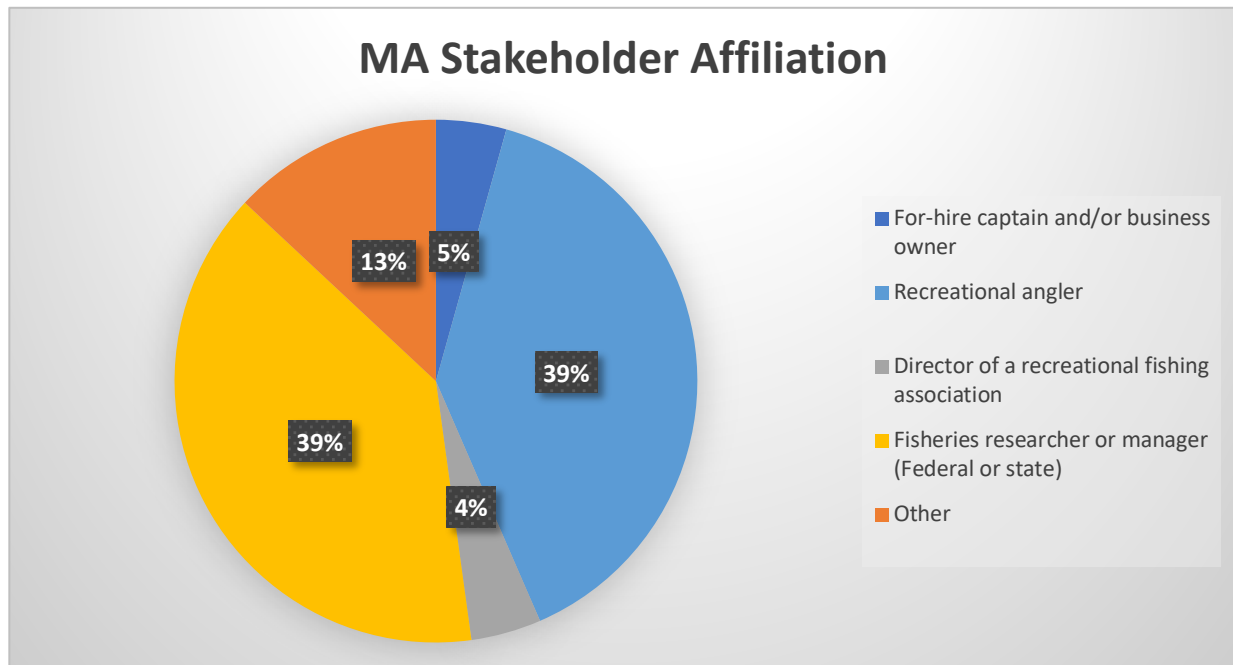


**Preliminary Summary – New England Recreational Fishing Workshop  
Hotel 1620, Plymouth, MA  
October 19, 2019**

### Attendance

The Plymouth, Massachusetts workshop had 21 attendees of the 26 registered. The pie chart depicts stakeholder affiliation for the attendees only. There was diverse representation, including participants from charter/party boat captains/business owners, private anglers, NOAA Fisheries' Greater Atlantic Regional Office, Northeast Fisheries Science Center, New England Fishery Management Council, Massachusetts Division of Marine Fisheries, Massachusetts Marine Fisheries Advisory Commission, Massachusetts Environmental Police, and Stellwagen Bank National Marine Sanctuary.



### Opening Remarks

Moira Kelly of the Greater Atlantic Regional Fisheries Office (GARFO) within the National Oceanographic and Atmospheric Administration (NOAA) began the workshop by highlighting the importance of recreational fisheries. The recreational fishing industry has a \$24 billion economic impact across the U.S., contributing 2.2 percent to the national GDP. There are 10 million saltwater anglers in the U.S. and the recreational fishery supports 500,000 jobs and 63 million fishing trips annually.

Due to the size of recreational fisheries, they are diverse and difficult to manage. NOAA works collaboratively with fishermen and recreational fishery stakeholders to figure out best management practices for the industry. The workshops are a critical component of the open conversation between NOAA and stakeholders, and a means of generating creative solutions for sustainable and equitable regulations going forward.

