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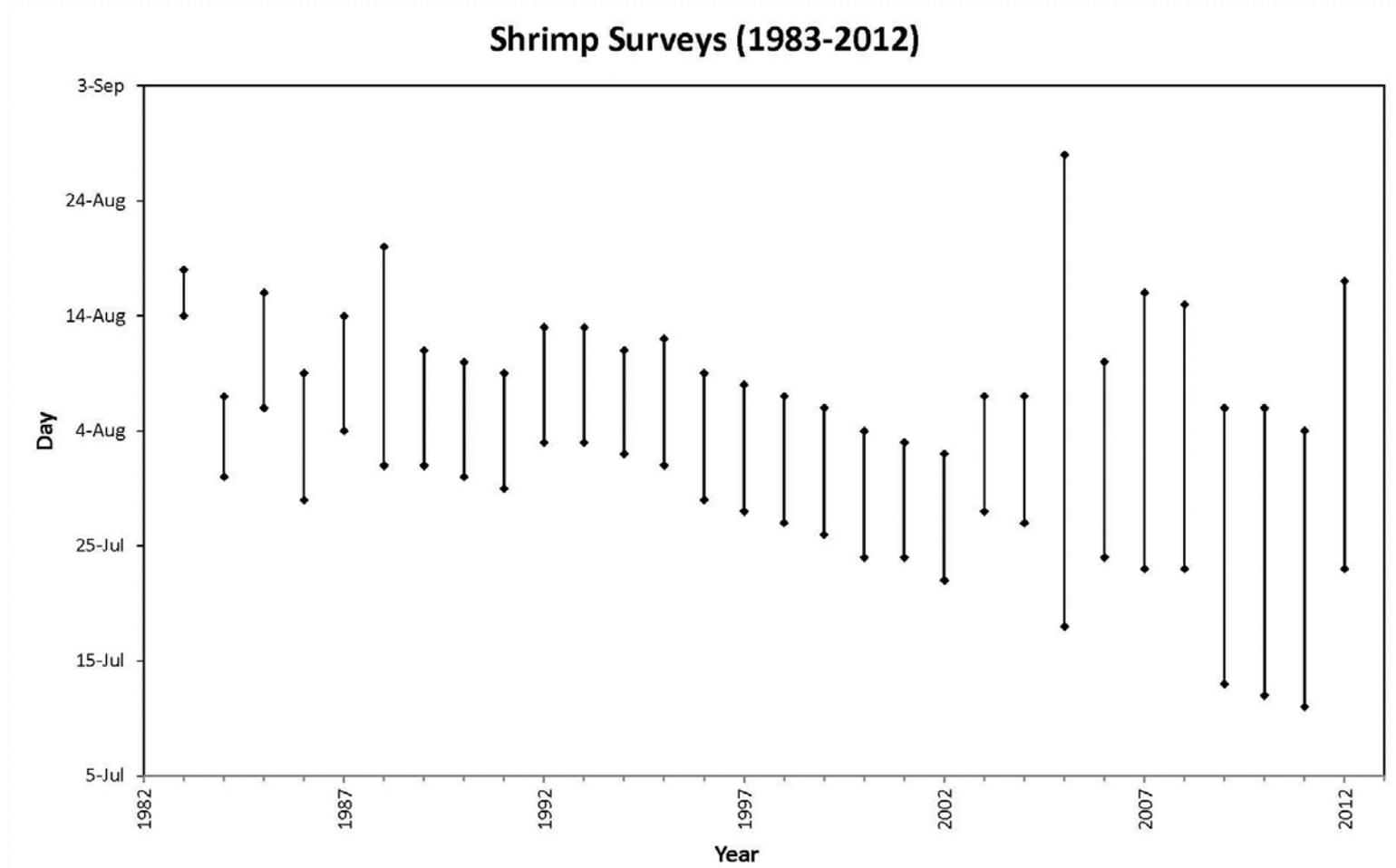
Ecosystems Surveys Branch Data Collection Programs

Northern shrimp survey

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August 5, 2013

Northern Shrimp Survey: Longevity



Northern Shrimp Survey: Vessel

NOAA R/V *Gloria Michelle*

- 1983 - present
- 72' LOA
- 20' Breadth
- 7.5' Depth
- 4 Officers and Crew
- 5 Scientific Staff



