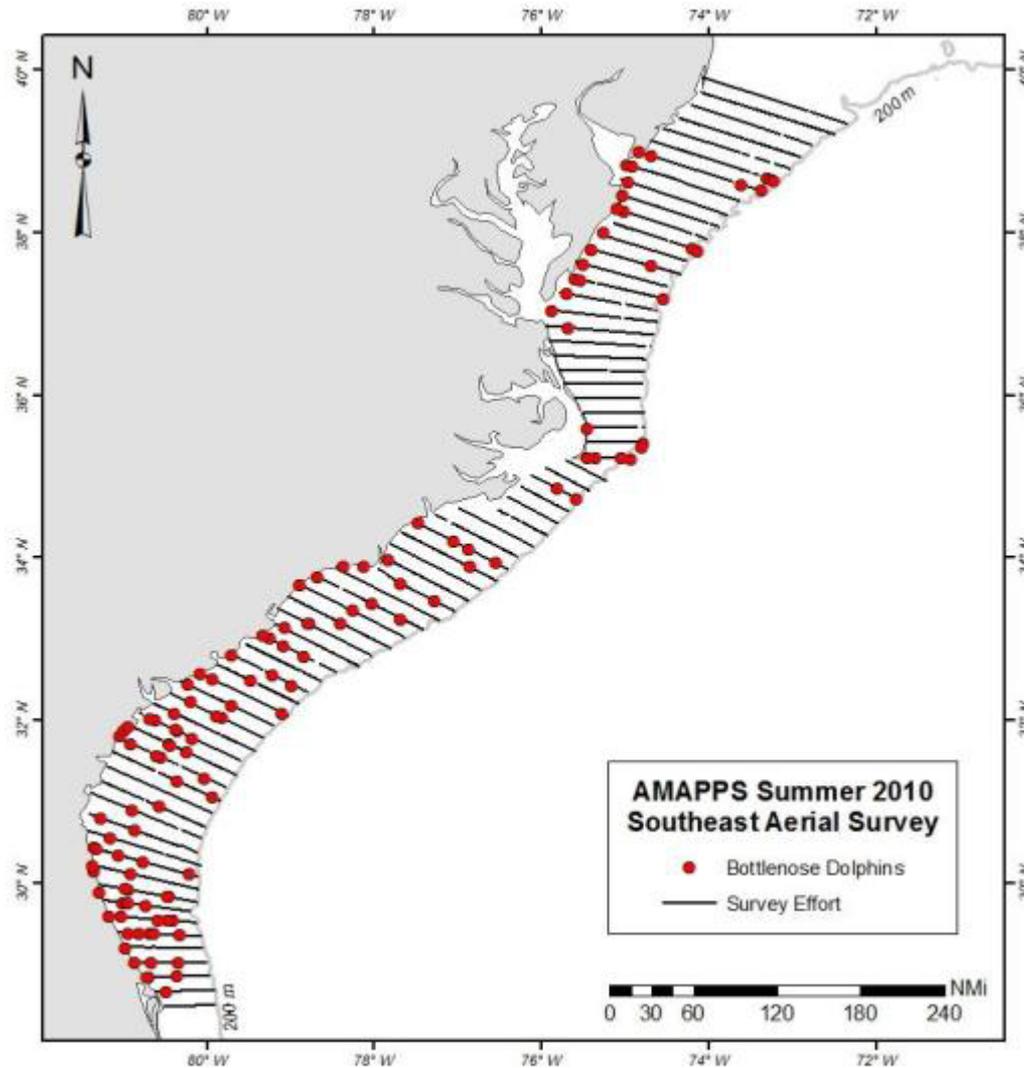
Surveys flown from July 24 to August 14

Total of 7,944 km of trackline covered

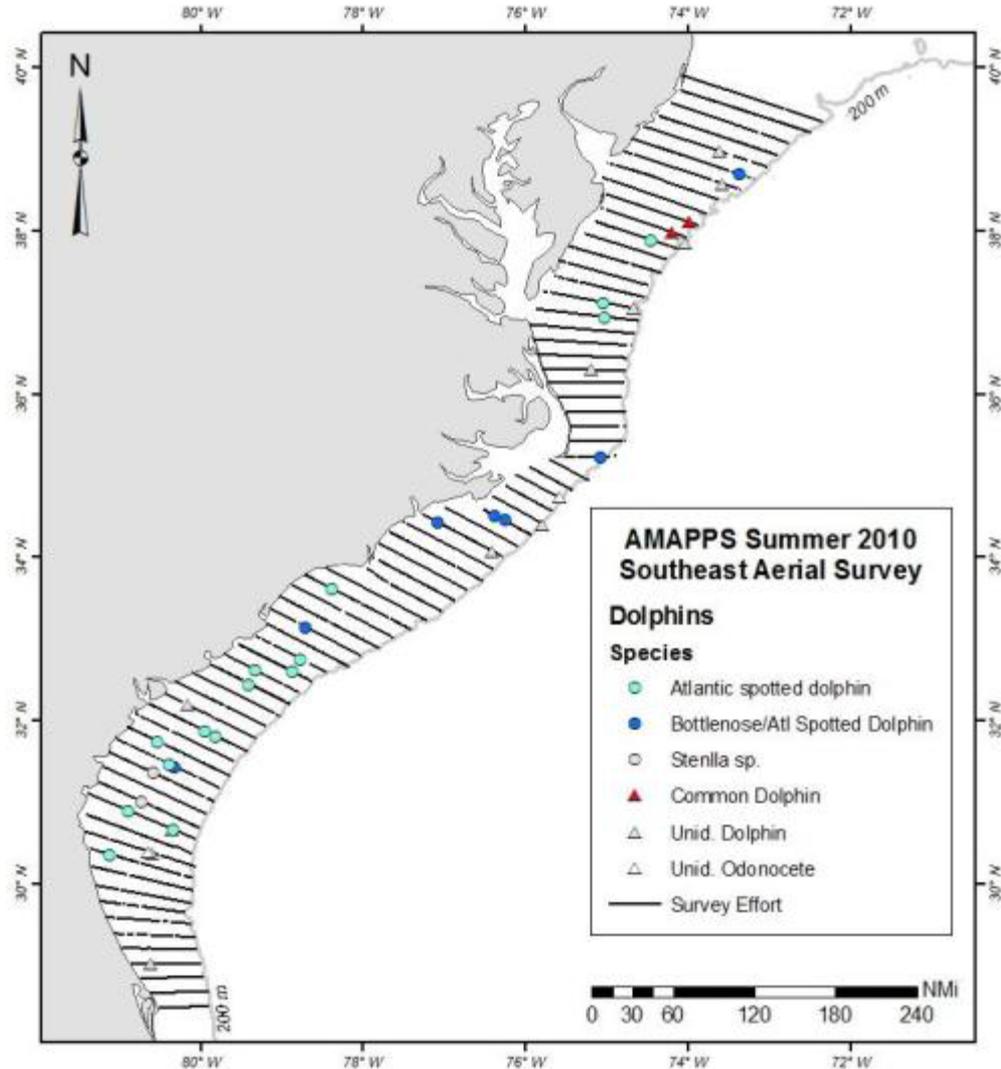
Sightings included:
181 cetacean groups (6 sp)
1,502 turtles