Jessica Joyce of Tidal Bay Consulting shared the goals and objectives of the workshop, balancing the biological and regulatory requirements with the economic needs and interests of the recreational fishing community. Participants are gathered to generate both short- and long-term ideas and to consider possibilities for new regulations and pilot studies, even if they are considered “out of the box.”

### **Status of the Recreational Fishery**

Emily Keiley of GARFO presented background information on how recreational groundfish species are managed in New England. Gulf of Maine (GOM) cod and haddock are the only two groundfish species with a recreational allocation. GOM cod and haddock have sub-annual catch limits (ACL) and accountability measures (AM). Management measures are designed to achieve, but not exceed the sub-ACLs. Other stocks may be allocated to the fishery if they meet two criteria: (1) Recreational catch that is 5 percent or more of the total catch; and, (2) the stock is fully utilized. Ms. Keiley reviewed the recreational management measures for the last 10 years, as well as an overview of the management process, including recent changes to how Georges Bank Cod is managed with a recreational catch target.

Moira Kelly gave a presentation on the status of three-year transition to the Marine Recreational Information Program (MRIP), including information on the collaboration between the states and federal government to develop, improve, and implement surveys to better understand how many trips anglers take and estimate catch based on a sample survey method. The Fishing Effort Survey (FES) measures shore and private boat effort utilizing a mail-based survey and has resulted in more accurate information and a response rate three times higher than the previous Coastal Household Telephone Survey (CHTS). Effort is also measured with a for-hire survey of charter/party and head boats, as well as Vessel Trip Reports (VTRs), and a large pelagics telephone survey. Catch is estimated through the Access Point Anger Intercept Survey (APAIS), with dockside intercepts and at-sea sampling on for-hire boats. Starting in 2016, sampling is conducted by state partners. While FES estimates are several times higher than those from the CHTS, it does not necessarily mean overfishing has been or is occurring. At this time, one goal for MRIP is to develop and certify a census-based trip reporting design for determining catch from for-hire fisheries, considering electronic logbook reporting, compliance monitoring, and dockside validation.

Scott Steinback of NOAA’s Northeast Fisheries Science Center (NEFSC) presented on the trends in recreational catch. He discussed how there is variability in the MRIP catch estimates. In the cod fishery, since 2014 cod have primarily been released and cod are being caught less than haddock. Early in the time series (1982-1999) GOM haddock was not caught, but then catches increased significantly starting in 2000. It is not clear why GOM haddock had a big decline in 2018. In the GOM, cod and haddock are mostly caught by private boats. Catch estimates of Georges Bank cod have also experienced a general decline, with 2018 catches representing the third lowest in whole time series (1982-2018).

GOM pollock catch has also been decreasing, but not as significantly as cod catches. Pollock has some shore and for-hire catch, but it is mostly caught by private boats. GOM angler trips have been declining since 2012 and 2013. In the GOM, about half of the trips report catching nothing during their trip. The top five recreational species caught in the GOM are mackerel, striped bass, haddock, pollock, and cod. The top landed species in the GOM are mackerel, menhaden, haddock, pollock, and striped bass.

Dr. Brian Linton of NEFSC presented the stock assessments that were part of the 2019 groundfish management track assessments, using data through 2018. GOM cod, GOM haddock, and pollock were assessed using the Age Structured Assessment Program (ASAP). Georges Bank cod is analyzed using an index-based method, based on survey indices and recent fishery catch. The GOM cod assessment uses data from 1982 to 2018, and looks at the commercial fishery and the recreational fishery as a combined, single fleet. The new recreational catch estimates for GOM cod are scaled up compared to the old estimates. GOM cod recreational discards have become a concern, as some cod die after being released. The recommended status for GOM cod is overfished and overfishing is occurring. Georges Bank cod stock status cannot be determined using the index-based method, but the status is declared to be overfished due to poor stock conditions and the overfishing status is unknown. GOM cod and Georges Bank cod are considered distinct from each other, so these fish populations are managed separately. A reassessment of cod stock structure is underway, which will determine how these populations are managed going forward. The status of the GOM haddock stock is not overfished, and overfishing is not occurring. The status of GOM pollock stock is not overfished and overfishing is not occurring.

