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**FISHERIES**

Northeast  
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Science Center

# Northeast Fisheries Science Center Observer Programs

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# Fisheries Sampling Branch Overview

## Programs Managed

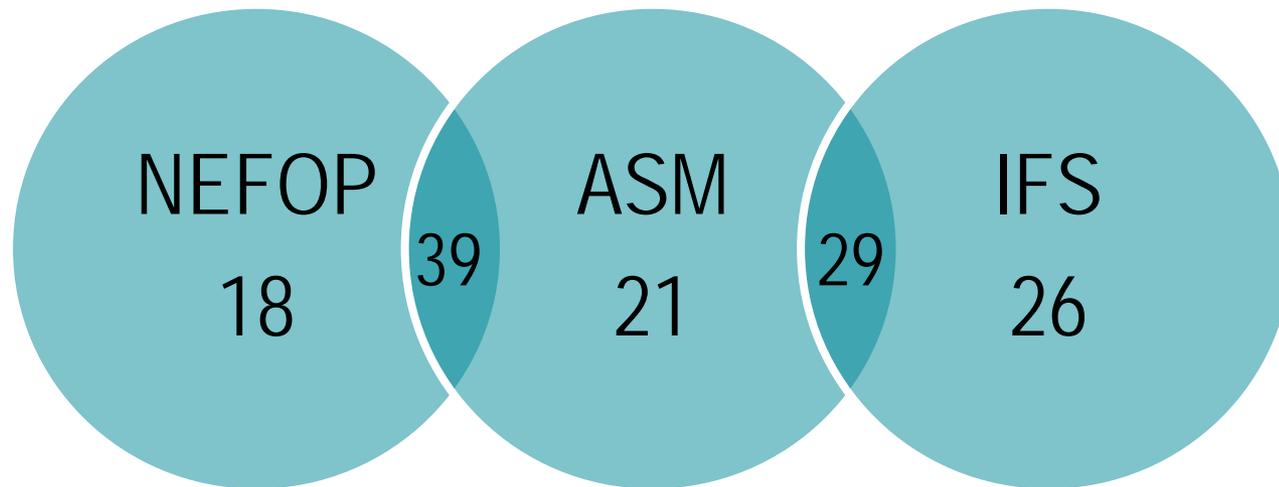
- Northeast Fisheries Observer Program (NEFOP)
- At-Sea Monitoring Program (ASM)
- Industry Funded Scallop Program (IFS)

## Staff

- 16 FTEs
- 43 contractors

# FSB Observers

Currently 133 certified observers



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

	NEFOP	ASM
Bottom Trawl	X	X
Gillnet	X	X
Bottom Longline	X	X
Mid-water Trawl (paired and single)	X	
Purse Seine	X	
Scallop Dredge & Trawl	*	
Pots & Traps	X	
Beach Seine	X	

\*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

	NEFOP	ASM
Area Covered	Maine to North Carolina	Maine to New Jersey
Frequency	Annual	Annual
Coverage Rate	Determined by SBRM*	Determined annually

\*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 seaday 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

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

“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

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

# Data Collected

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

# Data Collected

	NEFOP	ASM
<b>PROTECTED SPECIES SIGHTINGS</b>		
Species name, location, condition, activity, number of animals	X	
<b>PROTECTED SPECIES INCIDENTAL TAKES</b>		
Species name, entanglement, condition (alive/dead, wounds, etc.)	X	X
Photographs and detailed comments	X	X
Measurements and samples	X	

