



Communicating Science to the Fishing Industry

Cate O'Keefe

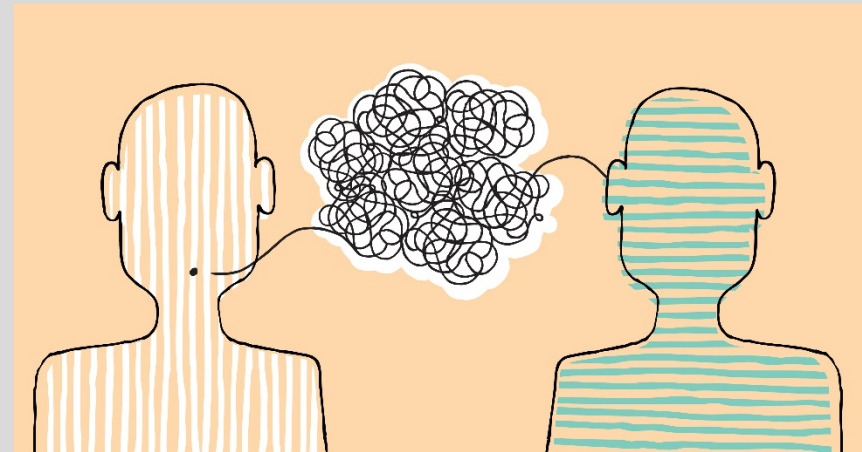
School for Marine Science and Technology (SMAST)
University of Massachusetts Dartmouth
Department of Fisheries Oceanography

AIFRB/AFS SNEC Communication Workshop
30 March 2016



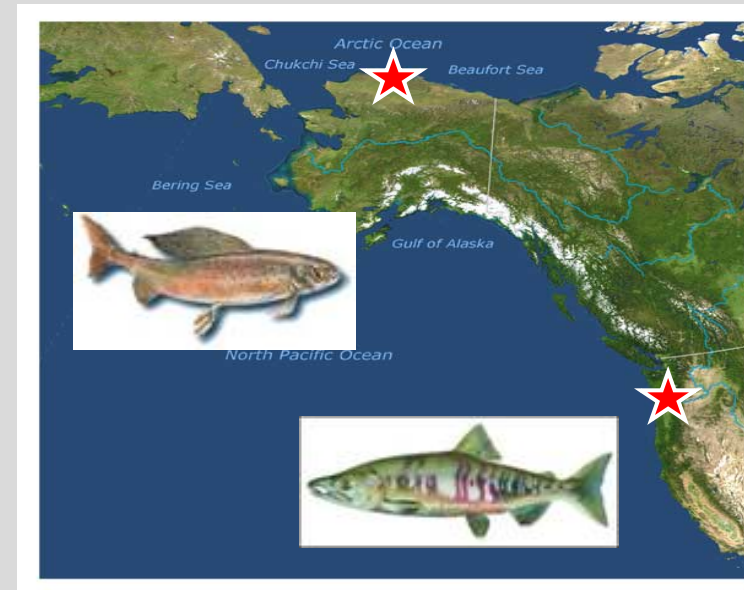
Overview

- Personal background
- Examples of communicating science to members of the fishing industry
- Discussion: “us and them”
- Building trust to enhance communication
- Effective communication styles and formats
- Benefits and challenges
- Take home messages



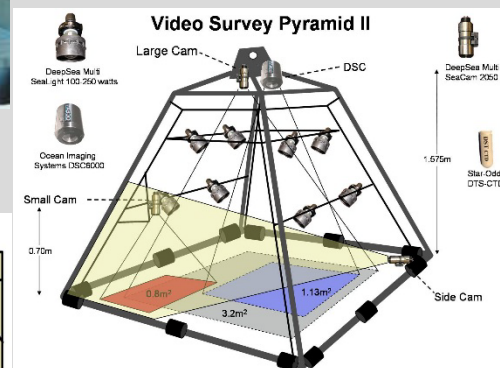
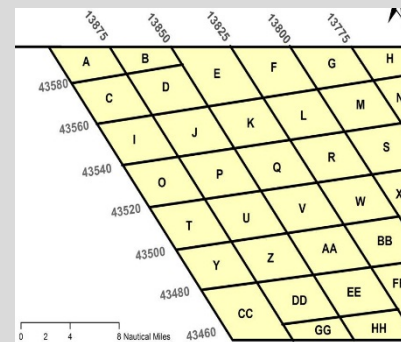
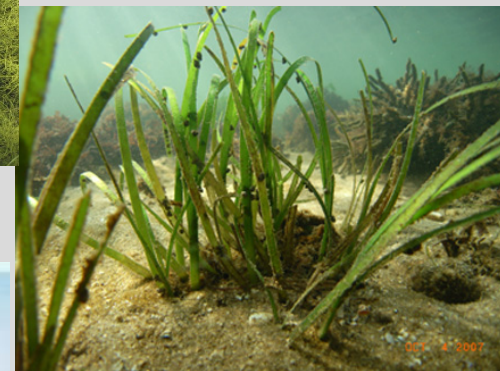
Education Background

- Bachelor's Degree (1999)
Hampshire College: Salmonid migration and diet composition research
- Master's Degree (2005)
Boston University: "Effects of environmental parameters on the survivorship of embryonic alewife"
- PhD (2013)
University of Massachusetts: "An incentive-based, collaborative approach to avoid bycatch in the US sea scallop fishery"



Employment Background

- Kitsap Conservation District – mapping salmon stream habitat and passage barriers
- Massachusetts Division of Marine Fisheries (DMF) – habitat restoration in Boston Harbor
- NOAA Fisheries Observer Program – data editing and quality control
- School for Marine Science and Technology (SMAST) – program manager for scallop research activities; bycatch avoidance in scallop and groundfish fisheries; Research Faculty
- DMF – Marine Science and Policy Analyst; federal and state fisheries management and policy



School for Marine Science and Technology

University of Massachusetts Dartmouth

- Department of Fisheries Oceanography
 - 9 faculty, ~50 students, ~10 research staff
- Fisheries surveys, oceanographic modeling, stock assessment, fisheries economics, conservation technology, fisheries and ecosystem-based management
- New Bedford has been most lucrative fishing port in U.S. for 15 years
- **Unique opportunity for collaborative partnerships with fishing industry**



Working Examples of Communication

- SMAST Fishermen's Steering Committee
 - Scallop Video Survey
 - Bycatch Avoidance Program
- Fishery-Dependent Data Interview Project
- Groundfish Port Meetings - 'Listening Sessions'
- New England Fisheries Management Council
- Stock Assessment - Industry Data Exchange



SMAST Fishermen's Steering Committee



- **Incentive**
 - Access to harvestable resource
- **Participants**
 - Owners, captains, crews
- **Commitment**
 - Research design, donation of vessels, review results for management

