Northeast Cooperative Research
Industry Contributions to Assessments

International Summit:
Role of Industry Collected Data in better informing stock assessments

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Sponsored by CFRF, TNC, NMFS-NEFSC

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Outline

1. Coop Res Goals and Objectives
2. Industry Based Fishery Independent surveys
3. Differences in Temporal and Spatial scale of fishery dependent data – VTRs – Observer data – study fleet
4. Capturing local ecological knowledge and a path towards enhancing assessments by explicitly incorporating environmental data and operational fishery practices
Cooperative Research Goals

- Improve the data upon which fishery management decisions are made,
- Foster coordination, cooperation, communication, and mutual respect among scientists, managers, and industry.

“Working together/ solving fishery challenges”

Scientific Objectives:
- Improve precision of analytical stock assessments and address concerns about bias in sampling.
- Fill Data Gaps.
- Improve the temporal and spatial resolution of multi-species catch (haul based), gear performance, and life history data to support more timely analysis of a greater diversity of management options.
Industry Based Surveys

Annual - ongoing
• ME-NH Inshore Survey (NCRP supplementary funding).
• NEAMAP – Mid Atl RSA funded
• Black Sea Bass Scup ventless trap – Mid Atl RSA w/ NCRP supplement.
• Scallop rotational area surveys supported by RSA programs

New Pilots
• Penobscot East bottom longline w/ shallow inshore jig stations.
• NEFSC Central GOM hard bottom longline survey for species of concern (Fall 13).
• High density stratified sampling for GEB YTF (Aug 2013)
• Survey gear catchability study GEB (Oct 2013)
• Butterfish Q – acoustic evaluation of Bigelow net (Cornell – squid network)

Proposals Submitted
• IBS survey for short-lived pelagic stocks stratified by thermal habitat.
• Headboat based hook and line hard bottom survey (REC program)
Previous Surveys & Survey Gear Research

GOM Cod
SNE YTF
Trawl Survey Sweep Comparison
SMAST WTF and SNE YTF (CFRF)
Scallop RSA Supported Surveys
Study Fleet Electronic Logbook System

Originally identified as one of three priority long term projects for NE cooperative research by industry during multiple public planning meetings 1999 – 2000. Fishermen supported tow-by-tow reporting so their data could be compared directly to observer data, thereby enhancing the information available for management and assessments.
**Study Fleet Data Collection**

- Improve Data Accuracy — Effort-level data entry so that within trip practices can be tracked (gear & environmental)

- More accurate estimates of individual efforts — improve stock area area assignment of catch.

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**Fig. 9.** Example of a single page FVTR trip. FVTR resembles actual observed FVTR submitted by Study Fleet participants.

**Fig. 13.** Example of a fishing trip with catch occurring in multiple statistical areas. Data resemble those from actual observed Study Fleet trips.
• By combining the GPS polling data with the TD probe data we can determine the location and timing of fishing effort from which the time-of-day, haul duration, haul location, distance fished, haul depth and water temperature can be determined.
Analyzing Haul Specific Data to Support Avoidance of ACL Limited Stocks

Modeled Squid CPUE Inshore 2009

Modeled Winter Flounder CPUE Inshore 2009
Enhanced Biological Sampling of Flatfish

- Total numbers of fish provided by Study Fleet vessels
- Data Types:
  - Reproductive: Gonad histology and fecundity
  - Fish condition and energetic measures
  - Age structures
  - Feeding

![Bar chart showing number of fish by species and region](chart.png)
Study Fleet Data Uses and ancillary (leveraged) research opportunities

• Rapid acquisition of vessel trip reports (within hours of landing)
• More timely cross verification with dealer landings and observer data for landings assignment to stocks and quota monitoring
• Improved accuracy of effort location and duration
• System supports more complete reporting of all catch

Data Analyses in support of stock assessments
• Direct comparisons of self reported and NEFOP estimates of kept and discarded catch at vessel specific trip and tow level, stat area – month comparisons across vessels – with a goal of collaborating with analysts to improve the precision of discard estimates used in assessments.

• Increased acquisition of tow based data comparable to NEFOPs will support more detailed spatial autocorrelative modeling of commercial catch per unit effort relative to fishery independent indices.
Analyzing fine scale haul data for species temperature and depth preferences for hot spot mapping in support of efforts to avoid ACL limited stocks.

Provision of bottom temp data at 1 hour 1 minute gridding to NEFSC and IOOS oceanographers to evaluate regional models and improve both hindcast and forecasts of bottom temperature and ecosystem research.

Other Study Fleet Supported Research
• Enhanced Biosampling – flatfish, haddock age, growth, maturation and fecundity
• Updating groundfish conversion factors and ancillary feeding data.
• Dogfish sex ratios by area – gestation period and seasonality
• discard length frequency sampling
• Improving discard estimation – river herring special study
• Improving capacity to track gear modifications and performance over time
Industry Contributions to Assessments - Strengths

Industry Based Surveys
• Flexible capacity with specialized knowledge
• Cost effective platforms of opportunity
• Constructive industry engagement

Fishery Dependent Data – Study Fleets
• Enhanced timeliness, accuracy, and greater detail for vessel trip reports supporting quota monitoring as well as rapid allocation of catch to stock areas.
• Industry data access enhances participation in management process
• Industry interest in ancillary oceanographic data and rapid feedback creates incentives for greater collaboration
• Increased availability of fine scale data will support more timely analyses of a greater diversity of management options
Industry Contributions to Assessments - Challenges

Industry Based Surveys

- Stable funding for time series vs one-off studies
- Coordination and communication that will expand involvement
- Differing perceptions of what a region wide integrated survey program would include
- NMFS capacity to support field operations and post cruise data analyses

Fishery Dependent Data – Study Fleets

- Increase participation- outreach and training
- Tailor tools to specific fishery reporting requirements and assessment needs
- Emphasize data ownership & responsibility for inclusive participation in analyses
- Provide feedback and data reports that will positively incentivize participation in electronic reporting – current bottom temp and species distribution mapping is encouraging participation.