



NOAA
FISHERIES

Greater Atlantic
Regional
Fisheries Office,
Gloucester, Ma.

Fishermen's perspectives on river herring abundance, run timing, fish size, and threats to recovery

Julia Beaty, Mid Atlantic Fishery Management Council

Dan Kircheis, National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office

American Fisheries Society Annual Meeting
Portland, Oregon
August 16-20, 2015

About:



In 2014, we conducted a coast wide survey of river herring fishermen from Maine to South Carolina

- River herring populations are at historically low abundances throughout their range
- NMFS was recently petitioned to list bluebacks and alewives as threatened under the ESA.
- In 2013 a decision was made that listing was not warranted for either species.
- The decision acknowledged that further research and expanded monitoring efforts are needed to address current data gaps and scientific uncertainty.
- We recognized that fishermen build up vast knowledge based on trial and error and careful observation, and subsequently are well positioned to notice changes in local fish populations through time.

"It's called the "Fish that Feeds All". It feeds everything. From the little tiny bacteria in the water and along the streams, to eagles and ospreys, bears, mink, whatever. There are a lot of different animals that rely on this fish."

Passamaquoddy Tribe representative - Maine

"[I've been fishing for them] all my life. And my parents did. And my grandparents did. That's what we lived off of. We couldn't wait for the time to come, early spring."

Personal use fisherman from Massachusetts



Photo credit: Julia Beaty

Goals:

- Document fishermen's observations of river herring in their local areas, including their observations of changes in run timing, the size and abundance of river herring, and other aspects of the runs;
- Identify their views of local threats to river herring
- Document fishermen's opinions on the best ways to restore their local river herring runs
- Look for inconsistencies between the information that we have available to us and what the fishermen are telling us
- Use the information from the survey in conjunction with existing data to help inform or direct future research and management

Methods:

- Respondents: Identify to the extent possible, all commercial, recreational and/or personal use fishermen of river herring (freshwater and estuarine fisheries)
- Range: Maine to S. Carolina (represents the current U.S. range of the river herring fishery)
- Timeframe: Fishermen engaged in Fisheries between 1994 and 2014. Long enough to notice changes, but not too long that memory issues come into play

The Script

- Questions geared to help us in our efforts to assess, monitor and restore river herring

e.g.

- Fishing Practices
 - Location
 - Run size observations
 - Perspective of threats, and means to address them
-
- Questions were purposely open-ended to encourage participants to answer questions as they saw fit. This allowed us to capture more detail than if we had asked multiple choice.
 - The survey encouraged respondents to ask question and discuss topics not addressed by the survey questions.

Testing

- Trial run with 6 herring fishermen
 - Feedback on how to improve survey introductions and wording of the survey questions
- 2 blind tests on fishermen that were not aware that this was part of the survey trial run – but were asked to provide suggestions at the end of the survey

Contacting Respondents

- At least one attempt was made to contact all respondents by phone
- Two attempts were made to respondents in states where we had a potential respondent list of less than 50
- Calls made between 4:00 pm and 8:00 pm between September 2014 and January 2015.
- Interested respondents were given the option to complete the survey or schedule a future time to conduct the survey
- All respondents were asked permission to record the survey
- All respondents were also informed that the survey was optional and that they could opt out of responding to any of the questions if they chose to.

A close-up photograph showing a person's arm and hand pouring water from a large, dark blue, textured container into a grey plastic crate. The person has a tattoo on their forearm and is wearing a tan work glove. The water is captured mid-pour, creating a dynamic splash. The crate has a rope tied around it. In the background, there are bare trees and a wooden structure. The text "Results:" is overlaid on the left side of the image.