Video survey

Digital Still Camera = 1.13 m²



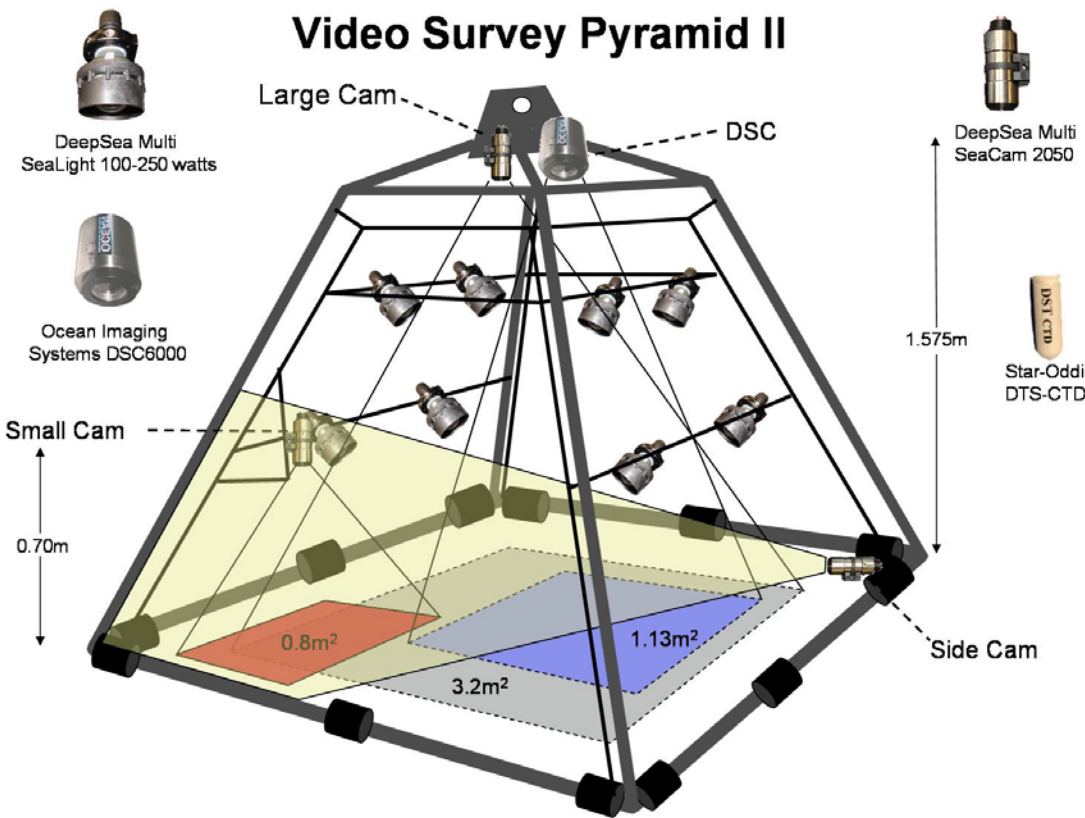
Large Camera = 3.2 m²



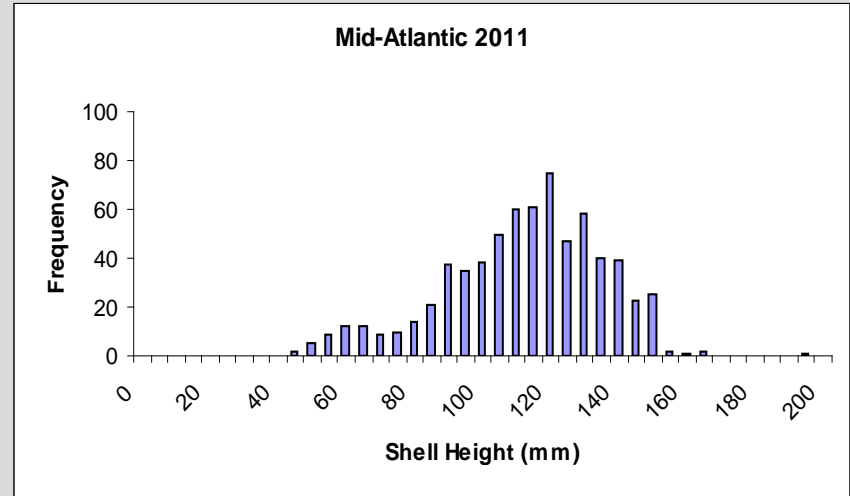
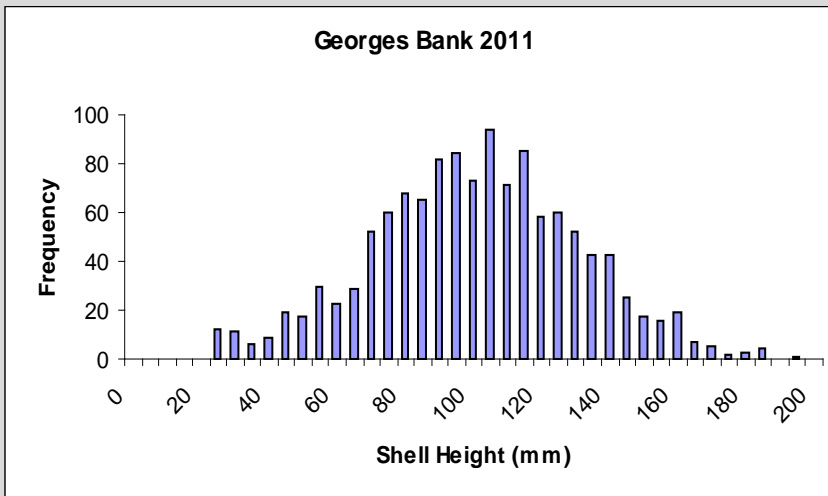
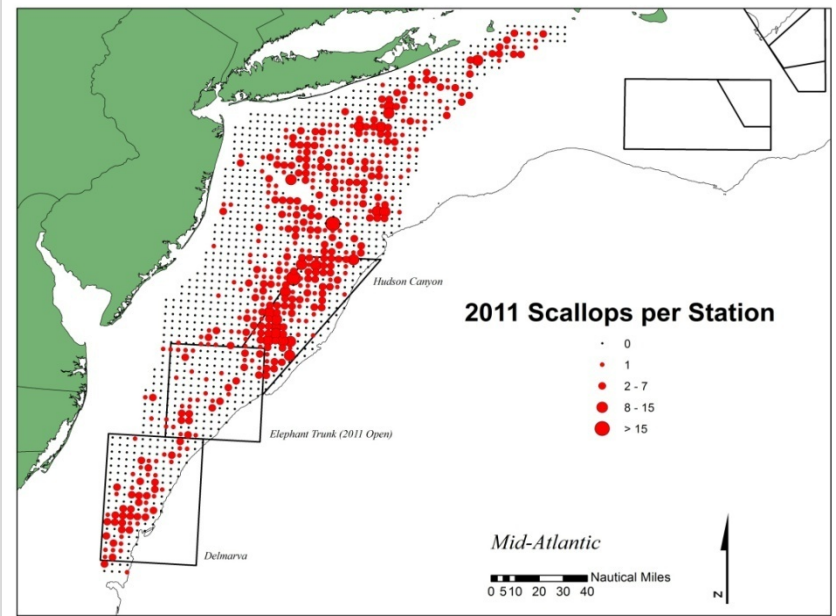
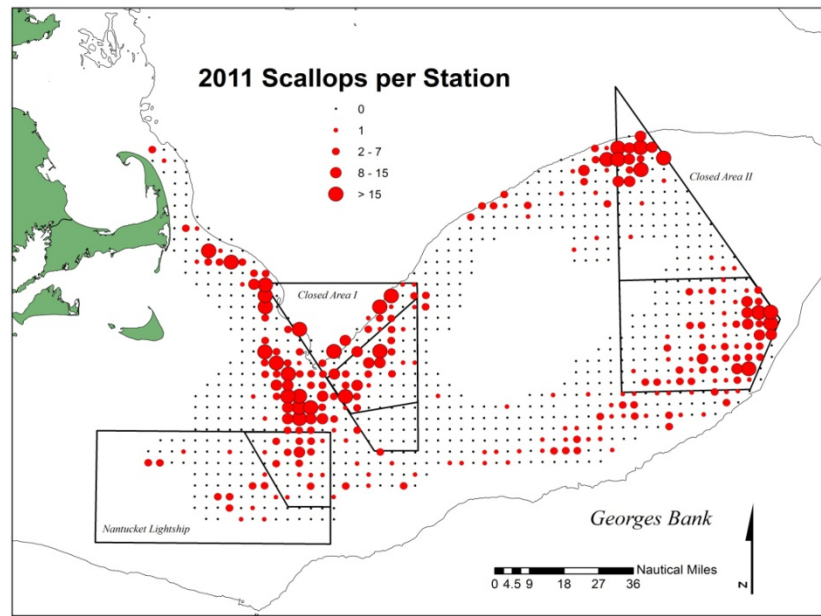
Small Camera = 0.8 m²



