

**NOAA**  
**FISHERIES**

PROJECT UPDATE

# Electronic Technologies and Fisheries Data Collection

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October 30, 2013

Atlantic States Marine Fisheries Commission

# Application of New Technologies

## Big Picture Goal:

Ensure NOAA Fisheries science is providing trusted fisheries information to meet the varied needs of our partners and diverse stakeholders.

## Project Goal:

Evaluate emerging technologies for use in fishery-dependent data collections.

# NOAA Fisheries Technology Initiative

Taking action to encourage the evaluation and use of the latest monitoring and reporting technologies.

- White papers [http://www.nmfs.noaa.gov/sfa/reg\\_svcs/Councils/ccc\\_2013/K\\_NMFS\\_EM\\_WhitePapers.pdf](http://www.nmfs.noaa.gov/sfa/reg_svcs/Councils/ccc_2013/K_NMFS_EM_WhitePapers.pdf)
- Policy directive <http://www.nmfs.noaa.gov/op/pds/documents/30/30-133.pdf>
- Draft best practice guidance  
[http://www.nmfs.noaa.gov/op/snippets/em\\_er\\_discussion\\_draft\\_august\\_2013.pdf](http://www.nmfs.noaa.gov/op/snippets/em_er_discussion_draft_august_2013.pdf)
- Coordination of regional efforts

Key Output:

*Regional Electronic Technology Implementation Plans*

to identify, evaluate, and implement appropriate technologies.

# Regional Implementation Plans

## Identify challenges and opportunities

- Technical and scientific
- Budget
- Process and regulatory

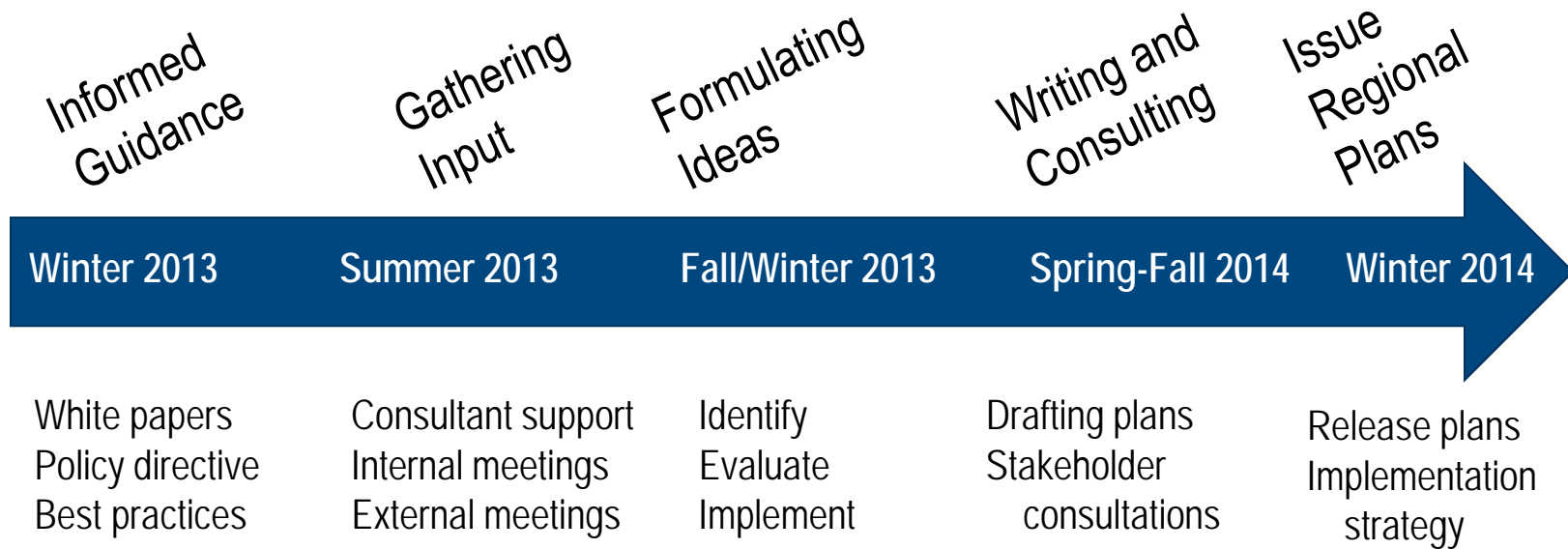
## Evaluate tradeoffs

- Suitable fisheries
- Appropriate technologies

## Implement

- Where appropriate
- When

# Milestones and Timeline



# My Role

Assist regions in development of **Electronic Technology Implementation Plans** by:

- Gathering input from regional staff, data partners, and stakeholders.
- Sharing information among regions and stakeholders.
- Identifying regional and overarching national issues and possible solutions.
- Connecting with existing data collection efforts.

# What I'm Hearing

**Overall:** Strong interest in adopting new technologies.

- Industry thinks Agency is going too slow.
- Agency thinks industry is going too fast.

**Electronic Reporting:** Low-hanging fruit.

**Electronic Monitoring:** Moving closer in *some* fisheries.  
But...challenges going from pilot project to full implementation

**Connection to Seafood Traceability / Sustainability Interests**

# Issues Raised

- Implementation and maintenance costs
- Industry acceptance
- Confidentiality of data
- Law enforcement uses
- Availability of technology for:
  - Compliance monitoring
  - Catch accounting



# Cross Regional Issues #1

- Moving from pilot project to full implementation
- Cost comparison for different options
  - Electronic Monitoring – Observer Coverage
  - Different technology options
- Technology advancements needed in:
  - Data storage and transfer
  - Image recognition
- Recreational fisheries

# Cross Regional Issues #2

- Law enforcement
- Confidentiality
- IT infrastructure
  - Data storage
  - Information security
  - Connecting monitoring and reporting
- Managing expectations

# Next Steps

- Complete first round of meetings
- Meetings with stakeholders
- Cross-regional Issues
- Work with Regional Offices on draft Regional Electronic Technology Implementation Plans
- National Electronic Monitoring Workshop
  - January 8-9, 2014 in Seattle, WA

# Key Takeaways

1. Process for evaluating new data collection technologies.
2. Developing Regional Implementation Plans.
3. Building on foundation of stakeholder input.