Employed two-team independent observer approach to estimate visibility bias

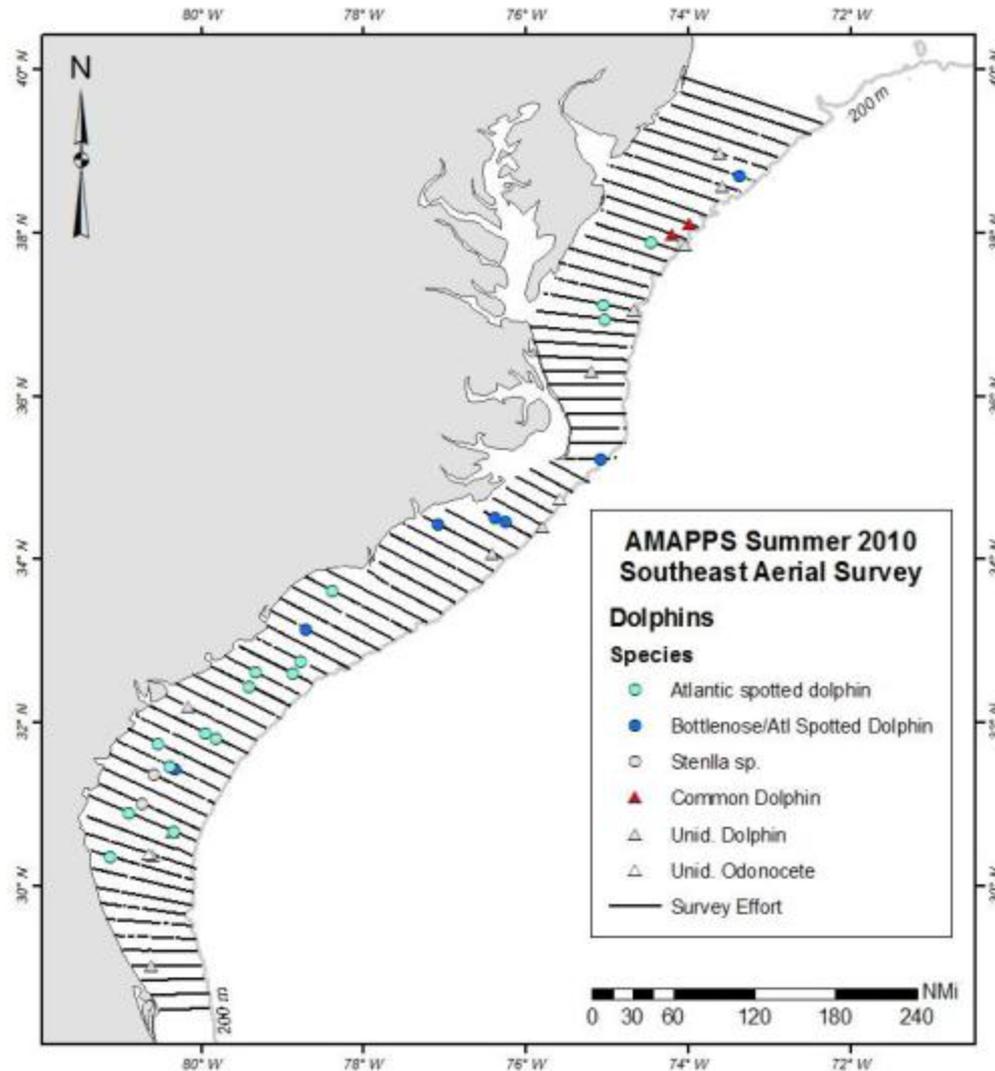
Southeast U.S. Aerial Surveys



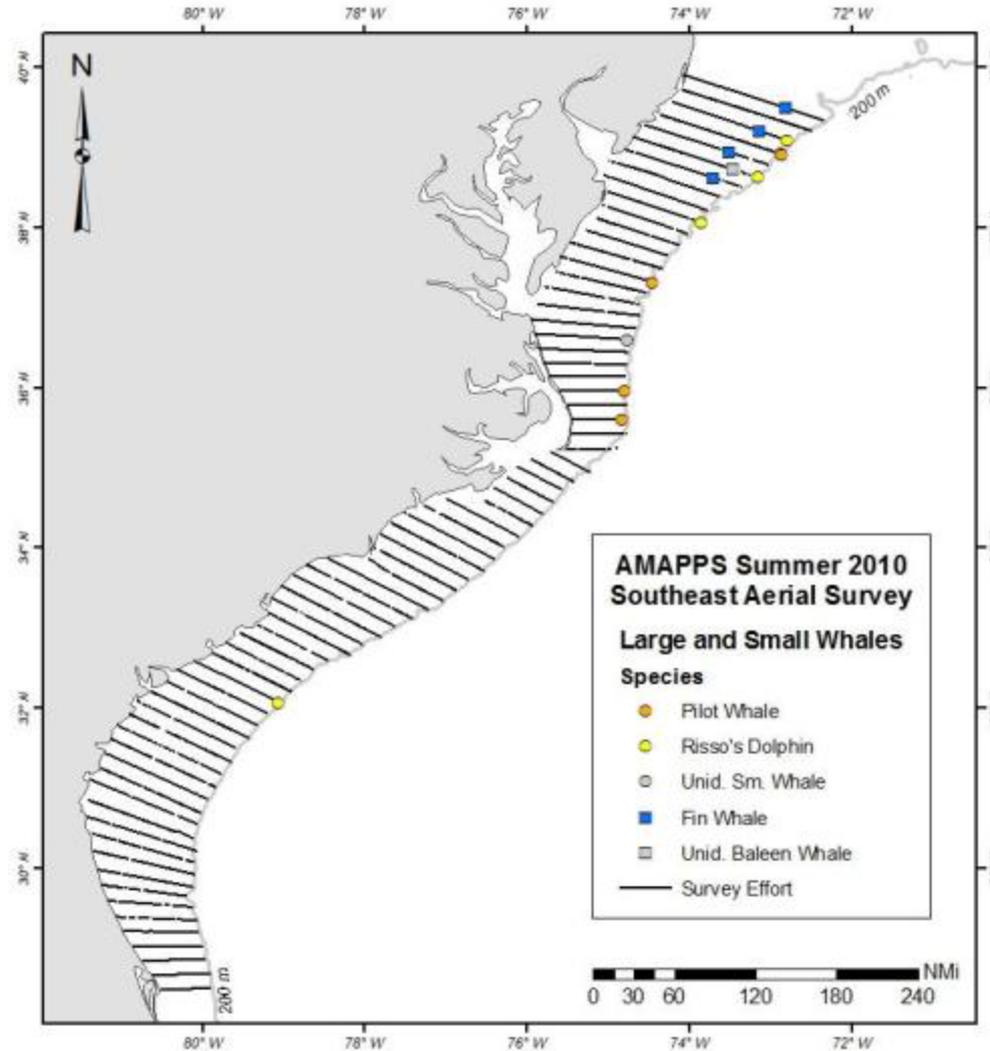
Southeast U.S. Aerial Surveys



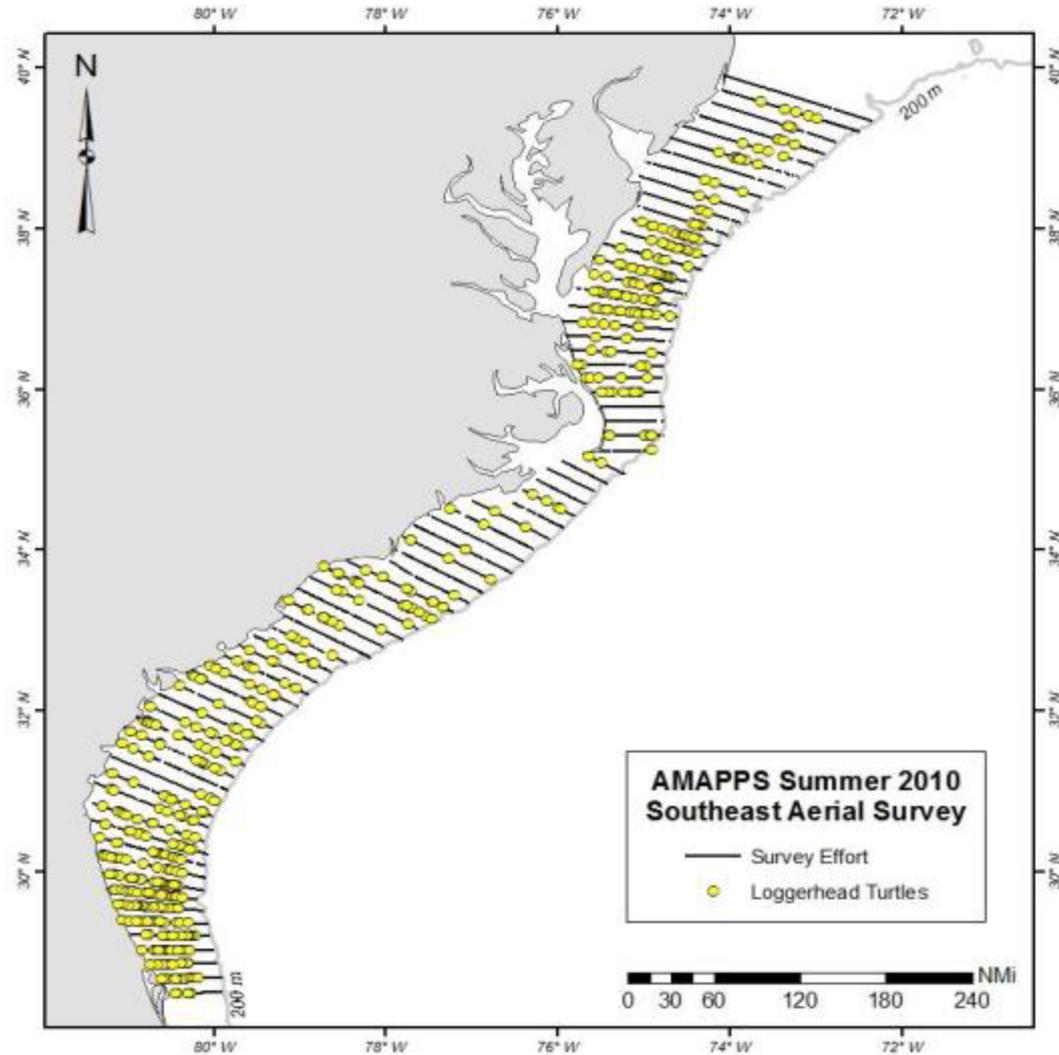
Southeast U.S. Aerial Surveys



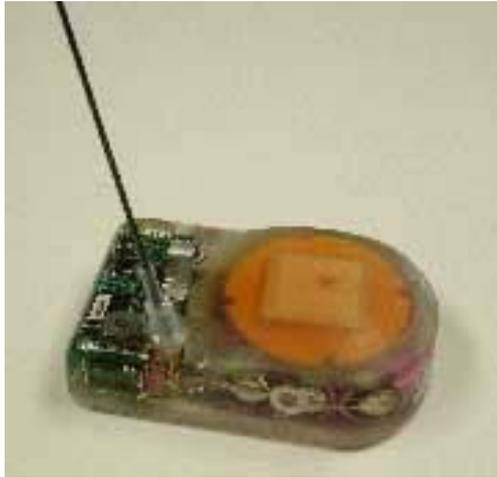
Southeast U.S. Aerial Surveys



Southeast U.S. Aerial Surveys



Sea Turtle Tag Telemetry



Wildlife Computers MK-10 AF (SE) or SMRU Satellite Relay Data Logger (NE)

- Fast-loc GPS for improved position accuracy
- Depth sensors and programming to report binned depth data and dive-duration
- Durations of several months up to one year