Northern Shrimp Survey: Trawl and Protocols

NEFSC Standard Shrimp Trawl

- 4 - Seam, 2-Bridle trawl

Design Features

- 72' Rock-hopper sweep
- 60' Headrope
- 1.38" (3.4cm) Twine wings/bellies
- 1.25" (3.2cm) extensions and codend
- Euronete 350kg doors

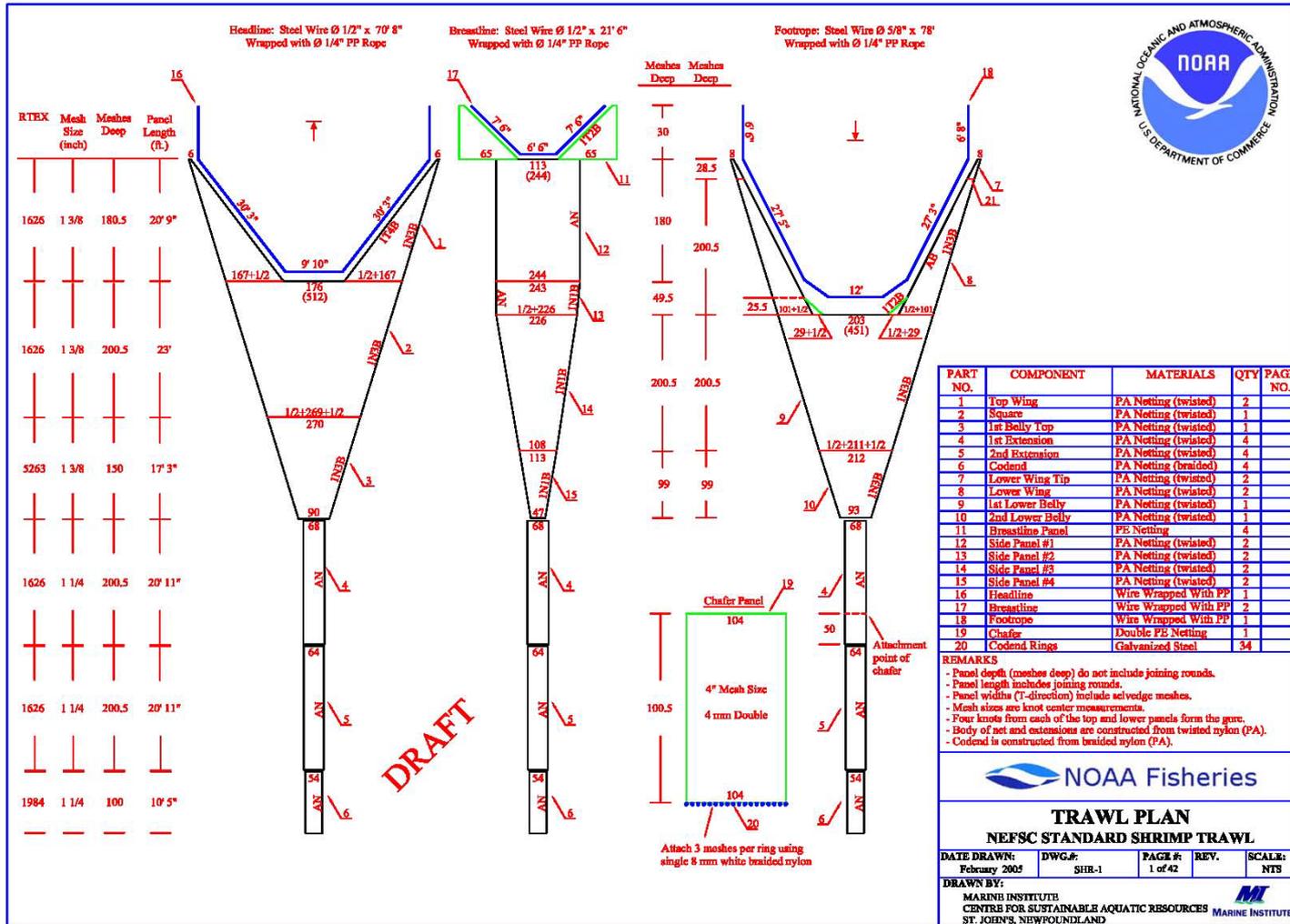
Nominal Fishing Characteristics

- 33m Door spread
- 13m Wing spread
- 2.0m Headrope height

Basic Protocols

- 15 minute tow duration (winch lock to haulback)
- 2.0 knots
- Average tow distance of 0.5 nm
- Towed into current
- Tow success often determine during haul