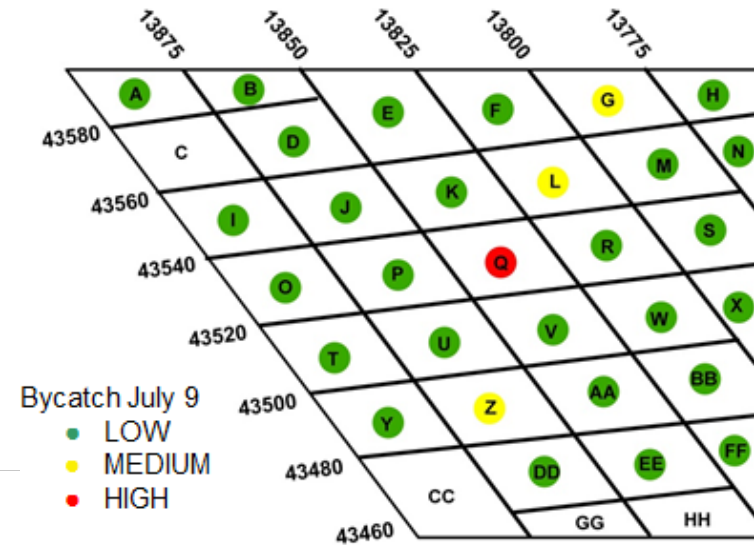
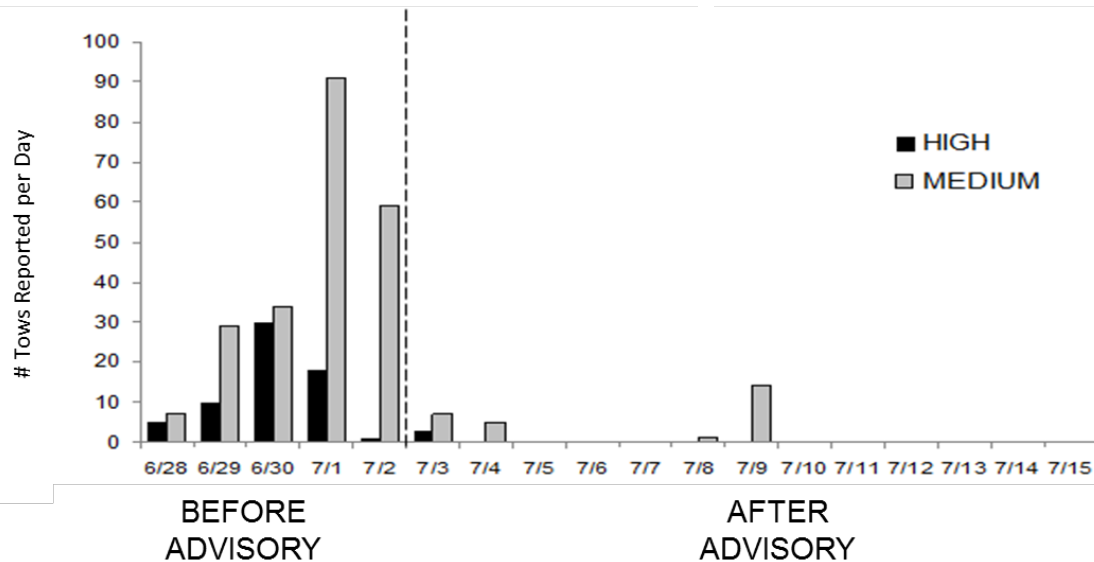
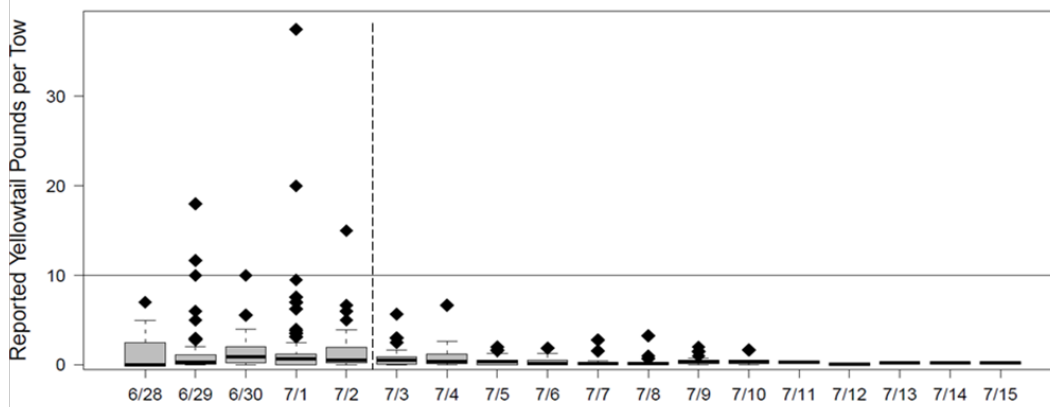
Side Camera