Results:

Photo credit: Julia Beaty

Call list by state

Not all states well represented because some states collect few records on river herring fishery participants

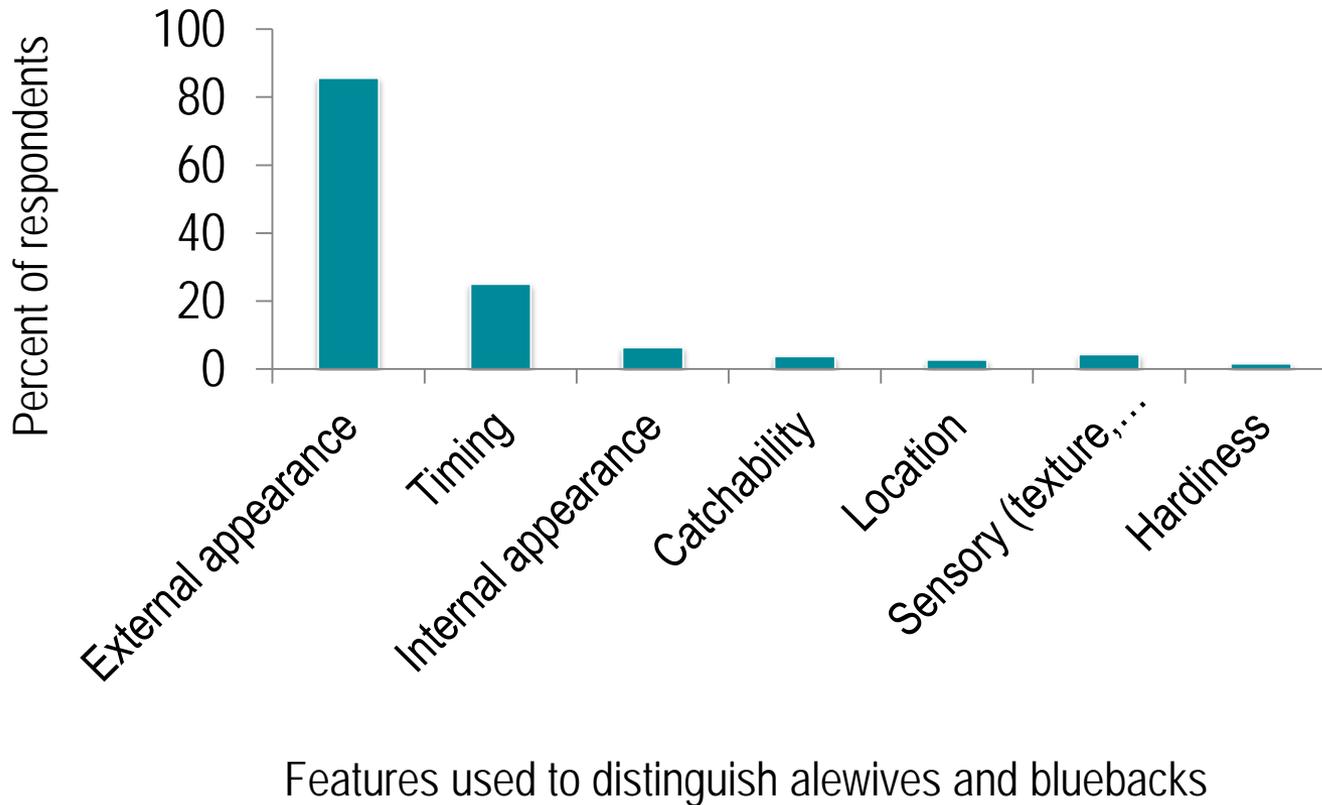
State	Number of individuals called	Completed surveys	Response rate
Maine	75	19	25%
New Hampshire	10	8	80%
Massachusetts	34	16	47%
Connecticut	9	5	56%
Rhode Island	9	8	89%
New York	280	57	20%
New Jersey	12	7	58%
Pennsylvania	3	1	33%
Delaware	47	7	15%
Maryland	77	17	22%
Washington D.C.	1	1	100%
Virginia	299	21	7%
North Carolina	303	18	6%
South Carolina	18	3	17%
Total	1,177	188	16%

A list of local names used by survey respondents for alewives and blueback herring

Local name for alewife	Local name for blueback herring	States where local name is commonly used
Herring		All coastal states from Maine to South Carolina
Buckeyes		Rhode Island
Branch herring	Glut herring, May Herring	Maryland, Delaware, Virginia
Cold water herring		Virginia

Do respondents distinguish between alewives and bluebacks?