Sea Turtle Tag Telemetry

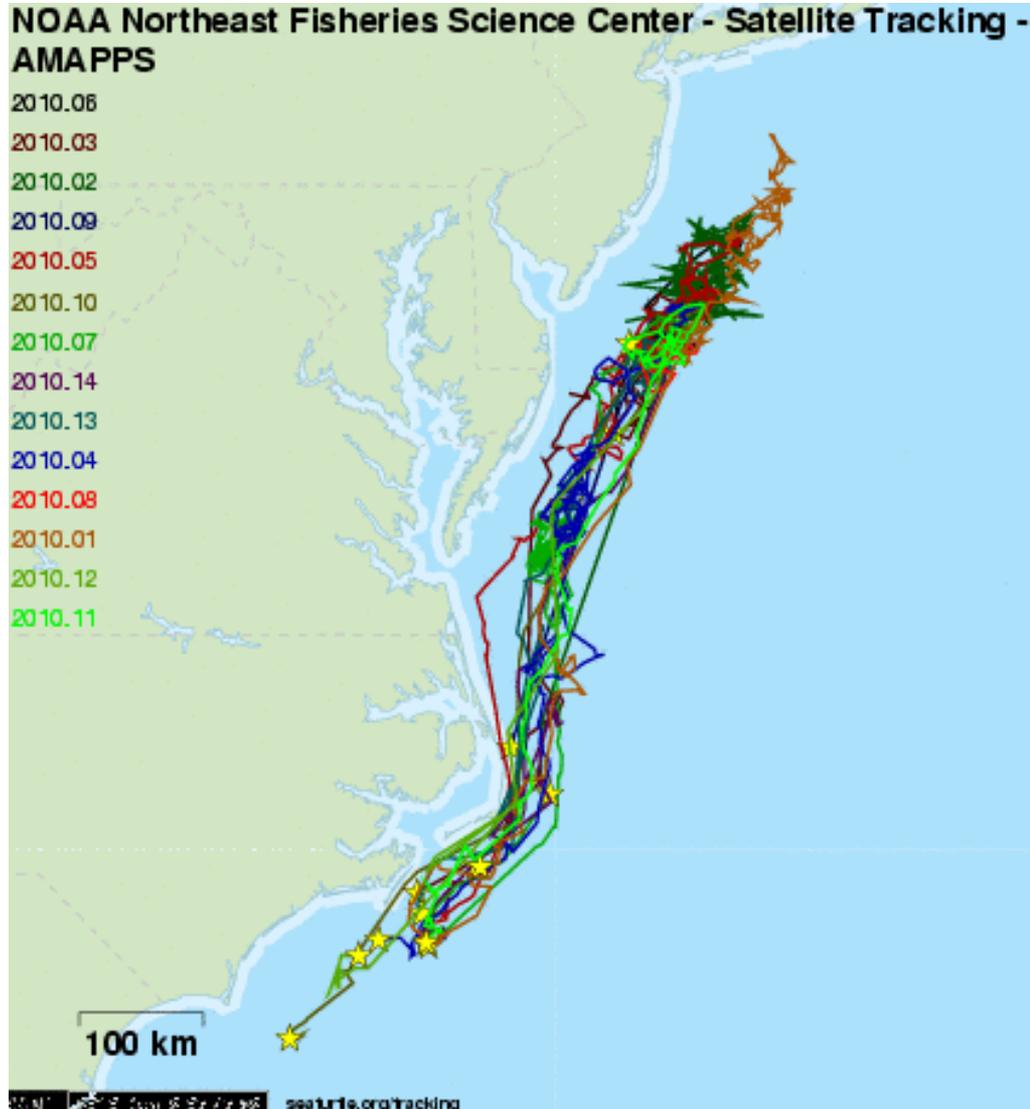
In the southeast, tags were deployed on turtles captured during trawl studies conducted by the SCDNR

In the northeast, tags were deployed on turtles off of New Jersey with the assistance of a commercial fishing vessel