SMAST Scallop Video Survey Results



SMAST Bycatch Avoidance Program

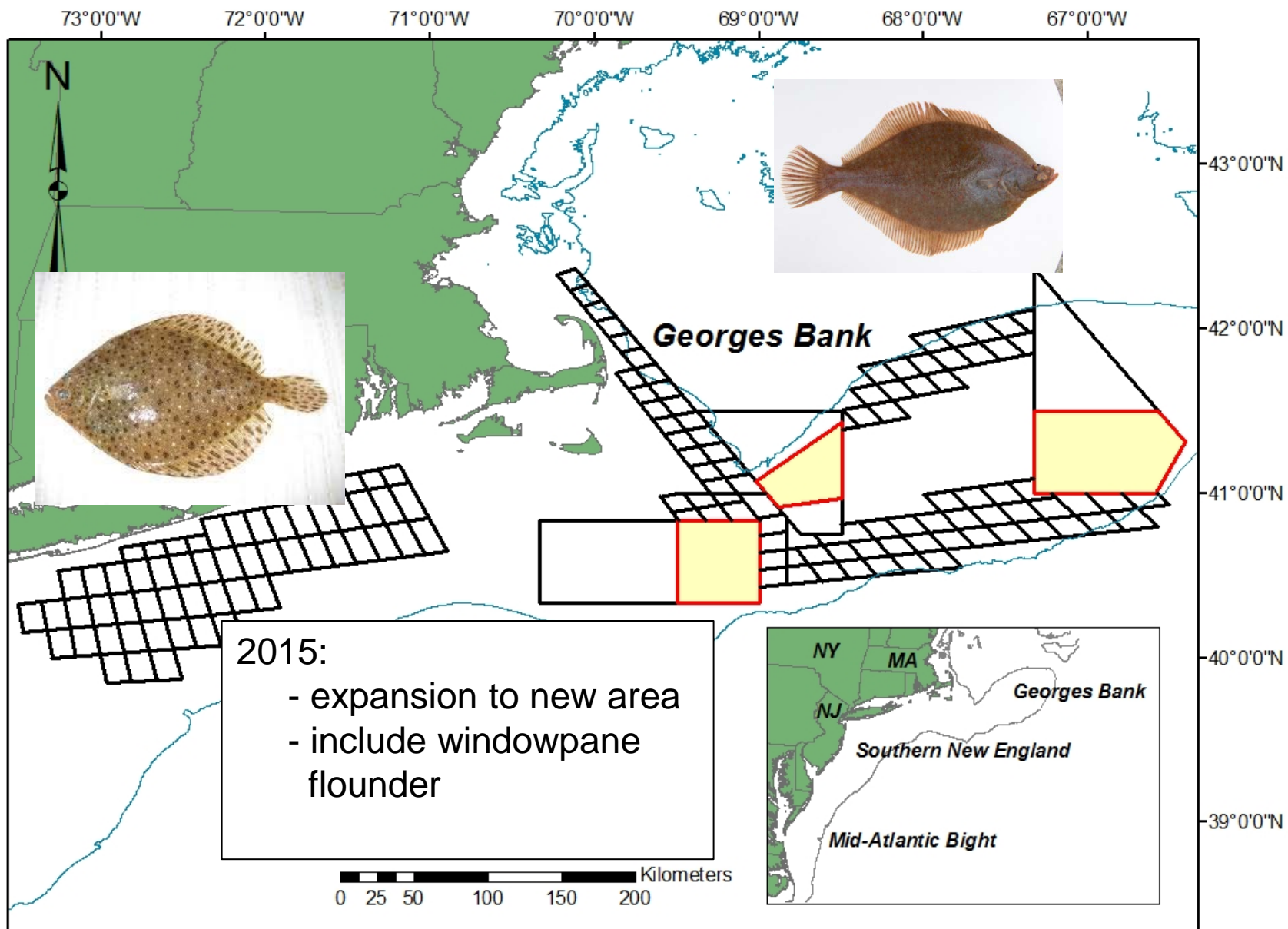


YT Update for 7/9:
10 boats reported 129 tows

YT catch was:
HIGH: Q
MEDIUM: G L Z
All other cells LOW

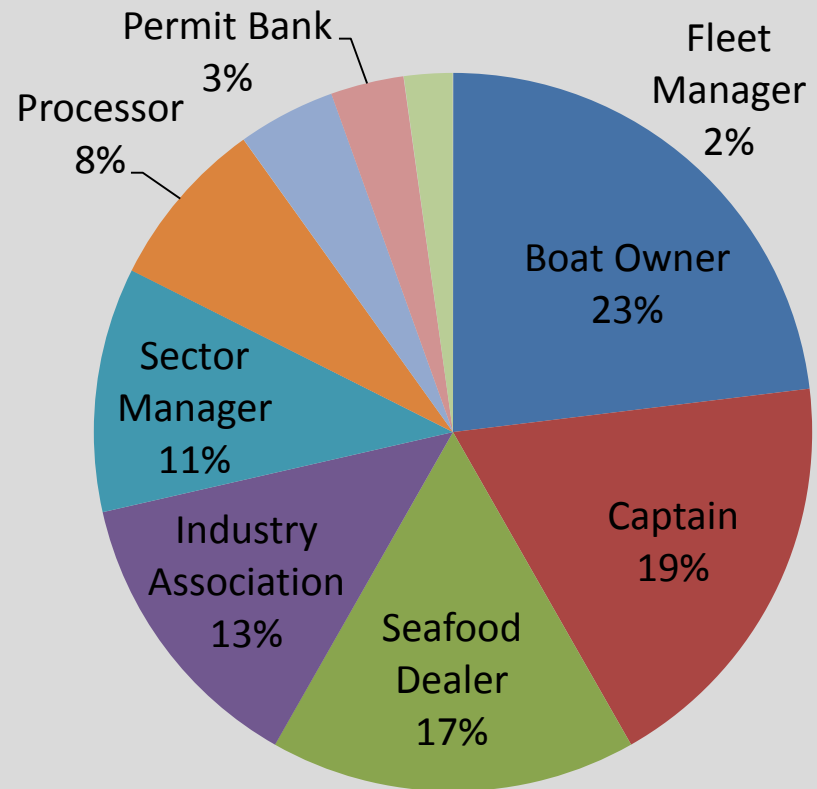
Cell Q remains a YT hotspot.
Cells G L Z had high YT catch.

Next Report 7/10.
Thank you!



Fishery-Dependent Data Visioning

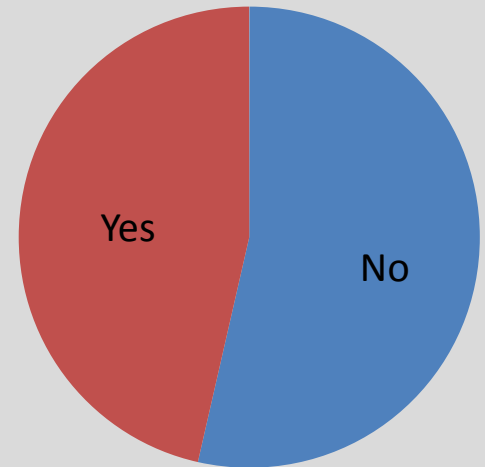
- Interviewed members from several segments of the fishing industry
- Collected feedback on current and future data collection systems



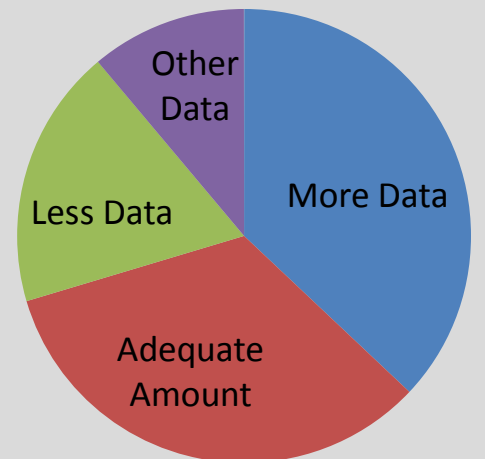
Industry Feedback

- Over 50% of interviewees feel current data collection systems do not accurately characterize operations to support science and management
- BUT, lack of consensus on what needs to be done
 - Misunderstanding of current system?
 - Lack of trust in system?

Characterizes Operations



NMFS Needs



Groundfish Listening Sessions



- Objective: Identify possible approaches to assist fleet in maintaining viability



- Result: Take 10 steps backwards and figure out the problems first

Communicating to “Managers”

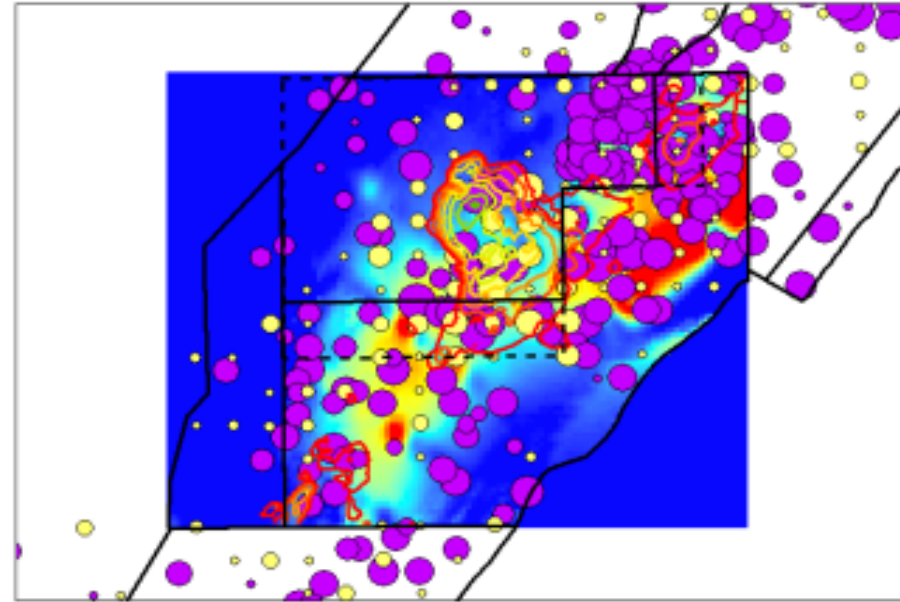
- Councils are comprised of a mix of stakeholders, including industry members
- Variety of backgrounds – range of expertise and knowledge
- Scientific information forms the basis for management decisions
- How can we effectively communicate science to a broad audience?



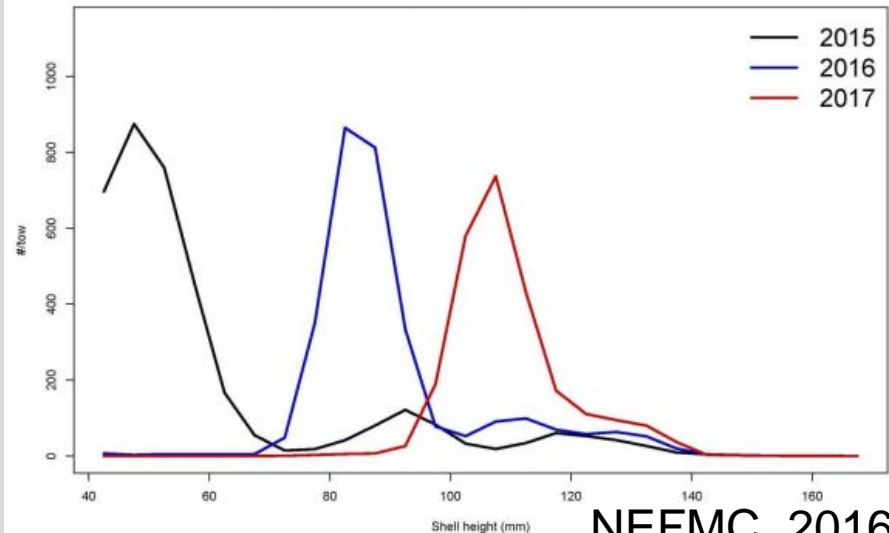


Scallop Area Management

- Visually displayed survey data
 - Understandable metrics
 - Multiple data sources
 - Identifiable regions
- Projected growth
 - Reviewed model
 - Evidence of change
 - Accepted methods