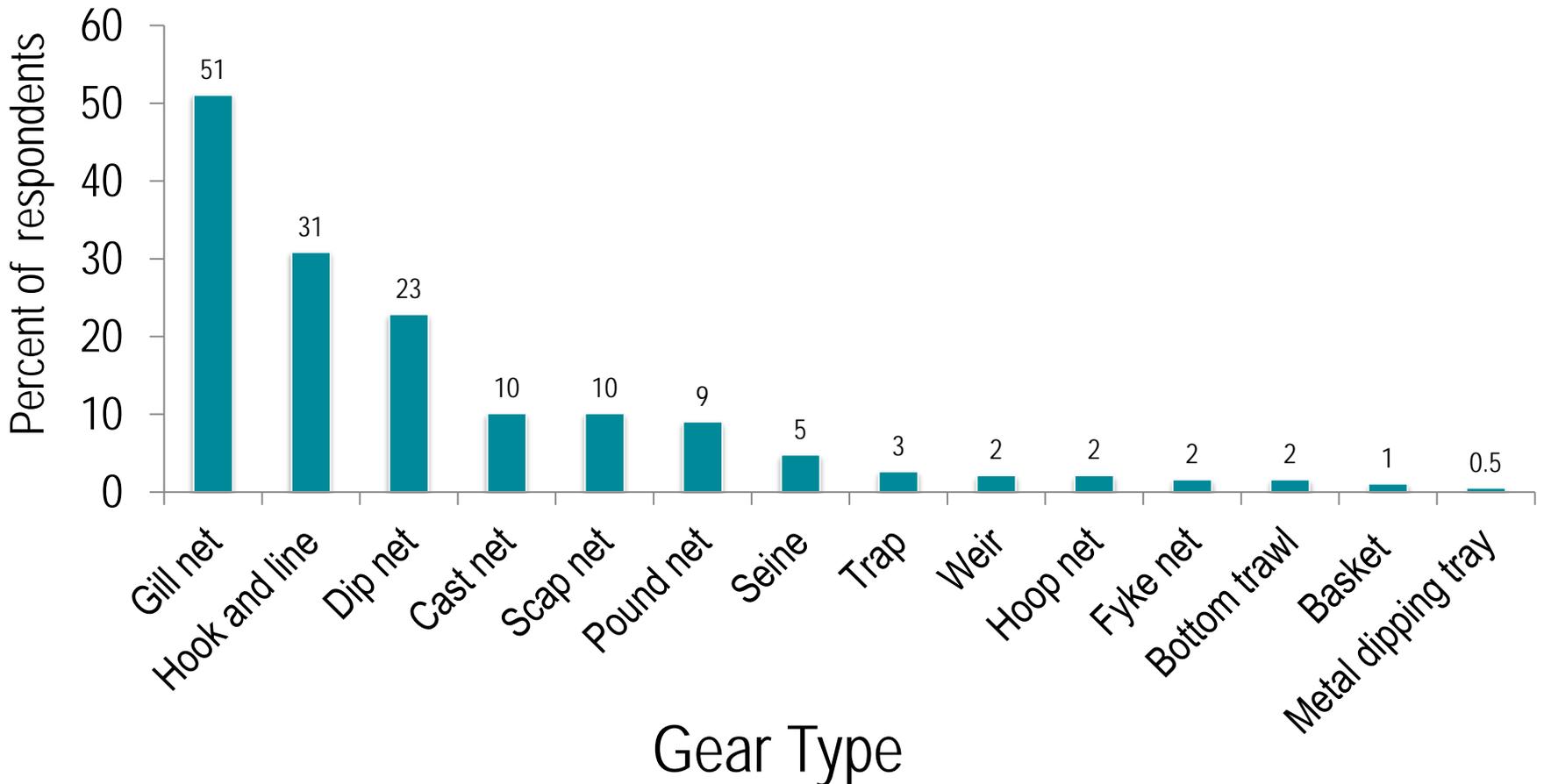
120 individuals or 64% of respondents did...