# Can You Help By...

1. Advising on how to best engage with States, stakeholders
2. Identifying key stakeholder contacts and engagement opportunities.
3. Sharing observations, concerns, and ideas.

You can reach me at:  
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**NOAA  
FISHERIES**

Office of  
Science and  
Technology

# Marine Recreational Information Program UPDATE

Atlantic States Marine Fisheries Commission  
October, 2013

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# Agenda

- What is MRIP
- Status of Atlantic coast improvements
- For-hire survey considerations
- 2014 Priorities
- Regional implementation

# Marine Recreational Information Program

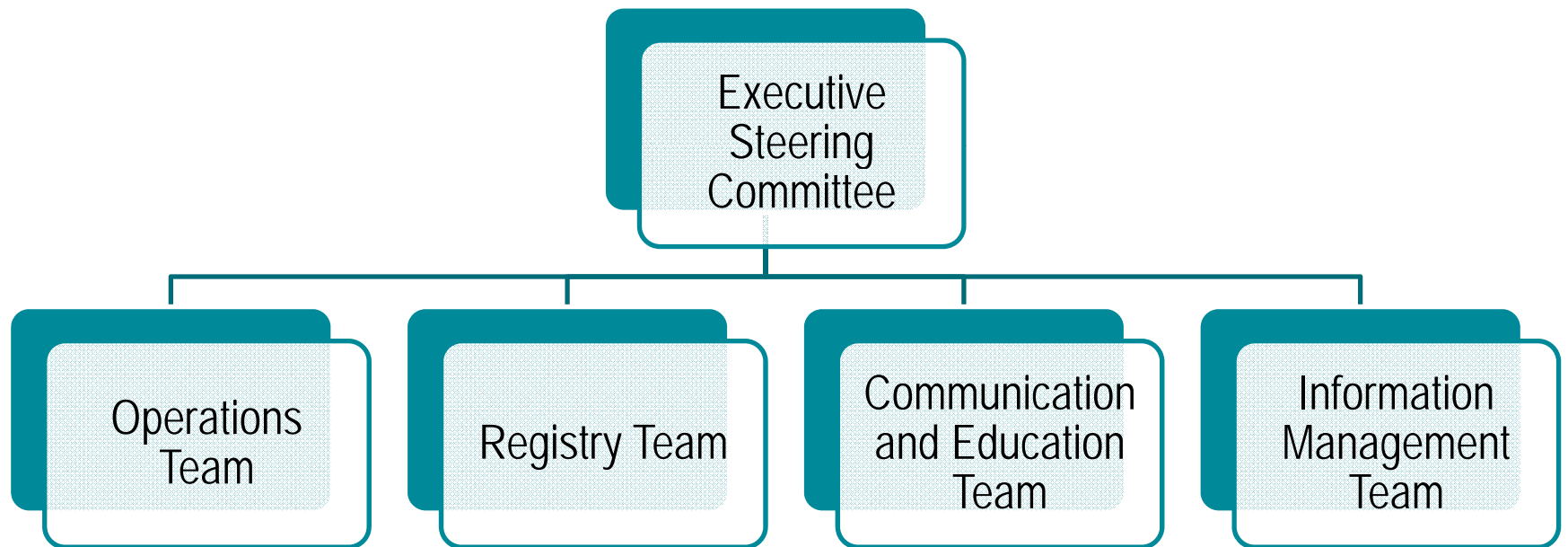
The new way we're collecting and reporting recreational fishing catch and effort data.



MRIP plays a critical role in sustainably managing our ocean resources by providing estimates of fishing activity that are both **accurate and trusted**.



## MRIP Governance Structure



# MRIP Strategy

- FIRST: Address NRC Review findings about need for fundamental survey design improvements:
  - Inventory and document survey designs in use;
  - Develop revised and new methods that address NRC findings;
  - Pilot test methods and peer review results;
  - Certify new methods/designs that resolve issues and are supported by peer review.
- THEN: Implement certified survey design improvements;
  - Improved methods are likely to be more costly than status quo.
- FINALLY: Increase sampling scope and frequency to increase: precision; coverage, timeliness; address special needs for supplemental data
  - We must evaluate the tradeoffs among these competing priorities and invest carefully to get the best bang for the buck.

# Recent Accomplishments

## New method for estimating catch.

- Removes potential bias
- Increases accuracy
- Foundation for all other survey improvements
- Revised estimates for 2004 to 2012
- Re-calibration via ratio estimator

## Greater access, transparency, and context.

- Online project inventory and updates
- Advanced queries and graphing features
- User-friendly website: <http://www.st.nmfs.noaa.gov/recreational-fisheries/index>
- Atlantic Coast "road show"
- On-line site register
- New outreach materials

# Recent Accomplishments

## New design for APAIS implemented in 2013

- New site register descriptions and pressures; completely re-done last year
- Site assignments must be completed entirely. No substitution of alternate modes or alternate sites.
- Assignments will be in clusters of 1 to 3 locations, depending on the level of activity (“pressure rating”) of the sites. Sites in a cluster must be sampled in a specified order for a specified duration.
- Site assignments will cover four 6-hour time blocks, assuring coverage at all times of day.
- As in the past, interviewers are instructed to try to sample all eligible trips, regardless of whether the anglers caught anything. In addition, complete counts of all eligible trips must be made, whether or not they were sampled.
- Fact Sheet and FAQs widely distributed. Wallet cards and state-custom handouts developed.