Both studies targeted immature loggerheads 61 – 97 cm length



Sea Turtle Tag Telemetry – NE

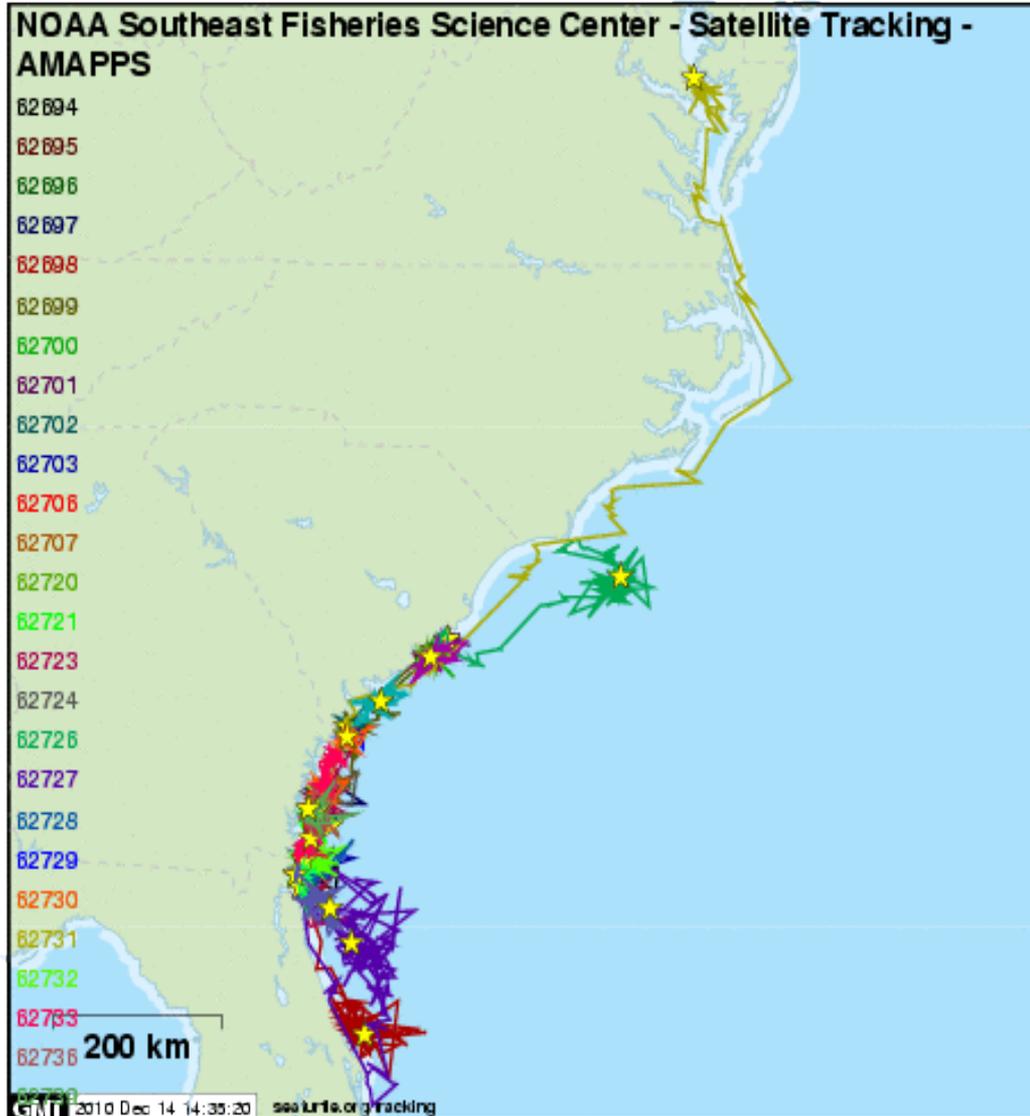


14 loggerhead turtles tagged off of New Jersey and Delaware

Tags were active through at least January, with several tags still active

Turtles moved south of North Carolina during November–December

Sea Turtle Tag Telemetry – SE