Northern Shrimp Survey: Trawl and Protocols



Northern Shrimp Survey: Survey Design

July - August

Gulf of Maine

62 random/20 fixed stations

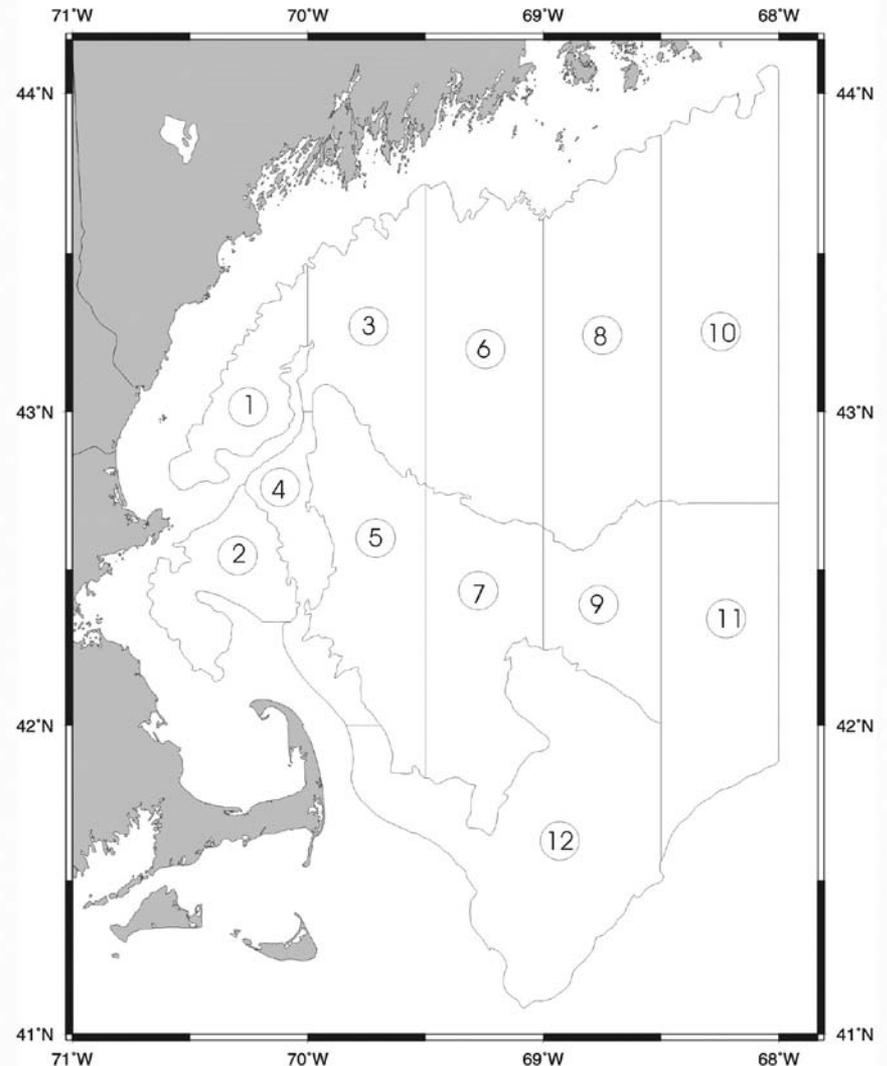
20 sea days

Stratified Random Design:

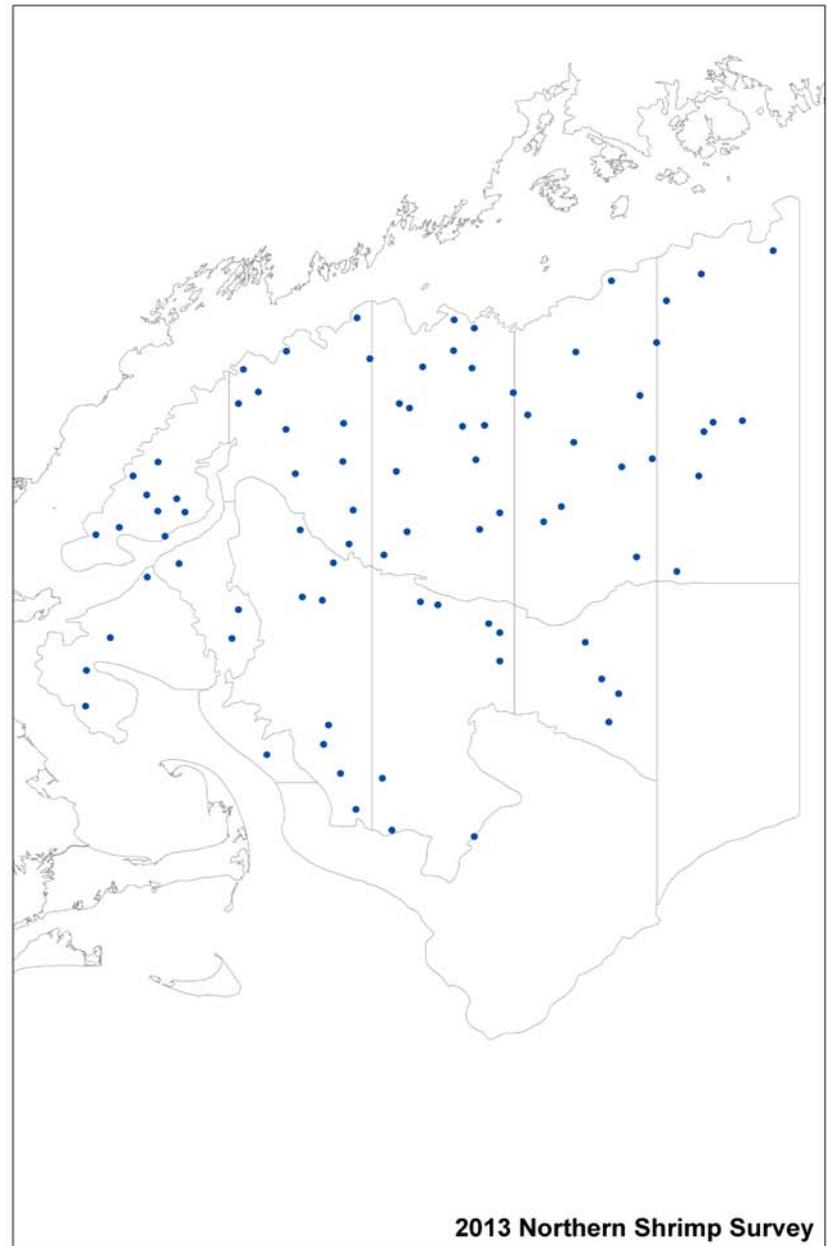
- Strata are delineated by depth and longitude
- Station locations are randomly selected within strata

Strata depth ranges:

- 55 - 91 meters (30 – 50 Fm)
- 91 - 183 meters (50 - 100 Fm)
- > 183 meters (> 100 Fm)



Northern Shrimp Survey: Survey Design



Northern Shrimp Survey: Catch Sampling Processes

Initially all fish, non-shrimp invertebrates and habitat are removed from “shrimp”

“Shrimp” are then weighed as a mix.

- A 2kg subsample is sorted to the species level
- Northern shrimp are sorted into stages (males, female 1, 2 etc.) and measured to the nearest 0.1mm

All other species are sorted to the species level, weighed and measured.

- If subsampling is necessary, the standard approaches are used.



Northern Shrimp Survey: Tow Standardization Efforts

NEFSC shrimp trawl is equipped with a net mensuration system that collects information regarding:

- door spread,
- headrope height and
- bottom contact.

These data are used to exclude non-representative tows when necessary.

The trawl is visually inspected at the end of each tow for damage and indications of appropriate fishing behavior (shine, etc.).

Any damage is repaired prior to further use. If damage is too severe to be repaired at sea, another trawl is used.



Northern Shrimp Survey: Gear Standardization Efforts

Each net, sweep, codend is inspected immediately after manufacture

All gear is inspected after each survey or after repair, prior to being placed back in rotation

Net Body – requires 2 people for 3 hours

Codend – requires 2 people for 1 hour

Sweep – requires 2 people for 1 hour



Northern Shrimp Survey: Products

Biomass, abundance and distribution

- Northern shrimp stock assessment
- Ecosystems management

Demographics – size, age, sex

- Northern shrimp stock assessment
- Effects of removals

Supplemental data for other species

- Goosefish
- White hake

Northern Shrimp Survey: Strengths

Time-series length

Survey design

Standardization – gear, tow, catch processing

Supplemental data for finfish

Northern Shrimp Survey: Challenges

Lack of automated tow evaluation product

Gear performance issues (overspreading)

Staffing issues

Northern Shrimp Survey: Proposed Solutions

Lack of automated tow evaluation product – employ tow evaluation program

Gear performance issues – employ different doors

Staffing issues – lobby support from partners