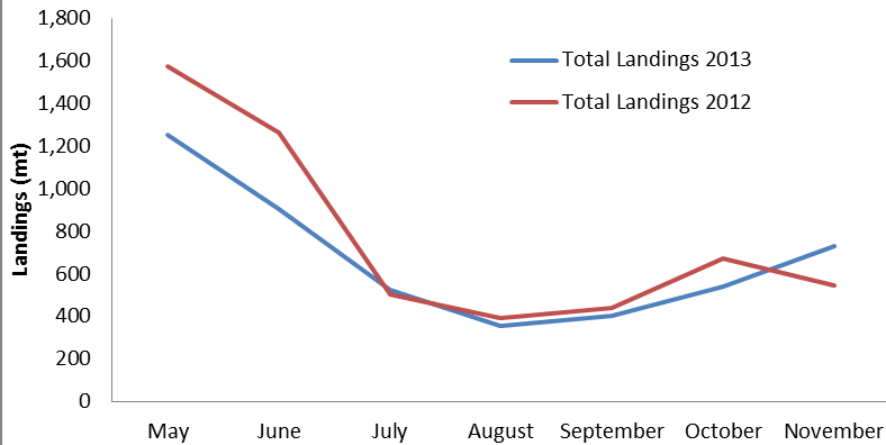
Elephant Trunk Closed





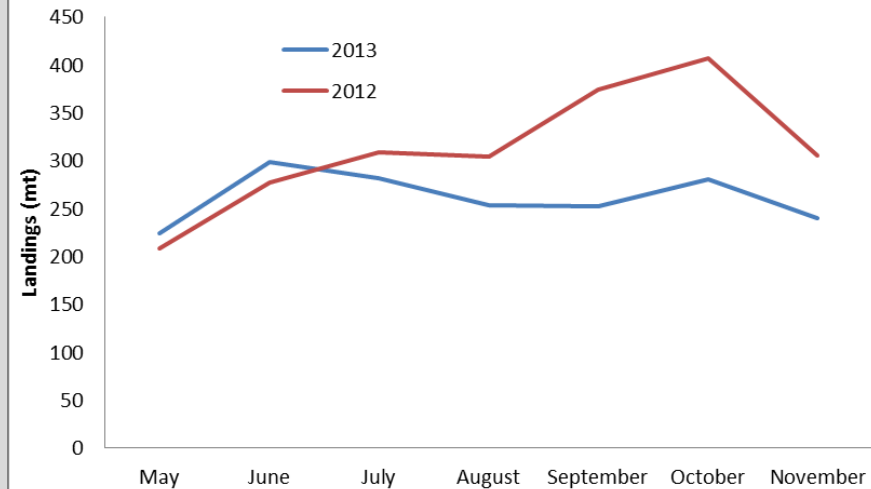
Monkfish Effort Allocation

Total Monkfish Landings

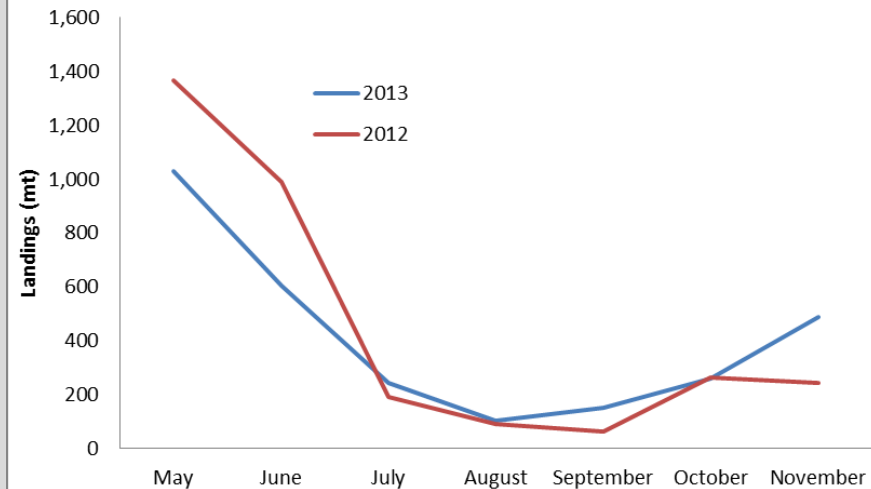


NEFMC, 2014

NFMA Monkfish Landings



SFMA Monkfish Landings

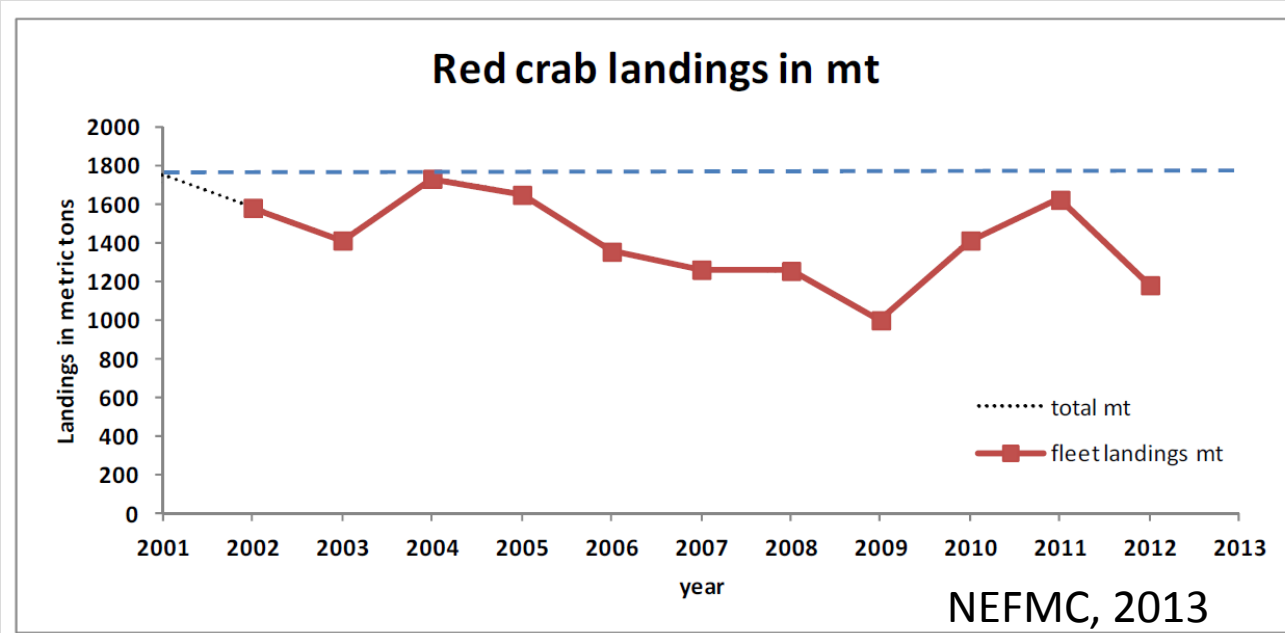


- Examine trends in landings and effort
- Compare status quo to alternatives



Red Crab Catch Specifications

- What is happening in the fishery?

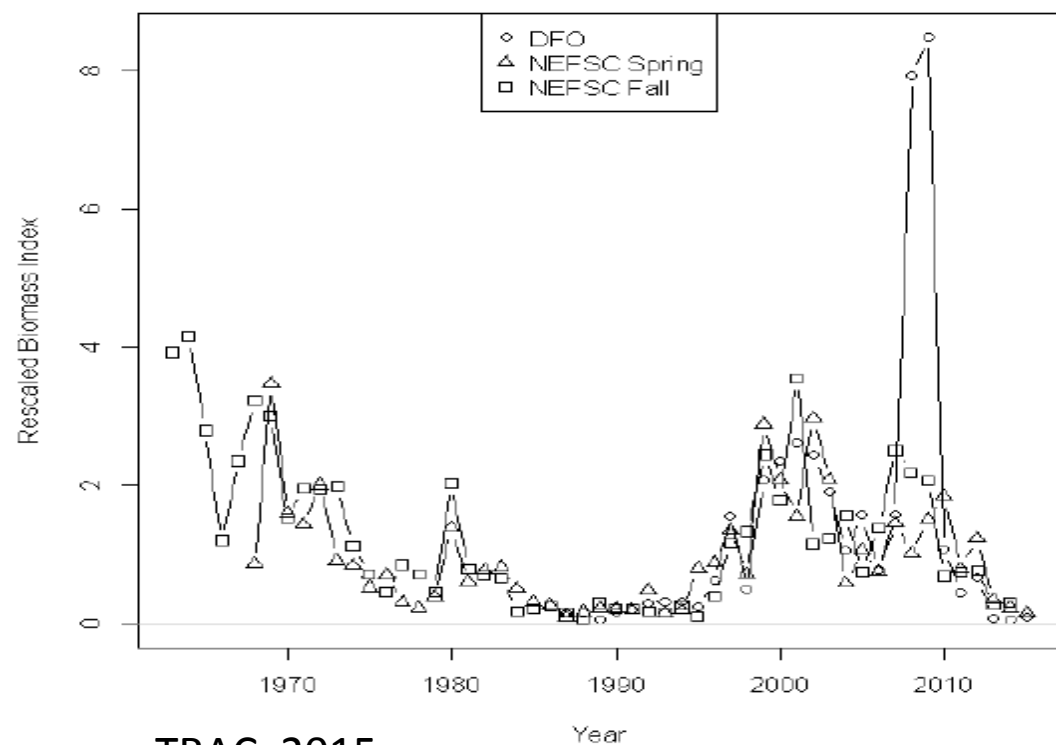


- How does this effect price and revenue?