# Recent Accomplishments

## New APAIS Design: managing implementation

- Sample draw program
- Productivity: number of intercepts
- Fit of time blocks to fisheries activity periods, particularly charter mode
- Pressure ratings
- Inactive assignments
- Reviewing estimates to determine whether there are design effects from new design (Gulf of Mexico reef fish example)
- Sub-regions within states (FL, NC)

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# Recent Accomplishments

## Collecting data from the for-hire sector.

- Testing electronic reporting and validation for headboats in Southeast
- Completed for-hire logbook reporting pilot in Gulf of Mexico
- Findings and next steps:

# Overview of Gulf Charter Boat Logbook Pilot

## NRC Recommendation:

“In most cases, charter boat, head boat, and other for-hire recreational fishing operations should be required to maintain logbooks of fish landed and kept, as well as fish caught and released. Providing the information should be mandatory for continued operation in this sector, and all the information should be verifiable and made available to the survey program in a timely manner.”

In 2010 MRIP funded a pilot study in the Gulf of Mexico to determine feasibility of a for-hire census using electronic reporting methods.

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# Summary of Select Key Findings

- **Reporting Tools:** Properly designed electronic reporting is an effective method for receiving high-quality self-reported data from a large number of participants.
- **Enforcement:** Current authority was ultimately effective at achieving compliance, but not at achieving timeliness.
- **Reporting Compliance and Timeliness:** If logbooks were to be used as a census of catch and effort, the timeliness and accuracy of reporting would need to be improved.



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# Summary of Select Key Findings

- **Validation:** Study confirmed that self reported data are subject to recall bias and inaccuracies in reporting and therefore require validation.
- **Feasibility for Regional Implementation:** Several potential benefits from a logbook reporting system were recognized from this study.

# Implications and Next Steps

## Insights from the pilot study

- Clearer picture of the resource commitments necessary for implementation.
- Detailed recommendations for the necessary elements of a logbook program, including built-in quality control features.
- Necessity for effective compliance and enforcement mechanisms.
- Potential exists for using logbook data in conjunction with dockside validation data to develop a useful estimator of catch.
- Follow up technical report has been completed and will be released soon, following peer review.

# Implications and Next Steps

Clear that immediate implementation of a logbook requirement is unlikely to achieve a complete and accurate census.

- More work is needed to develop an effective logbook-based census or estimation design.
- Until new methods are tested and implemented, MRIP expects to maintain the current surveys of the for-hire sector (FHS/APAIS = current ACCSP standard).
- Improvements already made to our catch surveys are being incorporated.
- Using the findings of the study, MRIP will work with partners seeking to create complementary logbook and validation programs.

# Implications and Next Steps

Issues that must be addressed before moving forward include:

- Ensuring a complete registry exists of all for-hire vessels.
- Enhanced validation of catch and effort through dockside/at-sea sampling.
- Assuring compliance in a timely manner.
- Creation of easy-to-use reporting technologies in consultation with industry.
- Discussing shared resource commitments to address such implementation issues as:
  - Managing data quality, editing and integration.
  - Running dockside catch validation and at-sea discard validation programs.
  - Compliance and enforcement actions.
  - Conducting outreach to inform vessel operators of reporting requirements.

# Effort Survey Pilot Project

- MRIP has been conducting pilot studies of new effort survey methodologies since 2008.
- In general, we have determined that:
  - Surveys that use only a single sample frame—a coastal household telephone directory or state angler registry—are subject to undercoverage bias.
  - Telephone surveys generally have become subject to non-response error.
- Based on what we learned from pilot projects in 2008 – 2011, we have designed two major pilot projects, the results of which will enable a final decision on effort survey design:
  - Dual frame (postal address and license registry) , mixed-mode (mail and telephone) pilot conducted in 2011/2012 in FL, GA, SC, NC;
  - A new Single-phase Address-based Sample pilot using a postal address frame with address matching from state angler registries in MA, NY, NC and FL in 2013.
- See handout and MRIP website for more details.

# 2013/2014 Implementation Plan Update

## MRIP Team priorities for FY 14:

**Operations Team:** Continue to implement and evaluate alternative data collection designs. Prioritize ongoing studies, and design and implement necessary follow-up studies to finalize data collection approaches. As new sampling and estimation approaches are implemented, research priorities will shift toward more subtle refinement of data collection methods to better address stakeholder needs. Examples of possible project areas include:

- Continued evaluation of catch and effort surveys administered by state natural resource agencies;
- Development of methods to estimate catch and effort at greater levels of temporal and spatial resolution, including both design- and model-based approaches;
- Assessment of non-sampling errors, such as non-response error, coverage error and measurement error, in recreational fishing surveys;
- Continued development and testing of new technologies, such as electronic data capture and online reporting, to support recreational fisheries data collection; and
- Optimization of sampling allocations within and among recreational fishing surveys to satisfy stakeholder needs for precision.

# 2013/2014 Implementation Plan Update

## MRIP Team Priorities for FY 14:

### Registry Team:

- Continue to work with states to complete registry data quality improvement plans that address the recommendations of the advanced data quality reports provided to states in 2011/12, and any other requirements of the states' MOAs.
- Continue to provide grants to states through the Interstate Marine Fisheries Commissions to assist the states in implementing the provisions of their data quality improvement plans.
- Supply registry data from the states of Florida, Massachusetts, New York and North Carolina, and to support the MRIP pilot project Finalize Design of MRIP Effort Surveys (the project plan and update are available on our website under "projects").
- Maintain registry databases for the Atlantic and Gulf Coast states and make them available for additional pilots or new survey method deployment, as needed.
- Obtain state data on for-hire vessel licenses and registrations to support the MRIP effort to establish a new and more complete for-hire vessel registry.

# 2013/2014 Implementation Plan Update

## MRIP Team Priorities for FY 14:

### Information Management Team:

- Include fully documented metadata (the contents and context of data) for all ongoing and legacy programs, and make it available online to the public.
- Add user guides to help new users correctly interpret the characteristics, uses, and limitations of the data.
- Develop analytical tools to enhance the understanding of the data.
- Continue to add selection, download and output options to the website query tools.
- Continue to expand MDMS to tie pilot projects to the resulting data, as well as project management needs.
- Develop an integrated for-hire vessel directory.



# 2013/2014 Implementation Plan Update

## MRIP Team Priorities for FY 14: Communication and Education Team

- Continue conducting field visits to gather feedback, with a focus on the West Coast.
- Support release of the new angler effort survey.
- Enhance for-hire survey awareness.
- Address growing interest in emerging electronic technologies for data collection and reporting.
- Foster productive relationships with internal and external partners and stakeholders
- Continue to support the release of historic data using the improved catch estimation method.