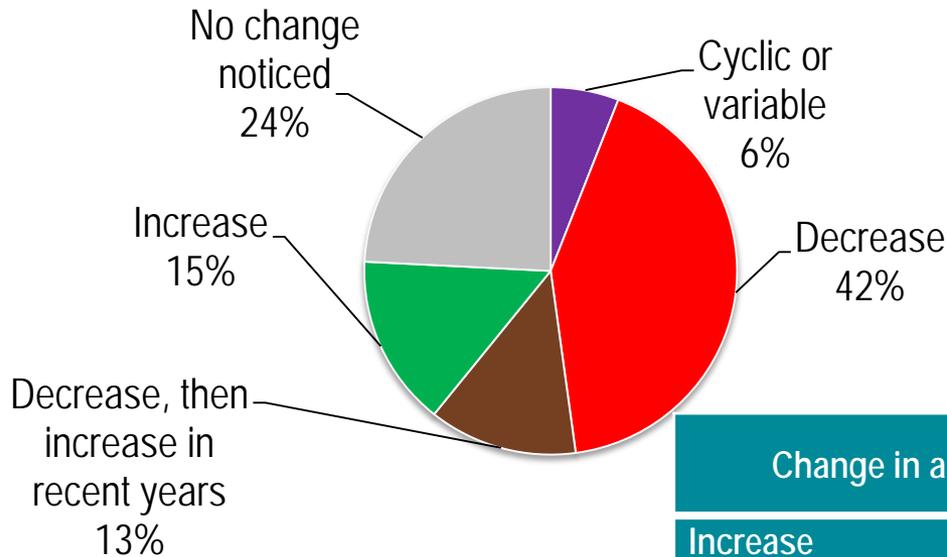
“I can tell the difference by looking at them. For example, the first part of our run is always complete alewives. The last part of the run we start seeing blueback herring mix in...Their bodies are smaller and slenderer. The contour of their head into their belly is different.”

*Commercial fisherman
from Maine*

The gear types used by survey respondents to catch river herring. Many respondents listed more than one type of gear



“have you noticed any changes in overall abundance over the years that you fished for river herring”

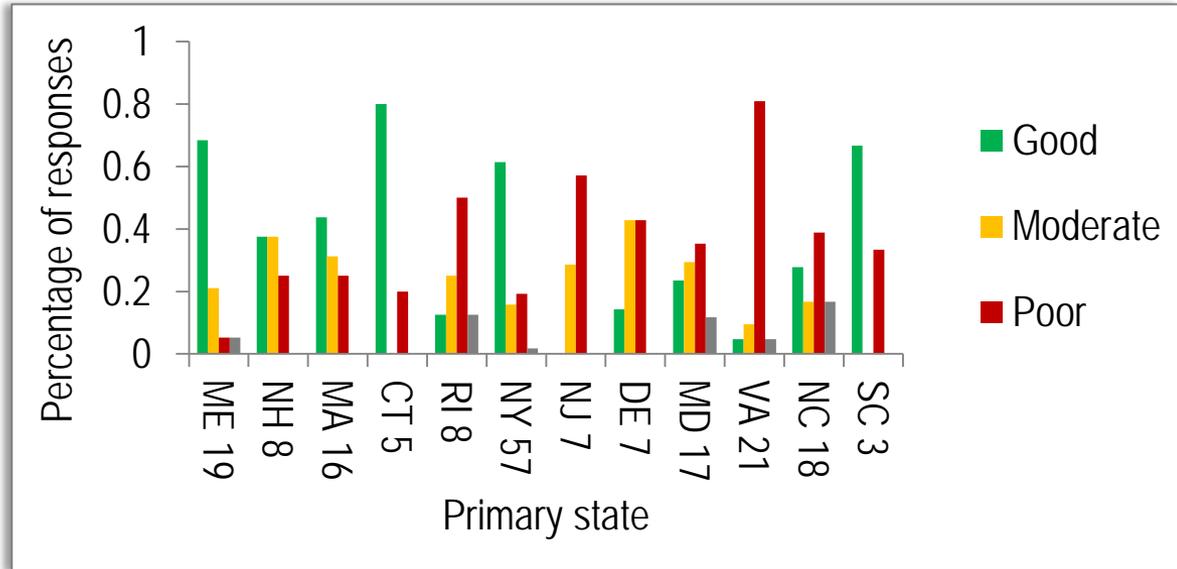
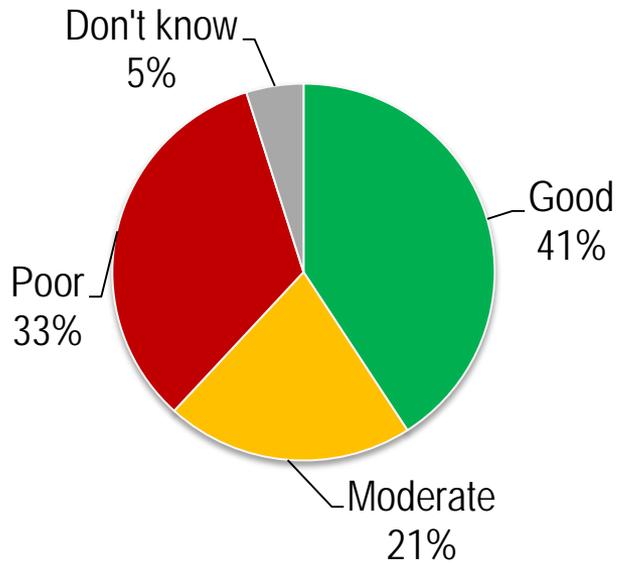