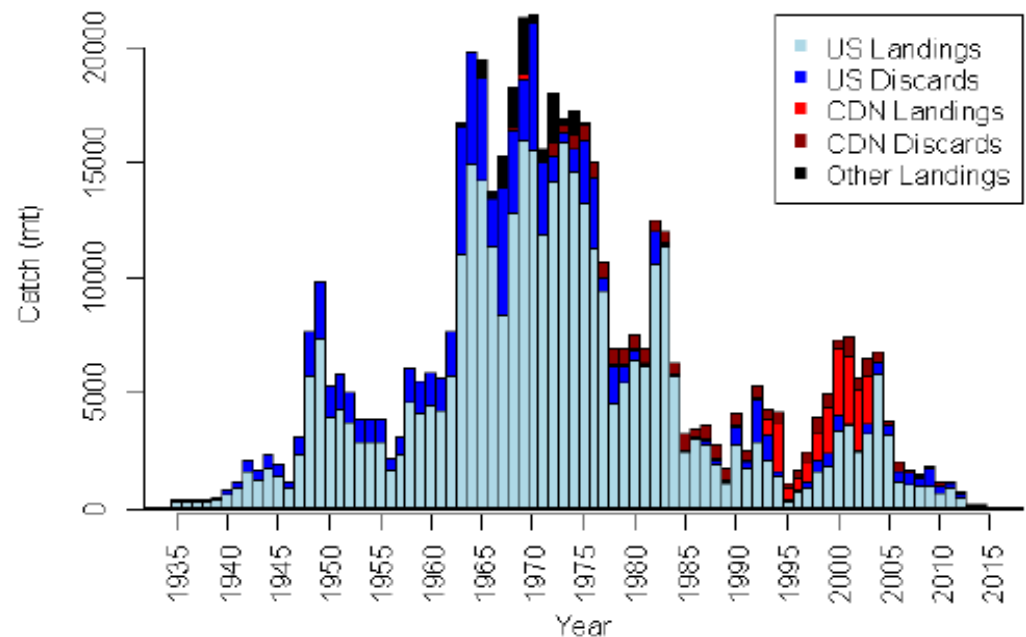
Fishing Year	Landed Weight	Price per Pound	Revenue
2002	4,673,214	\$0.86	\$4,004,752
2003	4,091,659	\$0.85	\$3,491,683
2004	4,930,204	\$0.94	\$4,617,380
2005	4,079,670	\$0.90	\$3,661,860
2006	3,841,577	\$0.90	\$3,474,953
2007	2,771,501	\$0.92	\$2,557,421
2008	2,857,162	\$1.01	\$2,876,510
2009	2,773,776	\$0.96	\$2,612,782
2010	2,743,868	\$0.97	\$2,669,185
2011	3,343,902	\$0.97	\$3,253,621
2012	2,898,962	\$1.00	\$2,898,962
Average	3,542,318	\$0.93	\$3,283,555

Communicating Assessments

- What data was included in the assessment, what wasn't, why?
- How can we incorporate industry feedback about assessments?



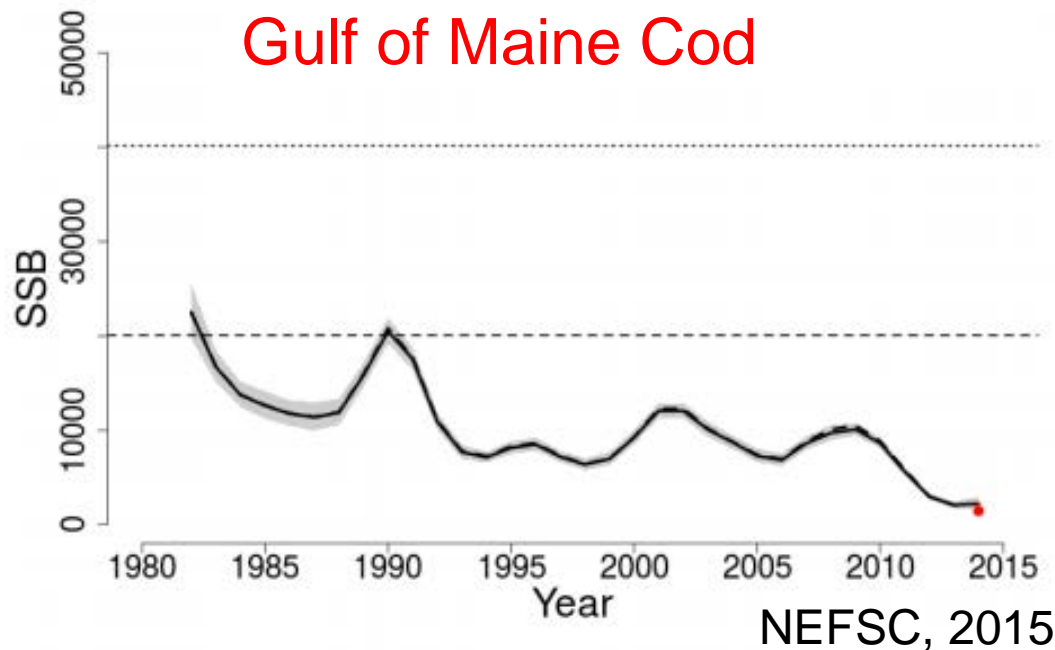
TRAC, 2015



Communicating Conflicting Results

- What to do when science suggests one thing and fishermen are seeing another...

Gulf of Maine Cod



Discussion

- “Us versus them” conundrum
 - Who are “we” and “they”?
 - How are different groups represented?
 - Is this a defensive mechanism?
 - Are you supposed to represent a side of the argument?
- How can we get closer to a more inclusive way of thinking and communicating?





Trust in the Fisheries Science Community

Glenn et al., 2011



- Common language
 - Use of similar language and jargon
 - Mutual understanding of communication topic

- Common vision
 - Shared goals, concerns, purpose



- Discretion
 - Confidentiality



- Receptivity
 - Good listening skills



- Strong Ties
 - Close relationships
 - Frequent communications





Building Trust to Enhance Communication

- “Trusting people’s benevolence is important, but trusting people’s competence is more so, especially where there is a lack of knowledge.”
- “...trust is influenced by people’s expectations of the intentions of an organization.”
- “...the manner and content of communication and stakeholder participation is as important as the level of communication.”
- How do these statements apply when communicating with fishermen?

Stakeholder Collaboration in Fisheries Research

Hartley & Roberston, 2009

Goal statement	Important (<i>n</i> = 251)	Achievable (<i>n</i> = 243)
Help bring fishermen's information, experience, and expertise into the scientific framework needed for fisheries management.	Very: 91.6% Somewhat: 7.6% Not: 0.8%	Very: 38.7% Somewhat: 49.4% Not: 11.9%

- "...perception that NMFS scientists and managers and academic scientists were unwilling to listen, accept or trust fishermen and their knowledge and information."
- "...industry also reluctant to share and reluctant to work with scientists."

Style and Format: Title Slide



- **More important than you may think!**
- This slide is often open longer than expected while speakers are getting organized, during introductions and questions, etc.
 - Should be attractive to look at, but not too distracting
 - Even if introduced, read your title and say your name again
 - Give industry members a little personal/professional background so they know who you are
- Authors and affiliations
 - Introduce co-authors at the beginning of the presentation
 - It's helpful for industry members to know who did the research

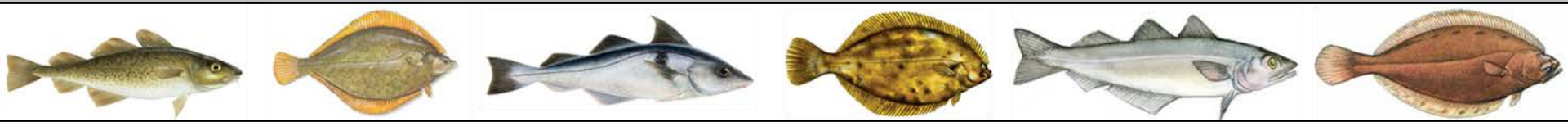


West Coast Groundfish Trawl Fishery: Boom, Bust, Recovery(?)