## Executive Steering Committee:

- New Regional Implementation Strategy resulting from ESC Workshop held in July

# Regional Implementation Strategy

## The Vision:

National Quality & Regional Control

Series of regionally-based data collection programs, adhering to a rigorous set of national standards, using survey methods “certified” via MRIP.

## Strategies:

- Open dialogue with partners, stakeholders
- Use existing channels (i.e. FINs—ACCSP in Atlantic regions)
- Establish a forum for regional partners to make key decisions about what survey methods/designs to use, and how to most cost effectively invest in increased sampling for precision, timeliness, coverage

# Regional Implementation Workshop; July, 2013 (1)

## Key Conclusions:

- A hybrid approach to MRIP implementation should be established, whereby NOAA Fisheries (through MRIP) maintains a central role in developing and certifying survey methods and establishing national standards and best practices, and regions (through the regional fishery information networks (FINs) or equivalent) would have responsibility for selecting survey methods and managing data collection.
- The MRIP National Team (the ESC) should maintain its role of program overview and participation as MRIP transitions from research and development to implementation. As an overview body, the ESC should identify issues regarding implementation; seek feedback from regions on progress in implementation and any problems being encountered; determine if regional needs are being met and identify information gaps; and determine how MRIP can provide assistance in filling in those gaps.
- The FINs and their equivalents (i.e., ACCSP) will serve as the regional MRIP Implementation teams. The Caribbean and West Pacific groups that currently exist for information sharing will be sufficient to serve as implementation teams for those regions.
- MRIP should continue its role of supporting review of non-MRIP surveys to evaluate methodologies and/or identify areas for improvement.

# Regional Implementation Workshop; July, 2013 (2)

## Key Conclusions:

- MRIP priorities for investment of expanded survey implementation resources will generally be guided by whether the survey, alone or in combination with other surveys being implemented in a region:
  - Utilizes a MRIP-certified survey design or methodology;
  - Conforms to the MRIP standards for survey coverage and basic data elements;
  - Conforms to any additional national standards or best practices that the MRIP national implementation team may adopt in the future; and
- Provides catch estimates for fisheries managed under MSRA (including Atlantic HMS) or jointly by the states and NOAA Fisheries that are deemed by the MRIP regional implementation team to provide recreational catch statistics sufficient to:
  - Complete generally reliable stock assessments;
  - Support development of annual catch limits that meet MSRA requirements; and
  - Support development of recreational regulations that minimize triggering of accountability measures.

# Regional Implementation Strategy (1)

Program element	MRIP ESC/National Team	Regional Teams/FINs
<u>Assuring surveys adhere to certification methods</u>	Certifications	X
<u>Operational Requirements</u>		Choices
• Develop/certify data collection design	X	
• Data collection approval		X
• Procurement/Grant management	X	X
• Survey operations and Oversight	QA/QC Standards	X
• Information management	Standards	X
• Research and Development	X	
• Compliance/Enforcement		X
• Outreach/Communication	Resources, Tools	X

# Regional Implementation Strategy (2)

Program element	MRIP ESC/National Team	Regional Teams/FINs
<u>Choosing among methods</u>		X
<u>Choosing among options for coverage-timeliness-precision</u>	Policies and Priority	X
<u>Get feedback from regions and advise NMFS leadership regarding needs</u>	X	Input
<u>Get feedback from data users</u>	X	Input

# Atlantic Atlantic Coastal Cooperative Statistics Program Targets (updated, 2013)

- New estimation method adopted
- Shoreside intercept survey reflected in targets
- For-hire trip reporting decisions pending
- Coverage and timeliness reflected in targets
- Precision workshop planned
- Evaluation of tradeoffs developing model
- Effort survey design expected 2013
- Choices for coverage, precision, timeliness and partner resource commitments beginning in 2014

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# Thank you.

Please visit us at:

[www.CountMyFish.noaa.gov](http://www.CountMyFish.noaa.gov)

Contact MRIP at:

[Leah.Sharpe@noaa.gov](mailto:Leah.Sharpe@noaa.gov)



# **Cancer Crab Fishery Overview: Jonah and Rock Crabs**

ISFMP Policy Board

October, 2013





# Cancer Crab

- FIP- Industry led initiative to develop and implement plans to improve the sustainability of fisheries
  - Composed of buyers and sellers of crab, scientist and managers
  - Goal: enact a FIP that would result in improved fisheries data and monitoring as well as traceability efforts that enable product differentiation in the market