### **Recent Fisheries Research**

In Plymouth, Matt Ayer of the Massachusetts Division of Marine Fisheries (MA DMF) presented recent research on release survival estimates and best practices for promoting survival in the GOM recreational groundfish fishery. In recent years there has been an increasing number of releases due to shifting management measures and conservation ethic. In order to inform stock assessments and fishery management decisions, it is essential to have robust estimates of release survival rates. Yet, direct research on this is limited. In order to assess the GOM recreational groundfish fishery, acoustic telemetry was used to track the survival of fish in their natural environment for extended durations. By tracking the movements of tagged fish and collecting data, it is possible to estimate the release survival of the tagged fish and then scale up to generate a fishery-scale release survival estimate. These estimates may then inform best practices in the fishery.

Telemetry and analyses identified injury as a primary release survival predictor in cod. The research determined derived tackle-specific and fishery-scale release survival rate estimates. A jig was found to have lower survival, with 78.8 percent survival compared to an 84.6 percent survival rate using a baited hook. The mean survival rate across fishermen was 83.5 percent, with fish injury increasing due to longer fight time, handling time, and the shorter the length of the fish; and depending on gear type and experience of the angler. Mortality is higher when a jig is used and with novice anglers.

It was also revealed that release survival is highly dependent on the season. In the spring, large haddock that are released have an 89 percent survival rate and small haddock have a 69 percent survival rate, whereas in the autumn, large haddock only survive 53 percent of releases and small haddock survive 28 percent of releases. The release survival average is 37 percent which is lower than the previously assumed 50 percent survival rate.

Additionally, Mr. Ayer presented recent research regarding cusk barotrauma. Research findings indicate that barotrauma is present in over 96 percent of observed cusk. By using a descending device to release cusk at the bottom instead of the surface, fishermen can increase survival rates of cusk from 26 percent to 74 percent.

In order to reduce the chance of catching cod and promote sustainable fishing practices in the GOM, it is recommended that fishermen use baited hooks. This gear change results in fishermen catching 2.5 times more haddock than cod. Future research will focus on understanding angler motivations and behaviors in order to improve outreach.

Mr. Ayer also gave a presentation on cod bycatch avoidance. Research indicates that recreational discards are now the largest source of GOM cod mortality. In order to improve cod conservation measures and help fishermen avoid cod in the water, a map is being developed that classifies target areas and avoidance areas. The map will color code target areas in green where there are more haddock and fewer cod. If fishermen stay in these green areas, it is possible to reduce cod catch by 60 to 70 percent. The map combines seafloor topography, NOAA charts, and class areas. The map will be available in print and as an app, and changes by season as cod populations migrate. The maps will be released for the next fishing season, and the project aims to include citizen science based on anglers' feedback to further groundtruth the target and avoidance areas.

Dr. Richard McBride of NEFSC gave a presentation regarding the current cod management units in the GOM and Georges Bank. A key assumption to this division is that GOM cod and Georges Bank cod act differently. GOM cod have been shown to grow slower and mature later than Georges Bank cod. However, questions remain regarding whether the number of management units and the boundaries are right. More research is needed on the biological and ecological data of cod.

Among the cod in the southwestern Gulf of Maine, cod that spawn in the spring are genetically different than cod that spawn in the winter. These different genetic populations mix during the non-spawning season and are caught together, which poses a management challenge to allocate the catch by fleet to each population. Cod from these spawning events in the southwestern Gulf of Maine are also dispersed, as eggs and larvae, and settle, as juveniles, into the Georges Bank Management Unit, as far as southern New England. This dispersal violates the assumption that fish are staying within their management units during their entire life.

## **Management Approaches**

Based on the stakeholder discussions during the break out and group sessions, the following recommendations were proposed:

Long-term management approaches (*Attendees were provided with four different questions for break-out groups, and were allowed to self-select and contribute to up to three different groups.*)

#### *New management measures*

- Instead of having a minimum size, there could be a mixed bag regulation with maximized retention where fishermen keep the first 10 fish caught, therefore reducing discards and associated discard mortality.
- Another stakeholder suggested that shorter seasons are instituted for some stocks that currently have a year-round or a 10-month open season. For example, groundfish stocks could be open from April through mid-June, then closed through winter to reduce stress on fish populations and fishermen can target other fisheries. Another example was for a 6- to 8-month season.
- Consider multi-year regulations with triggers and associated adjustments to management measures that could be specified to ensure that catch was not too far above, or below, the sub ACL.