# 2012 Summary

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

# Timeliness

## Electronic data due within 48 hours

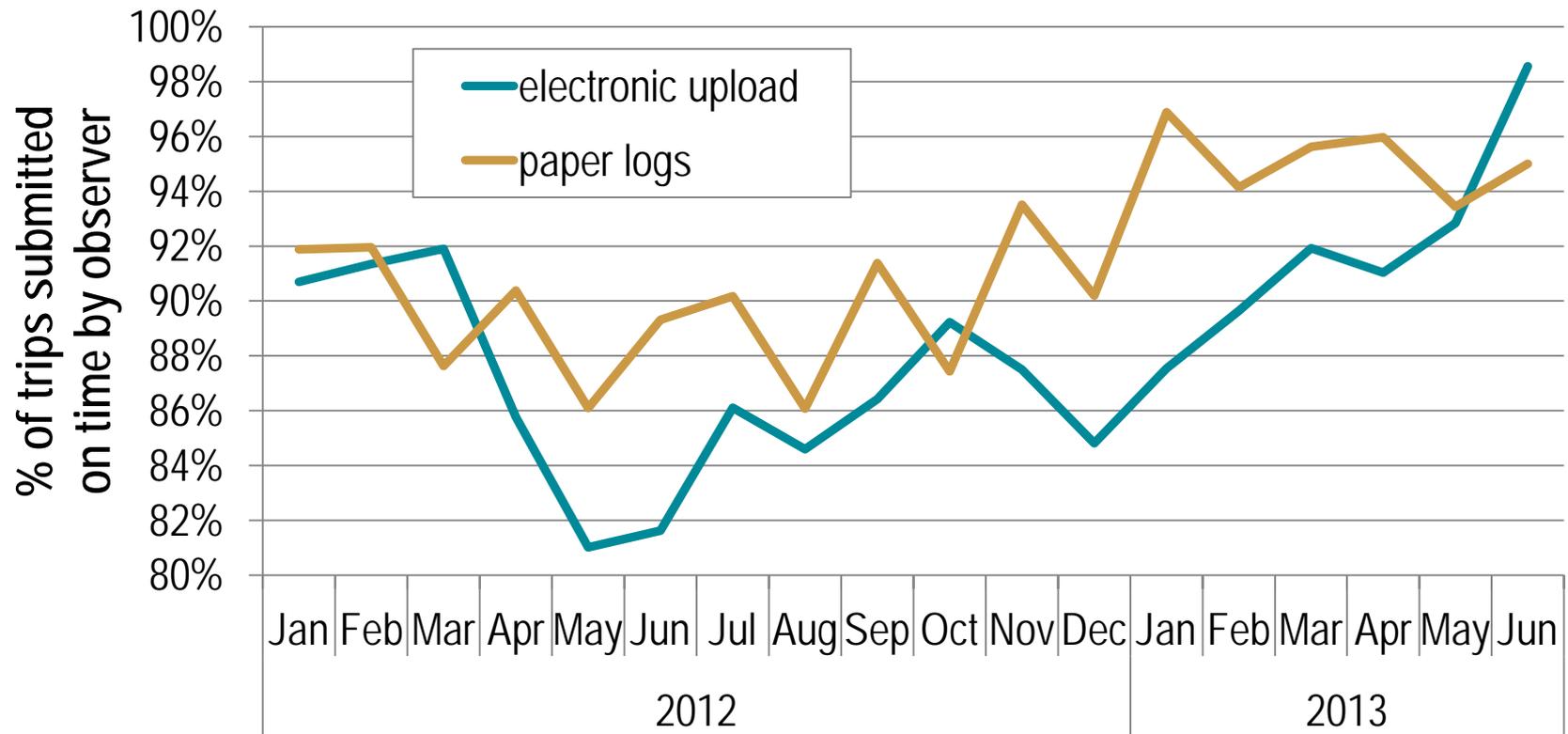
- Groundfish trips: complete catch information plus preliminary data (haul times and locations, incidental take information, length frequencies)
- Squid trips: all kept species, discarded butterfish, plus basic trip- and haul-level information
- Herring trips: complete catch information, plus basic trip-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



# 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

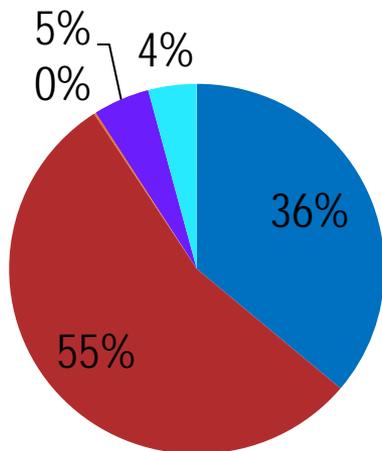
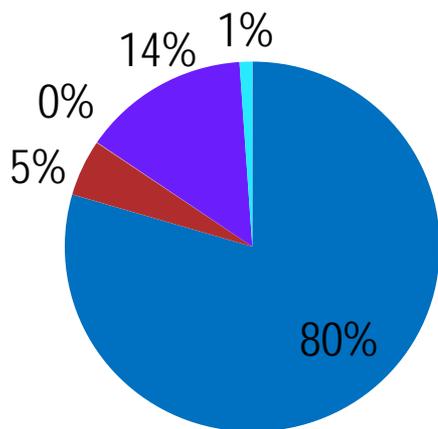
# Estimation Methods

## Discards on Gillnet Trips, 2012

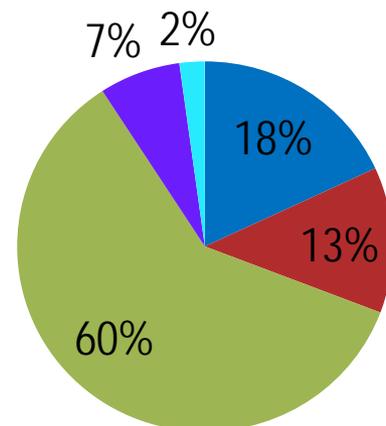
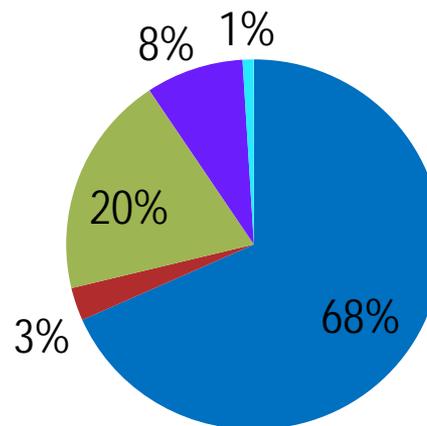
## Discards on Trawl Trips, 2012

# Species Records

Total Weight



- Actual
- Tally/Basket/Tote
- Volume-to-Volume
- Captain/Visual
- Other/Combination



# 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