# Life History

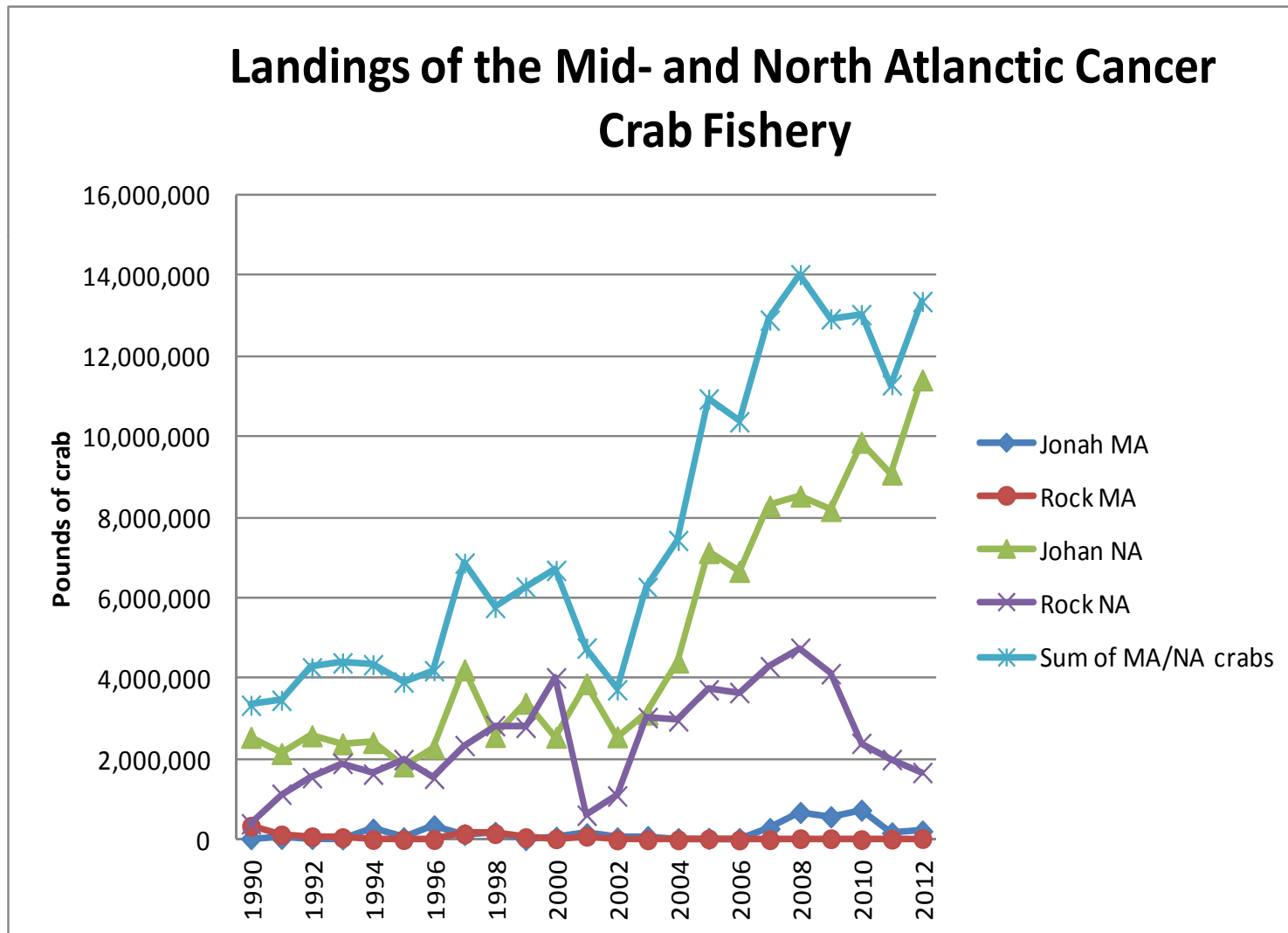
- Limited Life History/No Current Assessment
- Range is from Newfoundland to Florida in the intertidal to 750 meters
  - Believed to migrate but Jonah migration is limited compared to Rock
- Limited Maturity studies
  - Females 89 mm cw
  - Males 128 mm cw

# Landings

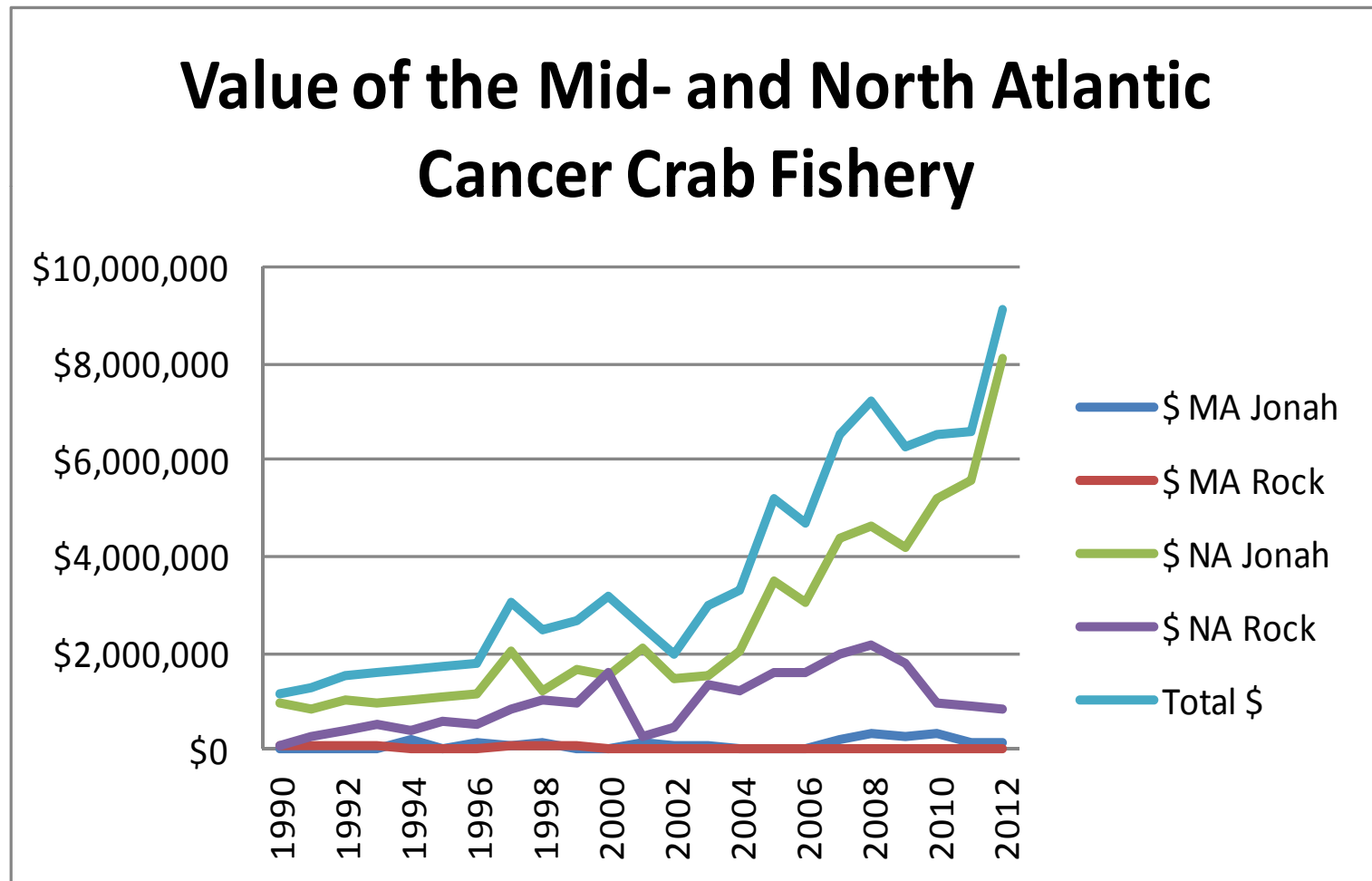
- Bycatch in the lobster fishery
- Directed fishery
- Landings data uncertain
  - Confusion of species
- Rock: Inshore waters
- Jonah: Offshore waters