Change in abundance	Average last year fished	Average number of years fished
Increase	2013	18.7
Decrease	2005	28.3
Decrease, then increase in recent years	2012	25

“The first couple of years it seemed like there was a lot less of them. But over the last five it seems like there’s – I don’t know how to put it - a crap load of them. The last three years there’s been more bait fish than I don’t know what... You could walk across them last year in the creek. It was unbelievable.”

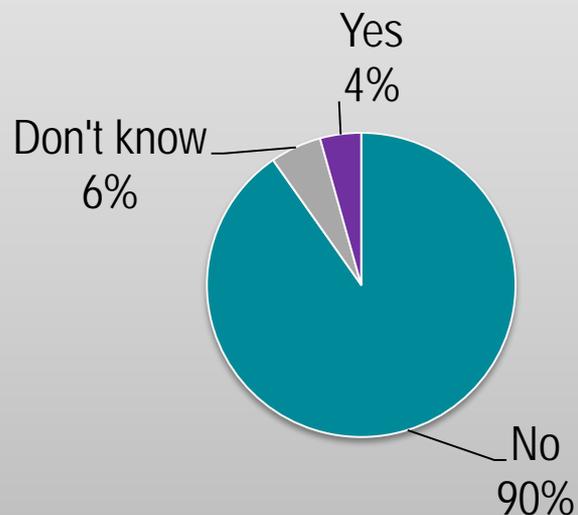
Recreational and personal use fisherman from New York

“based on your observations while fishing, how would you describe the status of river herring populations in your area”

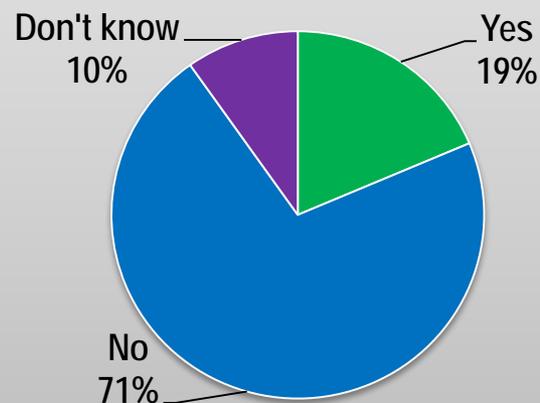


River herring status determination	
Alewife	Stable to increasing across their range
Blueback	Stable across their range; decreasing mid-Atlantic

"...have you ever noticed any changes in the timing of when river herring were around?"



"...have you noticed any changes in the abundance of alewives relative to bluebacks?"



"You can pretty well count on them on the full moon in March."

Commercial fisherman from South Carolina

“What do you think are the greatest threats to river herring”

Top 5 threats in the order that they were identified...