2015 AFS Annual Meeting
Portland, Oregon
August 18, 2015

John Smith
Director
Oregon Trawl commission

Fishery Dependent Data in New England Stock Assessments



Jane Smith and John Q. Public
Taking Stock Workshop

9 November 2015





John Smith
President, Coastside
Fishing Club

The Role of Recreational Fishermen in the Conservation and Rebuilding of West Coast Groundfish



Ecosystem-based Businesses: Managing for Fishery Benefits in a Multispecies World

John Smith

Associate Professor of Fisheries Economics
University of Washington
School of Aquatic & Fishery Sciences
North Pacific SSC

Sustainable Salmon Farming in British Columbia

Joe Schmo



AMERICAN FISHERIES SOCIETY
PORTLAND, OREGON
145TH ANNUAL MEETING
AUGUST 16-20, 2015

Style and Format: Introduction

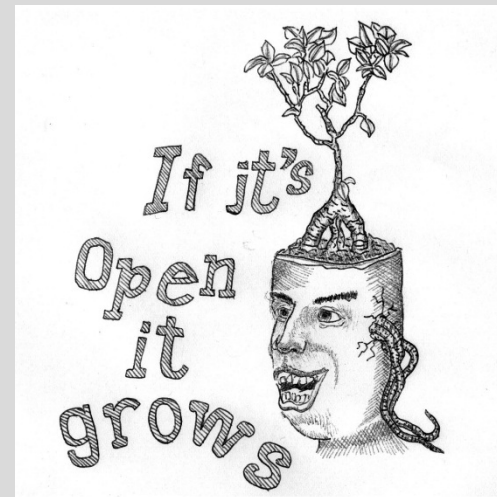
- Background of issue
- Orient audience to scope and scale (geographic, fishery-specific)
- Clearly state the problem or research objective



- This sets the stage for the talk
 - give enough detail so industry members can follow through the remainder of the presentation
 - not too much detail to get bogged down in background

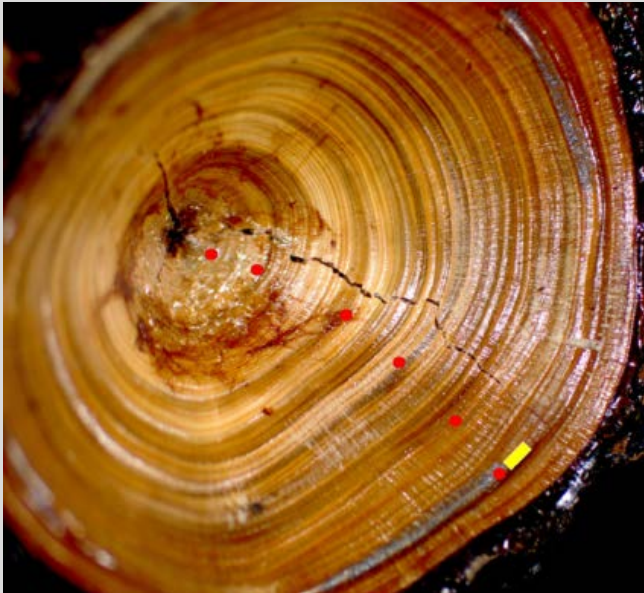
Style and Format: Methods/Approach

- How did you address your objective OR what are you considering as an approach?
- What steps did you take, what was involved in those steps?
- What could help inform your design from an industry perspective?
- This is an important part of the communication process
 - If you're looking for input, ask questions
 - Try to facilitate a discussion
 - Keep an open mind

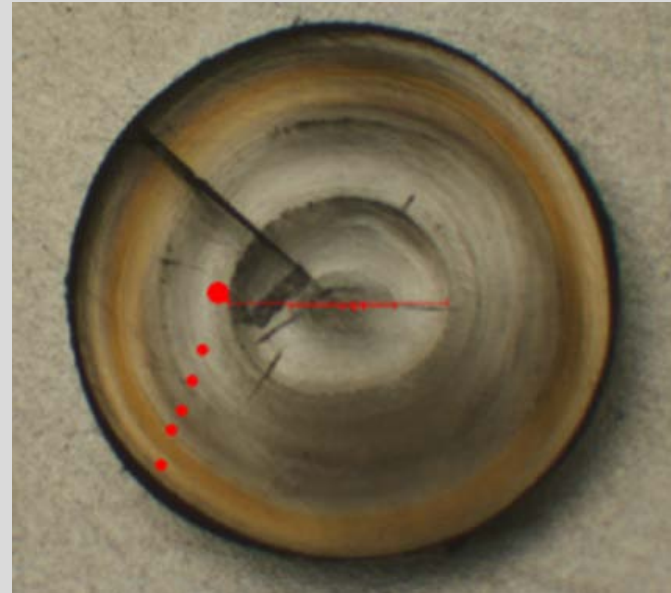


Style and Format: Results

- What did you find OR what are the possibilities?
- Graphics go further than words when describing results to industry members