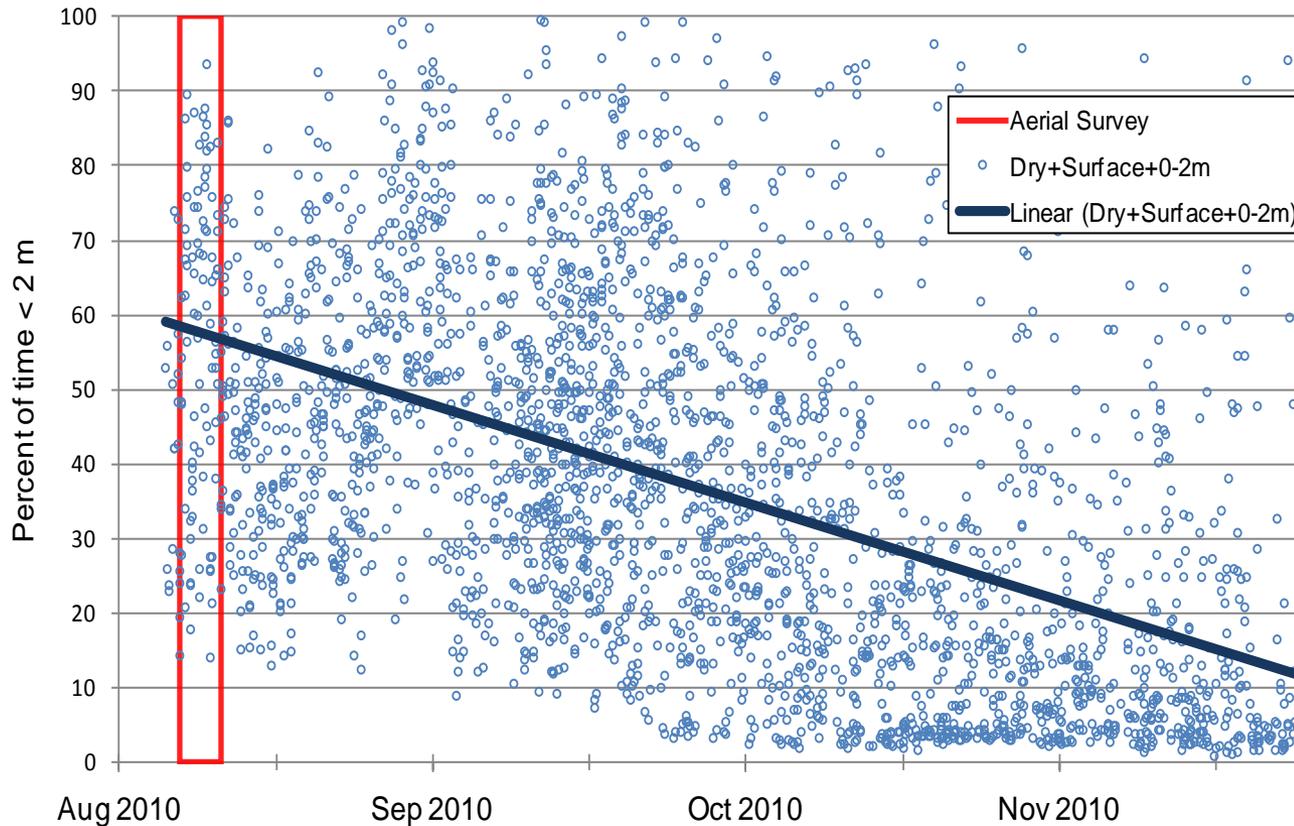


30 loggerheads were tagged between Florida and South Carolina

Average duration (as of December) of 91 days for these tags

Turtles generally stayed near the tagging location, with the exception of one animal that moved into Chesapeake Bay

Sea Turtle Tag Telemetry Trends in Time at Surface



Median for Southeast Tags 7% (5% –11% inter-quartile range)