Fishermen’s Response	Status determination
Predation	Dams/barriers
Bycatch	Pollution/water quality
Pollution/water quality	Bycatch
Inland overfishing	Climate Change
Dams/Barriers	Predation

“In your opinion, what is the most important thing we can do to help river herring populations grow and maintain themselves at a sustainable level?” (Top 9 of 17 suggested actions)

Suggested action	Number of responses
Better fishing regulations	30
Improve water quality	25
Ensure access to spawning habitat	24
Regulate/monitor incidental catch of river herring at sea	20
Harvest more striped bass and/or blue catfish	16
Collect better data/do more research	14
Prohibit a certain type of fishing	13
Keep current regulations	13
...	
Don't know	17

“The National Marine Fisheries Service doesn’t have any authority – the only thing they can do is regulate the taking of fish under their control and regulate fishermen. They can’t regulate some other guy up the road that’s poisoning the river and killing them all. But yet if I catch too many they can regulate me. That’s not going to work! If you want to save fish, you have to do what it takes.”

Commercial fisherman from Massachusetts

Discussion

- *Respondents generally agreed that they had not observed changes in run timing or shifts in species distribution*

Even though fishermen agreed that they had not seen changes in run timing, they also acknowledged considerable year to year variability. Subsequently it may be that there has not been enough change to stand out against the backdrop of variability.

- *There was low agreement to questions about changes in abundance, status and threats*

This often reflected the fishermen's period of reference. Fishermen that had engaged in the fishery longer, were more likely to describe the abundance and status as poor, compared to those who have entered the fishery more recently.

Similarly, fishermen's perception of threats appeared to reflect changes that they had observed in the surrounding ecosystem during the period that they fished.

E.g. many fishermen observed increased abundances of striped bass and blue catfish, and subsequently attributed these observation as being most responsible for river herring declines.

Similarly, fishermen had not observed changes in dams or fish passage during the times that they fished, and therefor they often did not attribute these factors to changes that they had observed, or downplayed their importance as a threat.

Example of establishing baselines based on an individual's personal observation and perception of norms.

- Dams have been here forever, how can they possibly be the problem?
- I have observed changes in the ocean intercept fishery so that must be the problem?

"The dams down here in south Jersey have been in place for a couple of hundred years, all of them. So these fish have been able to maintain with the dams in place and they've had people catching them. Back when the local farmers, even the local Indians, they caught as many as they could to use as fertilizer, which is a lot more pressure than a few guys using them for striper bait. They took out truckloads, wagon loads for years and years and they seemed to be here. Then all of a sudden there was a big drop off. I really believe the ocean intercept, in one form or another, is what's made the big dent in the population..."

Commercial fisherman from New Jersey

Management implications:

- The Fishermen that were interviewed were surprised, yet very pleased that NOAA-Fisheries was asking for their insights.
- The Survey identified areas of where we need to do a better job of communicating (e.g. our perception of major threats vs. their perception of major threats)
- Fishermen's observations were generally consistent with what the science is saying, but does require considerable interpretation.
- The survey opens pathways for communication.

VIDEO DOCUMENTARIES

<http://www.seagrant.umaine.edu/oral-histories-alewife-eel>

A short film; "*The Fish that Feeds All*" will be shown at 5:00 PM in room W-126-15



Acknowledgements

This survey effort was a success because 188 fishermen volunteered their time and insights

Help with Survey Design, testing, implementation, and reporting:

Darrell Young (Fisherman), Jeffrey Pierce (Alewife Harvesters of Maine), Richard Welch (Fishermen), Jake Sutherland (Fishermen), Anna Henry (NMFS), Robert Eckert (New Hampshire F&G), Bob Adams (New York DEC), Lisa Barno (New Jersey DEP), Alan Bianchi (North Carolina DMF), Claire Enterline (Maine DMR), Gary Glanden (Delaware Fish and Wildlife), Kathy Hattala (New York DEC), Samantha Hoover (Virginia MRC), Stephanie Iverson (Virginia MRC), David Libby (Maine DMR), Genine Lipkey (Maryland DNR), Azure Cygler (Rhode Island Sea Grant) and Syma Ebbins (Connecticut Sea Grant), Kimberly Damon-Randall (NMFS), Diane Borggaard (NMFS), Greg Power (NMFS), Sarah Brabson (NMFS), Deirdre Casey (NMFS), Jessica Pruden (NMFS), Tammy Murphy (NMFS), Patricia Pinto DaSilva (NMFS), Justin Stevens (NMFS), Rory Saunders (NMFS).