Fisheries Sampling Branch Overview

Programs Managed

• Northeast Fisheries Observer Program (NEFOP)
• At-Sea Monitoring Program (ASM)
• Industry Funded Scallop Program (IFS)

Staff

• 16 FTEs
• 43 contractors
FSB Observers

Currently 133 certified observers

NEFOP 18
ASM 21
IFS 26

In 2012, trained 80 new observers over 6 courses

102 days of training, including safety, recertification, and additional certification courses
History

NEFOP

• Started as the Domestic Fisheries Observer Program in 1989
  • Focus on interactions with protected species
• In 2001, focus switched to monitoring discards and bycatch
• Increasing coverage areas, target species, and gear types

ASM

• Started May 1, 2010 with implementation of sector management
  • Amendment 16 to the Northeast Multispecies Fisheries Management Plan
• Focus on monitoring discards of priority groundfish species
• Fewer duties than NEFOP observers, therefore lower seaday cost
# Gear Types Covered

<table>
<thead>
<tr>
<th>Gear Type</th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom Trawl</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gillnet</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Bottom Longline</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mid-water Trawl (paired and single)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Purse Seine</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Scallop Dredge &amp; Trawl</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Pots &amp; Traps</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Beach Seine</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

*NEFOP Scallop coverage ended in May 2013 when the Limited Access General Category fleet was added to the Industry Funded Scallop Program*
Common Target Species

NEFOP

- Groundfish, summer flounder, croaker, shrimp, scallop, herring, menhaden, lobster
- Dependent on gear type and area

ASM

- Groundfish
- Occasionally monkfish, spiny dogfish, and skate
## Sampling Design

<table>
<thead>
<tr>
<th></th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Covered</td>
<td>Maine to North Carolina</td>
<td>Maine to New Jersey</td>
</tr>
<tr>
<td>Frequency</td>
<td>Annual</td>
<td>Annual</td>
</tr>
<tr>
<td>Coverage Rate</td>
<td>Determined by SBRM*</td>
<td>Determined annually</td>
</tr>
</tbody>
</table>

*SBRM = Standardized Bycatch Reporting Methodology
Vessel Selection

Groundfish trips (NEFOP and ASM)
- Random via Pre-Trip Notification System (PTNS)

Herring trips (NEFOP)
- Vessel calls in directly to FSB staff

All other trips (NEFOP)
- Selected off seadate schedule, using:
  - Vessel selection list (previous year’s data)
  - Landings and prior observers’ data
  - FSB monitors repeat coverage by vessel
Special Coverage Areas - NEFOP

Special coverage levels can be set by management

• Example: 100% coverage of herring trips in Closed Area I

Additional seadays can be funded by states

• Example: Atlantic States Marine Fisheries Commission small mesh trawl trips

Changes to the seaday schedule reflected at monthly meetings with provider
## Sampling Design

<table>
<thead>
<tr>
<th>Fishery</th>
<th>Hauls to observe</th>
<th>Hauls to sample</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gillnet, complete sampling</td>
<td>100%</td>
<td>100%</td>
<td>No protected species watches</td>
</tr>
<tr>
<td>Gillnet, limited sampling</td>
<td>0%</td>
<td>Last haul</td>
<td>Protected species watches every haul</td>
</tr>
<tr>
<td>Bottom Trawl</td>
<td>≥ 75%</td>
<td>≥ 50%</td>
<td></td>
</tr>
<tr>
<td>Mid-water trawls and purse seine</td>
<td>100%</td>
<td>≥ 50%</td>
<td>Discard information may be recorded on unobserved hauls</td>
</tr>
<tr>
<td>Pots &amp; traps</td>
<td>100%</td>
<td>≥ 50%</td>
<td>75% observed in offshore lobster pot</td>
</tr>
<tr>
<td>Bottom longline</td>
<td>100%</td>
<td>≥ 50%</td>
<td></td>
</tr>
</tbody>
</table>

“Observed” haul = complete catch composition recorded, both kept and discards  
Protected species watch = no discard weights collected, observe net for marine mammal interactions
## Data Collected

<table>
<thead>
<tr>
<th></th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TRIP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vessel name, hull/permit numbers, target species</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Economic information (fuel cost and gallons used, damage, supplies)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Home port, gear onboard but not used, captain experience</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>GEAR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear type, mesh sizes, size of gear, pinger usage (gillnet)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Special modifications, gear-mounted electronics (trawl)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>HAUL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time, coordinates, weather condition, gear condition, target species</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Depth, tow speed, gear-mounted electronics (trawl), set method (gillnet)</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
# Data Collected

<table>
<thead>
<tr>
<th></th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPECIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All species (kept and discarded) for observed hauls</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Disposition (kept or discarded) and reason</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Weight, type (dressed or round) and estimation method</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>BIOLOGICAL SAMPLING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length frequencies</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Sex, age structures (scales, otoliths, vertebrae)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>LARGE DISCARDING EVENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discard reason and estimated discard weights</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Pumping, paired vessel information</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
# Data Collected