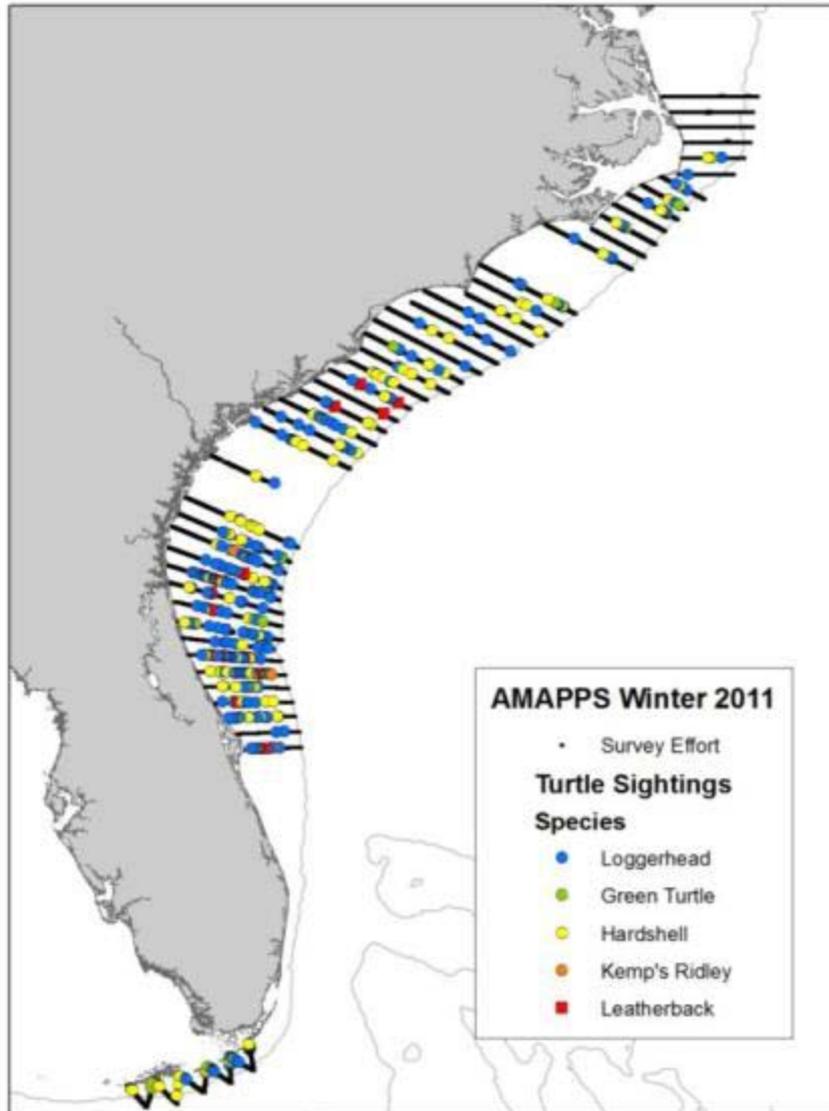
Year 1 NMFS Activities

First comprehensive, coast-wide aerial survey conducted since 2004/2005

Simultaneous deployment of telemetry tags on turtles provides data to correct survey abundance estimates for availability

Strong geographic variation in surface availability of turtles. Accounting for this will lead to more accurate evaluation of spatial distribution/habitat use.