# Landings: NA (ME-CT), MA (NY-MD)



# Value: NA (ME-CT), MA (NY-MD)





## Fishery Value

- Jonah crab boat prices have risen from \$0.50 to \$0.70 per pound from 2009 to 2012
- Rock crab boat prices have remained around \$0.45 per pound since 2006
- Price of Johan crab products have increased
  - crabmeat ~\$13-15 per pound



# Management

- Indirect Management Measures
  - Harvest methods (trap limits in the lobster fishery)
  - Landing licenses
    - ME, NH and MA: Must have a license to land crab
  - Market dictates a size
    - Mostly large females for claws
    - Small crab used for bait
- Direct Management Measure
  - MA: Closed Season

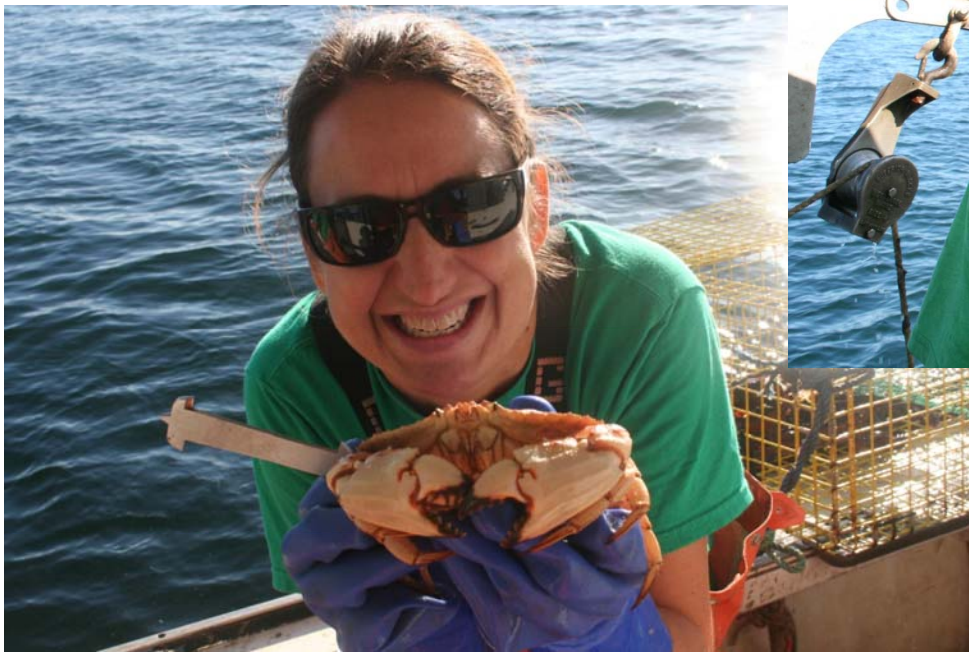




# FIP

- Developing a work plan
  - Uses 30 MSC standards
  - Hopeful to bring forward management recommendations
  - Hopeful to have a work plan for February Commission Meeting

# Questions





# **Update on Shad and River Herring Management**

ISFMP Policy Board


October, 2013





# Council Actions

- Catch caps
  - MAFMC
  - NEFMC
- MAFMC
  - Draft DEIS
  - Considered stocks in the fishery as part of the squid, mackerel, butterfish plan but did not enact



Move the Council adopt a proactive coordinated approach to help the stocks of river herring and shads to recover. Specifically I propose the Council take the lead in forming a joint Council/ASFMC/state/regional office/center working group to cooperatively seek to improve current management by aligning current ASMFC, individual state, and at sea cap management measures to comprehensively address fishing mortality throughout the species range in state and federal waters, to use the Councils' SSCs and other relevant scientific bodies to develop a scientific based approach to determining the proper size of the catch cap in the mackerel and herring fisheries, and to monitor the success of current management actions by the Council and our partners. Including that the Council relook at the decision to make river herring and shads stocks in the fishery in three years after we have had a chance to determine if these current efforts are working and if by assessing the proposed interim work to develop scientifically-determined caps sizes we can better justify the decision to go ahead.



# NOAA Fisheries Action

- Established a Technical Working Group
  - Developing a long-term and dynamic conservation plan for river herring throughout both species' range from Canada to Florida.



# ACFHP Actions

- Multi-region webinars to prioritize river herring habitat restoration projects
  - On the ground restoration projects
- Sponsored by NFWF
  - Part of the NFWF river herring initiative



# Moving Forward

- ASMFC leadership will work with staff in supporting all three working groups to avoid duplicate efforts of the working groups and prioritize Commission work