<table>
<thead>
<tr>
<th>PROTECTED SPECIES SIGHTINGS</th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species name, location, condition, activity, number of animals</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROTECTED SPECIES INCIDENTAL TAKES</th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species name, entanglement, condition (alive/dead, wounds, etc.)</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Photographs and detailed comments</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Measurements and samples</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
## 2012 Summary

<table>
<thead>
<tr>
<th></th>
<th>NEFOP</th>
<th>ASM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trips</td>
<td>2,576</td>
<td>2,578</td>
</tr>
<tr>
<td>Days at Sea</td>
<td>8,467</td>
<td>5,642</td>
</tr>
<tr>
<td>Haul Records</td>
<td>57,050</td>
<td>18,133</td>
</tr>
<tr>
<td>Hours</td>
<td>75,673</td>
<td>51,095</td>
</tr>
<tr>
<td>Species Records</td>
<td>424,008</td>
<td>238,780</td>
</tr>
<tr>
<td>Pounds</td>
<td>143,684,998</td>
<td>24,171,154</td>
</tr>
<tr>
<td>Animal Lengths</td>
<td>1,432,247</td>
<td>183,658</td>
</tr>
<tr>
<td>Age Structures</td>
<td>16,456</td>
<td></td>
</tr>
</tbody>
</table>
Timeliness

Electronic data due within 48 hours

- Groundfish trips: complete catch information plus preliminary data (haul times and locations, incidental take information, length frequencies)
- Squid trips: all kept species, discarded butterfish, plus basic trip- and haul-level information
- Herring trips: complete catch information, plus basic trip- and haul-level information
- Squid trips: basic trip-level information

Reviewed by FSB staff within 1 week
Timeliness

Late Trips Policy implemented in January 2013

Consequences for late trip submissions

- % of trips submitted on time by observer

- electronic upload
- paper logs

- January 2013

- 2012

- 2013
Timeliness

Paper logs due within 5 calendar days

Complete review by FSB staff within 1 month

- NEFOP: Current average 23 days from landing
- ASM: Current average 10 days from landing

Complete data entry, auditing, and loading to master tables within 3 months

- Current average 83 days from landing
Estimation Methods

Taught during initial training and reinforced during all debriefings and subsequent trainings

Actual weights always preferred

Tally/basket/tote counts
  • Obtain average weight and multiply by total number

Volume-to-volume
  • Extrapolate subsample weight to total using ratio of total measured volume to known subsample volume
  • Used for large catches in trawl fisheries

Cumulative sum
  • Obtain actual weights over several hauls and divide evenly
  • Used for deckloading situations, typically scallop dredge
Estimation Methods

Discards on Gillnet Trips, 2012

- Actual: 80%
- Tally/Basket/Tote: 14%
- Volume-to-Volume: 5%
- Captain/Visual: 0%
- Other/Combination: 1%

Discards on Trawl Trips, 2012

- Actual: 68%
- Tally/Basket/Tote: 8%
- Volume-to-Volume: 20%
- Captain/Visual: 3%
- Other/Combination: 13%
Species Verification Program

Starting in 2009, digital cameras issued to all observers

List of 30 required species
  • Must be submitted at least once per quarter

Protected species and pelagic species
  • Photos must be submitted each time encountered

Other species of uncertain identification

Photos reviewed by in-house staff or other ID experts in the Center

Follow-up debriefings (in person or over the phone) for all incorrect IDs
Species Verification Program

2011-2012

- More than 24,000 identifications
- More than 71,000 photos
- Average ~100 photos per day

In first 4 months after training, observers have >85% successful IDs

After 4 months experience, close to 100% for common species, somewhat less for protected species (not encountered as frequently)
Collaborations

Fishery Management Councils

• Several staff are sitting members of Plan Development Teams
• Usually at least one staff member at all council meetings

Marine Fisheries Commissions

Individual States

Industry organizations, such as Sector Managers
Strengths

- High data quality standards
- Comprehensive training program
- Frequent debriefings with observers
- Data editors with past observing experience
- Robust auditing program
Strengths

Most industry members cooperate fully

Incorporation of new electronic technology for at-sea data collection

Data is directly accessible by most end-users

Relatively unbiased vessel selection, given heterogeneity of fleets
Challenges

- Uncertain funding levels and fluctuations in total sea days from year to year
- Competition for limited resources: management specifications (for example, 100% coverage of Closed Area fisheries) vs. scientifically designed sampling
- Conversion of federally-funded programs to industry-funded or cost-sharing
- Monitoring of fine-scale management measures
Challenges

Non-compliant vessels

- Safety deficiencies, not taking observers when required, high cancellation rates

Increased safety concerns as vessels age

Inconsistency between programs

- Entry software, forms/data logs, trainings
Proposed Solutions

- Develop institutional mechanisms to balance priorities with available resources
- Provide readily available non-confidential data summaries
- Develop remote training applications for observers
- Promote observing as a professional career
  - Improve technology/software for more efficient data transfer/storage/retrieval
- Define “fishing trip” and “coverage” consistently across collection systems
- Create efficient system to link data collection sources