Winter Aerial Surveys – SE

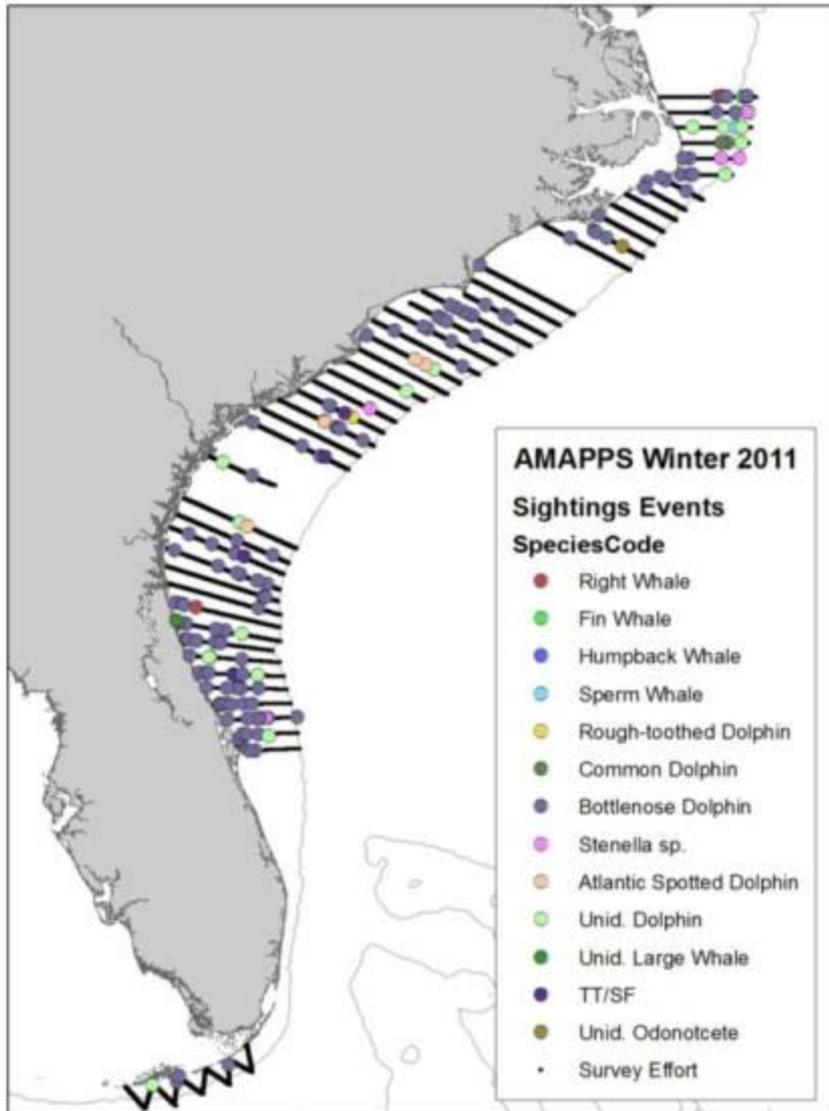


Survey flown between
February 7 and
March 14

High winds throughout
survey limited
sampling effort to
11 flight days

High densities of turtles
seen between Cape
Canaveral and Cape
Hatteras

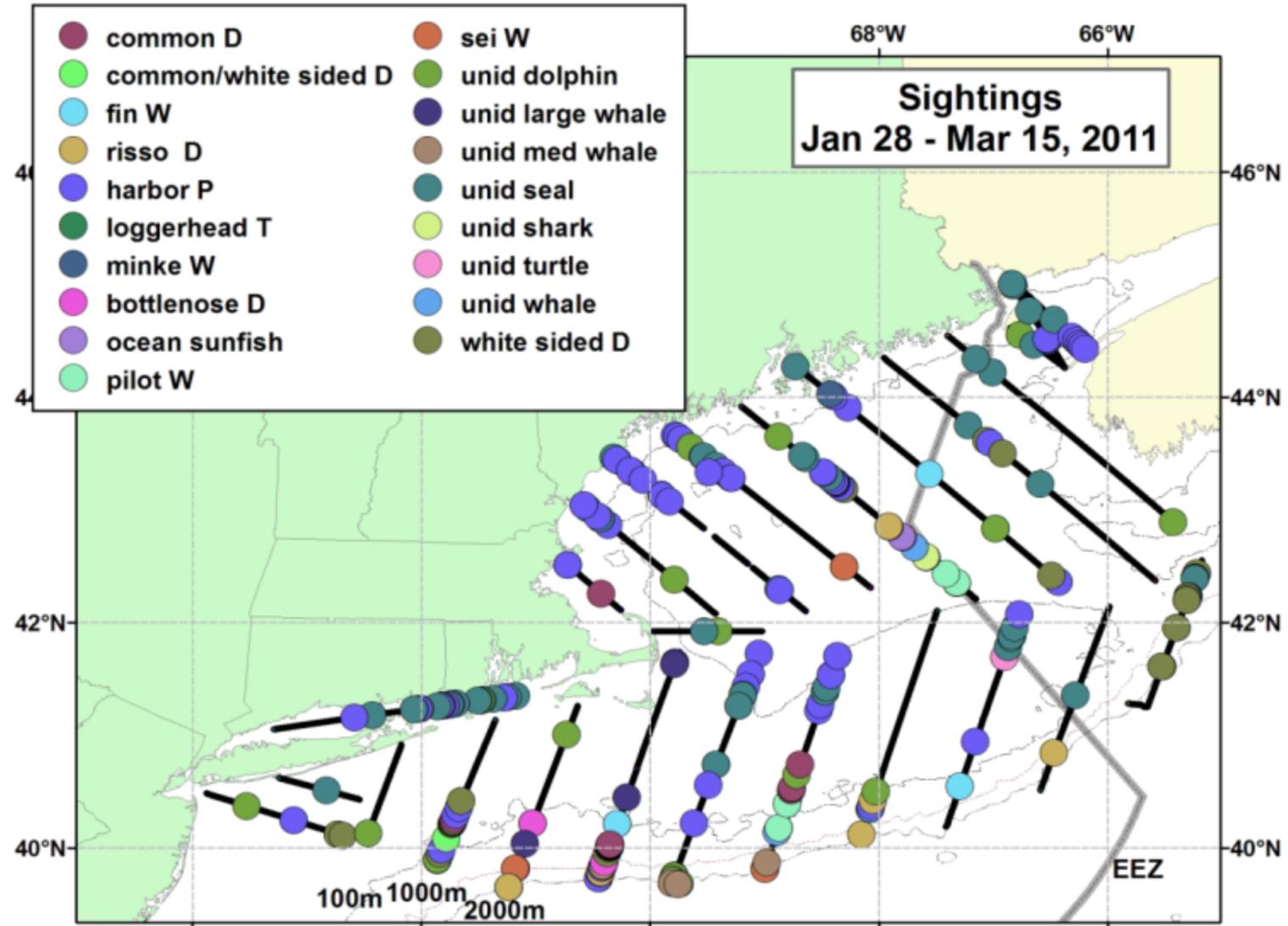
Winter Aerial Surveys – SE



High densities of bottlenose dolphins near Cape Canaveral

Humpback whales and fin whales seen just north of Cape Hatteras, consistent with surveys in previous years

Winter Aerial Surveys – NE



Year 2 Planned Activities

Seal tagging studies and aerial surveys

Additional turtle telemetry studies in northeast waters

Northeast and Southeast Vessel Surveys – including bird observers

USFWS expanded aerial surveys for waterfowl

Repeat NE and SE summer aerial surveys