Growth rings
missed on vertebra

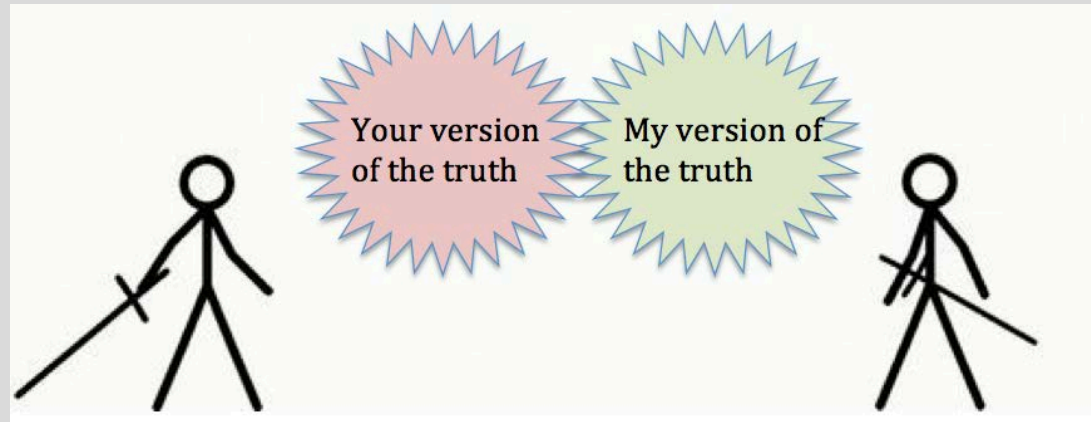


Growth rings
detected on illicium

Bank et al., 2015

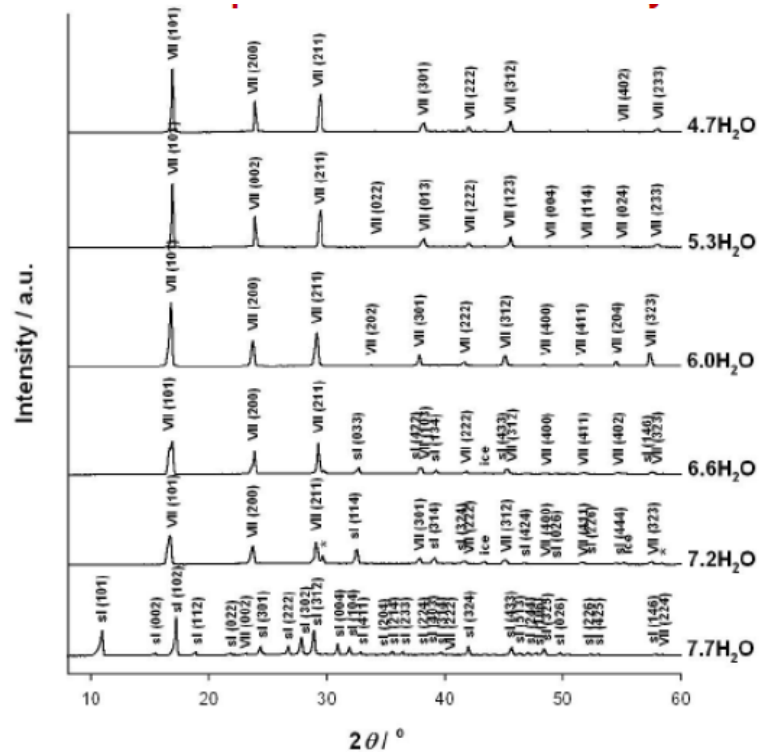
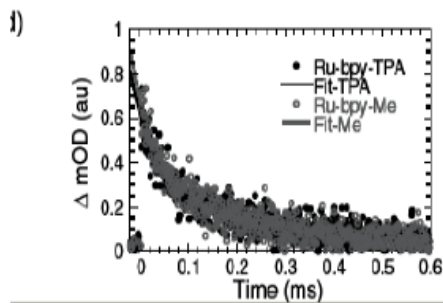
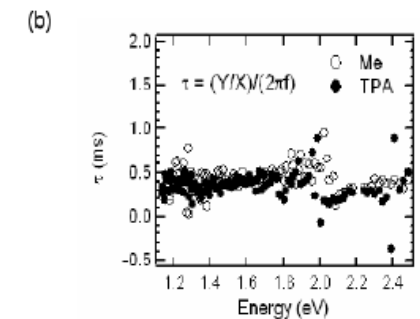
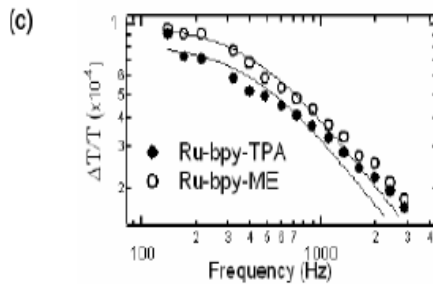
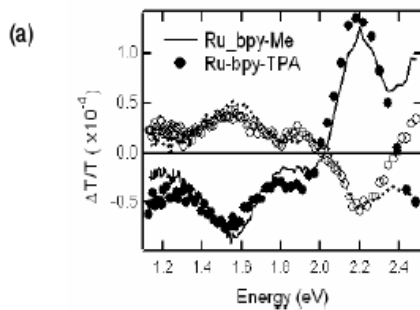
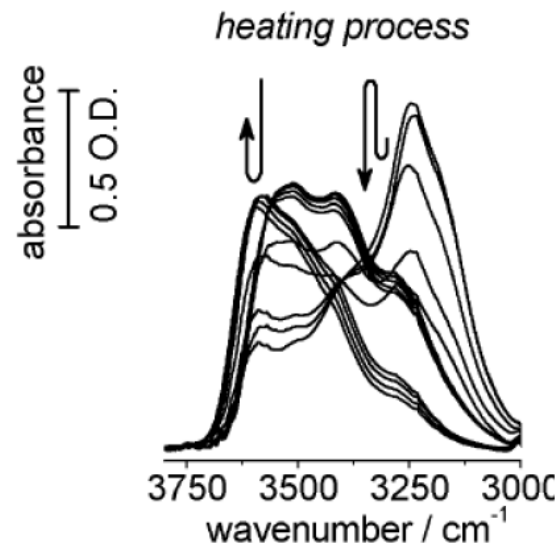
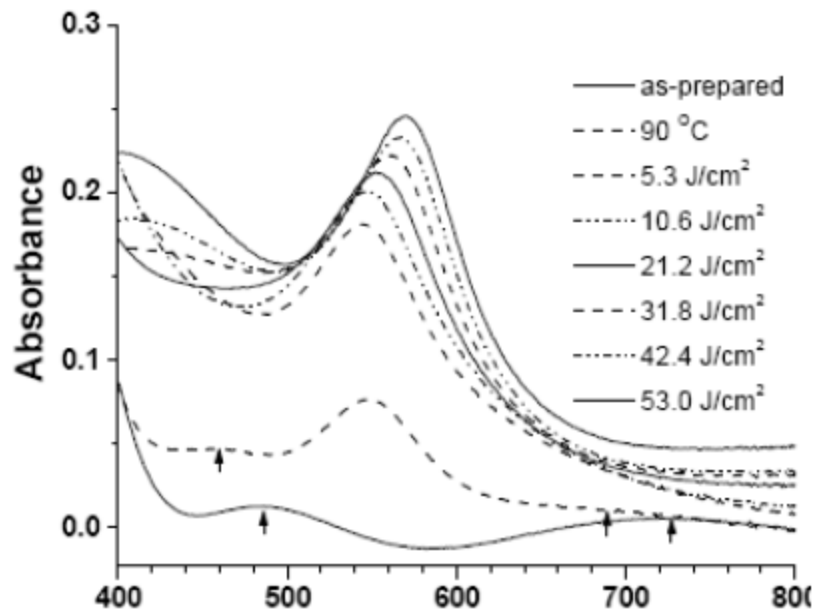
Style and Format: Discussion

- Why are the results important?
- “Discuss” the results with industry members



- Ask questions about how the results do or do not reflect on-the-water observations
- Listen to feedback about the research
- Talk about the next steps and how industry can stay involved

YIKES!



YIKES!

- NEFMC to set FY2016 ACL of SNE/MA YT at 255mt based on SSC recommendation of ABC=267mt and update assessment estimate of $F=0.35$ and SSB decline of 65%
- SAW, SARC, TRAC, TMGC, WG, NEFMC, MAFMC, GARFO, NEFOP...
- VPN, ADAPT, SS3, CASA, SCAA, SAMS...
- MSY, MEY, OY, F, M, Z...



Workshops and Meetings

- Breakout groups
 - Think carefully about the goals
 - Is this the most effective way to communicate the goals?
- Structured discussions
 - Not support groups
 - Not Simon Says game
 - Focus on objectives, but allow free-flow discussion
- Capturing the conversation
 - Note taker or group notes
 - Organization, time management
 - What is the tone, is this distracting?





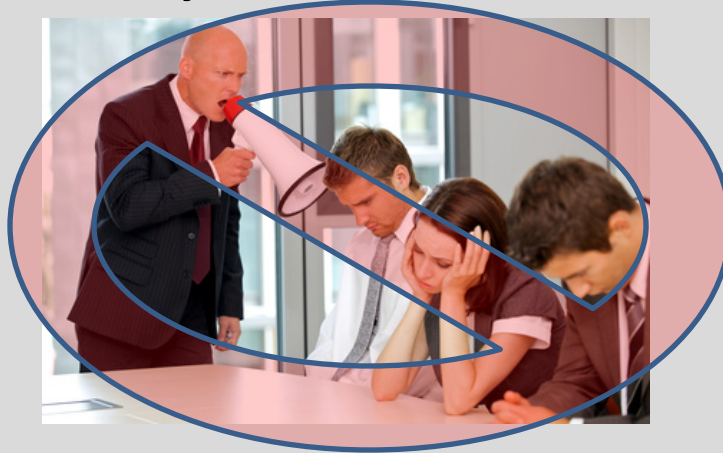
Benefits and Challenges

- Increased trust between scientists and fishermen
- Creative approaches for challenging fisheries issues
- Bringing together unique skill sets and expertise of scientists and fishermen
- New insights and perspectives
- Balancing “us and them” debates
- Incorporating new information can take time
- Uncertainty and conflicting results are difficult to convey
- Seems like we’re always responding to crises

PRACTICE
makes
PROGRESS,
NOT
PERFECT.

Take Home Messages

- Communicating science to the fishing industry should be a two-way conversation



- Focus on discussion rather than debate
- Keep an open mind about methods and results
- It's okay if you don't know the answer to every question

Take Home Messages

- Try to be cognizant that scientific recommendations have a direct bearing on livelihoods
- We're all just people
- Communicating science to the fishing industry should be a two-way conversation





QUESTIONS/DISCUSSION



Communicating – Let's Give it a Try

- Two brief exercises:
- Exercise 1: “Telephone”
 - Whisper to the person next to you:
 - 1) Tell them that you are describing the most recent Donald Trump related news
 - 2) Tell them the most recent news you know about
 - Next person repeat steps 1 and 2 to person next to you
 - Continue until time stops
 - Last person relay the information and compare to first person
- Exercise 2: “Blind Talking”
 - Sitting back to back, describe the 2008 housing collapse
 - Listener reports about confidence level in your report