# Survey of Socioeconomic Data—Use & Needs: ASMFC Commissioners 2013

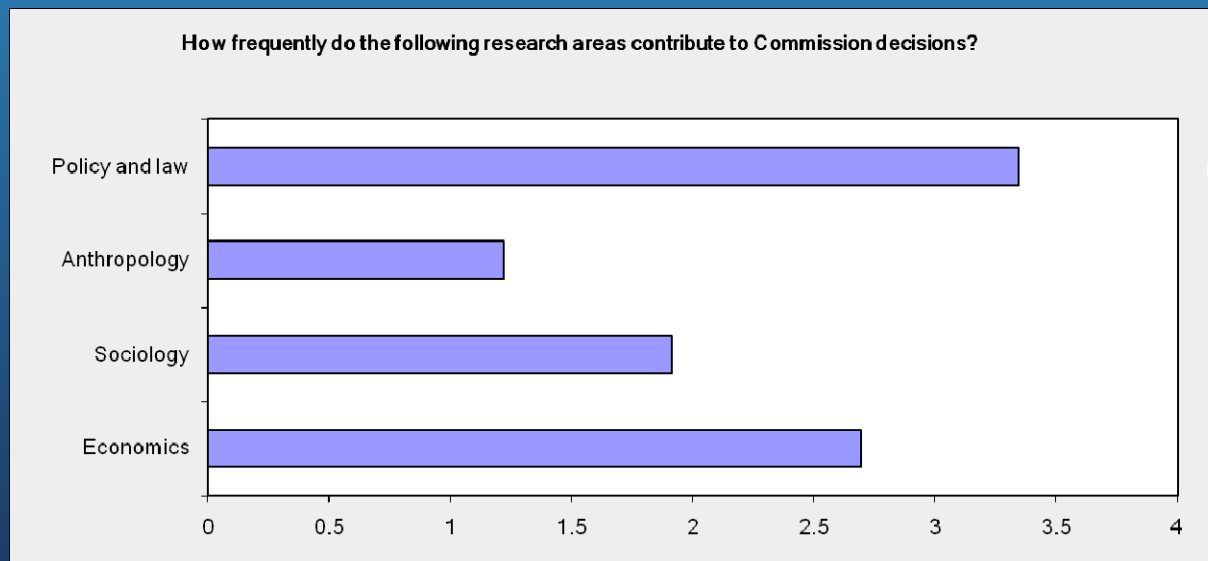
Summary Compiled by  
ASMFC Committee for Economics and Social Sciences

# Survey & response

- Survey sent to the 45 ASMFC Commissioners
- 23 respondents
  - ~50% response rate
  - All 15 states represented
  - Most respondents (35%) were state staff members
- Responses analyzed to show comparative importance
  - Likert scale of 1 to 5
    - 1 = least important/frequent
    - 5 = most important/frequent

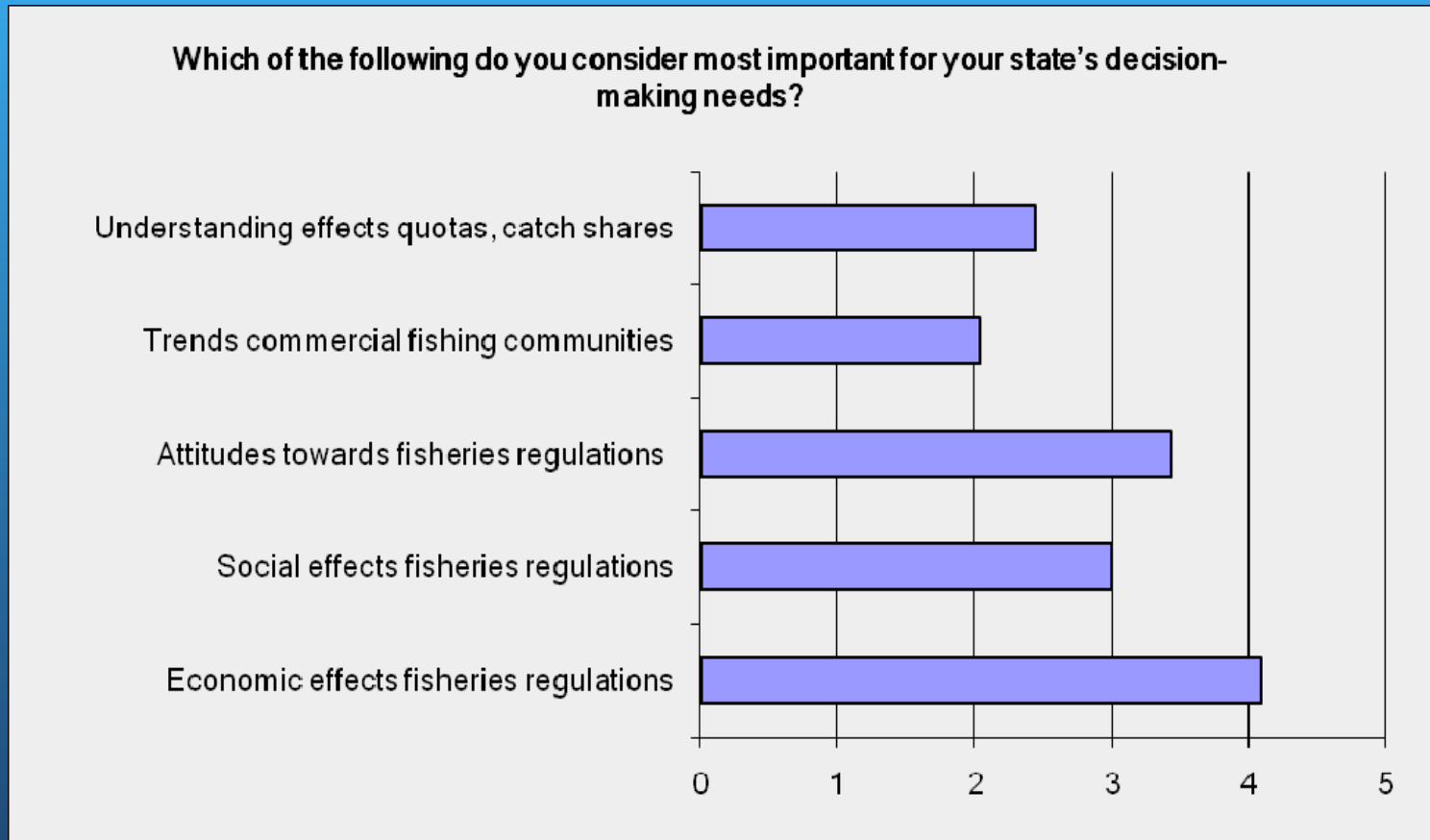
# Use of Social Science in ASMFC's Decisions

1. Policy and Law – 3.5 FI
  - 87% (n=20) noted “very often” or “often” used
2. Economics – 2.75 FI
  - 56% (n=13) noted “very often” or “often” used
3. Sociology – 1.9 FI
4. Anthropology – 1.2 FI



(most important

# What is important for State Decisions?: Economics & attitudes

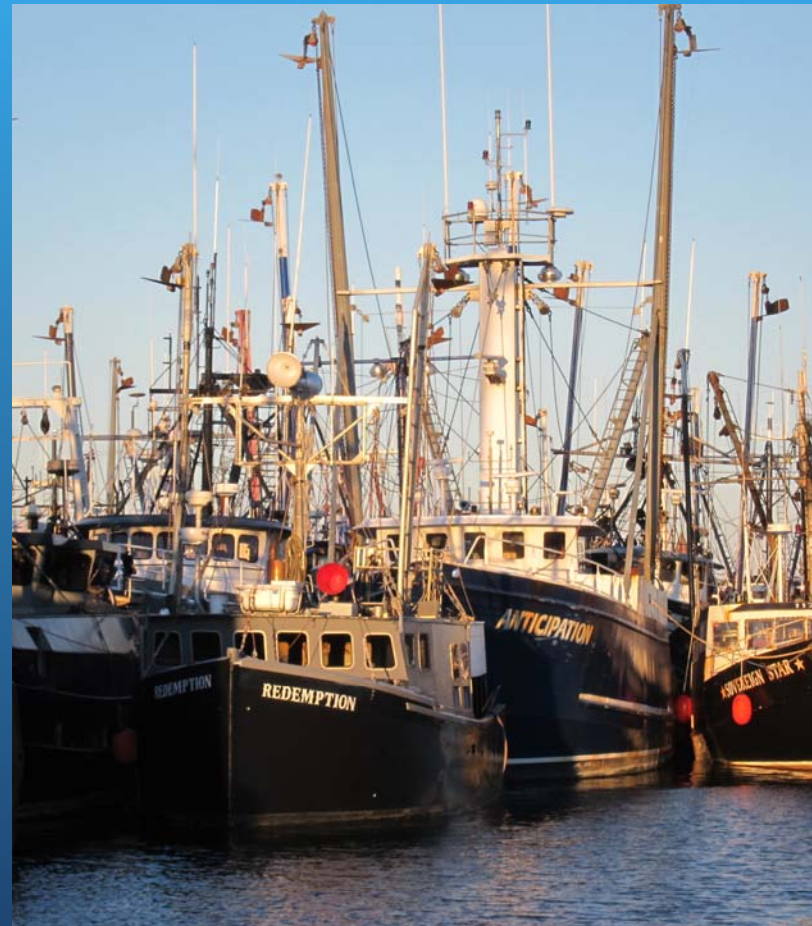


1 = least important/frequent

5 = most important/frequent

# Most Important to States' Decisions: Economics

- Impacts of regulations on commercial & recreational fishermen, communities & economies
- Example: understanding the effects of tradable quotas on fishermen, fishing families, species conservation



# Important for States' Decisions: Social Impacts

- On commercial & recreational fishermen, communities & economies
  - Example: changes in relationships among different fishing groups; fishing fleet characteristics; other demographics
  - Attitudes of fishermen towards proposed regulations



# Important and Needed for States' Decisions

- Comparison of social and economic consequences of different management approaches
- More on:
  - Economics
  - Recreational fishing
  - Allocation (among states, sectors)
  - Ecosystem changes



# Conclusions

## ASMFC Commissioners

- Do consider:
  - Socioeconomic information important
  - Are concerned about impacts of their decisions
- Are limited by:
  - Funding
  - Access to information from reliable sources<sup>\*\*\*</sup>
  - Analyses of data (models?)
  - Time
  - Political pressure



# Conclusions

No consensus apparent on the best or most effective use of either economic or social information in policy

For example:

- Use of economic impacts vs. cost-benefit analyses
- How social data should be evaluated and used effectively



# Follow-up Questions

- How do you use social and economic information in your decision-making?
- What would be the best way for CESS to provide socioeconomic information to you?
  - Reviews of FMPs?
  - During stock assessments?
  - In Technical Committee meetings?
  - Short seminars? When?
  - Other?

# Socioeconomic Data Options

Option 1: in annual FMP reviews:

- CESS/TC provide basic data (baseline) on economic status of the fishery
  - current dockside and dealer prices, market, products, current fleet capacity, numbers & size of vessels, ownership
- CESS/TC review existing community profiles and indicators (status quo)
  - Identify potential issues such as inequitable distributional impacts to already disadvantaged/vulnerable groups; subsistence fishing; trade associations; NGOs

Suggested time/cost to ASMFC

- 2 months, potentially pro bono

## Option 2: Amendment/Addendum Development




- CESS/TC provide data on tradeoffs between different regulations
  - Projected socioeconomic impacts of regulation
  - Trends in dockside, dealer, and market prices
  - Fleet capacity and demographic shifts
  - Social variables indicating community vulnerability or resilience, social well-being and sustainability
- 3 months; contract work at \$2-3K, or state agency social scientists lead

# Option 3: During stock assessment development

- CESS/TC provide comprehensive data
  - Socioeconomic impacts of past regulations; history & importance of fishery
  - Impacts on landings
  - Trends in dockside, dealer, and market prices
  - Fleet capacity and demographic shifts
  - User conflicts/cooperation
  - Community vulnerability or resilience, well-being
  - Governance
- 6-12 months; contract work at \$5-10K per assessment





**Opportunity to Provide Comments  
to the US District Court  
Concerning the Investigation of  
Illegal and Unreported Summer  
Flounder by an RSA Fisherman**

ISFMP Policy Board

October, 2013





## **Possible Topics to Address for the Court:**

- Importance of honest reporting of catch and sales data in terms of resources available to “ground truth” and the actual use of such submissions in formulating policy and quota
- The extent of deception as to how it disrupts modeling and policy setting in light of the RSA program where quota is auctioned off
- How illegal harvest impacts the population of available fish and/or impacts on other fishers