#### *Business adaptation*

- Another recommendation proposed catching different species on the same trip, perhaps targeting a certain species in the morning and then a different species in the afternoon. One charter boat captain described how he fishes for mackerel in the morning and then targets a groundfish like haddock in the afternoon.

#### *Timeline of regulations*

- Fishermen emphasized the importance of coordinating federal and state regulations. They must remain consistent across jurisdictions, and be simple and memorable so that fishermen can remember the rules.
- Stakeholders stated that they would like to know the regulations as soon as possible, describing how the earlier they know the regulations the better as they can plan for the upcoming fishing season. Ideally, fishermen would know the regulations by January or February each year. This would allow them to incorporate the information into their meetings in the spring, and improve advertising and marketing of trips.

#### *Conservation and education*

- Anglers recommended an increase to the minimum size of haddock to allow more time for spawning. This suggestion was also part of a larger theme regarding protecting species for the long-term benefit of the fishery. There is an interest in incorporating ecosystem level assessments and rules into regulations in order to promote conservation.
- Stakeholders emphasized creating educational materials that help fishermen understand how to fish better and increase knowledge of regulations. This would include increased outreach on the benefits of using a hook and bait instead of a jig in order to reduce cod bycatch. Education could occur through social media in YouTube videos, or through local tackle shops, fishing shows, harbor masters, USCG auxiliary, etc.

- One angler recommended having captains and anglers report every single fish kept, similar to Alaska.
- In order to improve reporting, participants stated that there must be an education campaign to increase awareness of the importance and role of MRIP interceptors. This will help encourage fishermen to participate in the program and protect the fishery in the long run.

Short-term management approaches (*Attendees were all provided with the same question for the short-term break out groups: considering long-term approaches as well as existing measures and new approaches, how can we take steps in the short-term to achieve, but not exceed quotas?*)

In order to queue up the groups, Ms. Keiley briefly presented on the recreational management measures ‘tool box’, and provided innovative management examples from the commercial fishery.<sup>1</sup>

#### *New measures*

- Stakeholders thought that utilizing tags (as part of an individual quota) might be an option, and that perhaps fishing could occur at any time of the year, but remain at a certain level of tags. Tags are hard to enforce without a reporting program, and it is difficult to verify data. Tags could also be utilized as an incentive for participating in MRIP.
- There was interest in using the cod avoidance areas (maps) as a tool to inform people to stay away from cod. Citizen science could not only groundtruth the data based on catches, but also send the track lines of where fishermen traveled on that trip.
- Stakeholders were uncertain about the success of split measures by mode.
- Slot limits:
  - Concern that the use of slot limits could hurt the fishery if the minimum size includes too many fish and then decimates the species. It is also difficult to predict the effectiveness of slot limits since it is challenging to accurately model fishermen’s behavior.
  - There would also need to be consistency with state and federal regulations.
- There is uncertainty regarding the impact of full retention and whether people would be interested since they may not want to keep all of the allowed fish, or may not know how to use them at home in cuisine.
- There was a recommendation to have seasonal rules that change retention regulations based on knowledge around the change in discard mortality rates in autumn vs. spring. However, it was acknowledged that enforcing this would be challenging.
- Gear modification is important, but stakeholders believe that perhaps changes should first be voluntary and then mandatory (“education before regulation”).

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<sup>1</sup> Refer to the Recreational Management Measures Toolbox handout on the workshop website for more information.

## *Education*

- Participants focused on the importance of education to improving recreational fishing and protecting fish species through increasing release survival and bycatch avoidance. Stakeholders discussed how education should be made a mandatory part of the licensing process. Education can occur through social media, clinics and demonstrations at trade shows or association meetings, and materials sent to license holders, with an emphasis on videos. Education materials should be distributed at those moments when people are looking for information about recreational fishing, such as purchasing a license or on the NOAA website looking for regulations. At trade shows, educational information could be suited for a range of people, including more technical notes on gear modification or coloring books for children about fish species. It is important to give people information at those times when they are willing to learn and engage with new material. NOAA and other organizations could also distribute education materials at seasonal intervals to inform stakeholders of changes, updates, and other useful information regarding regulations or best practices.

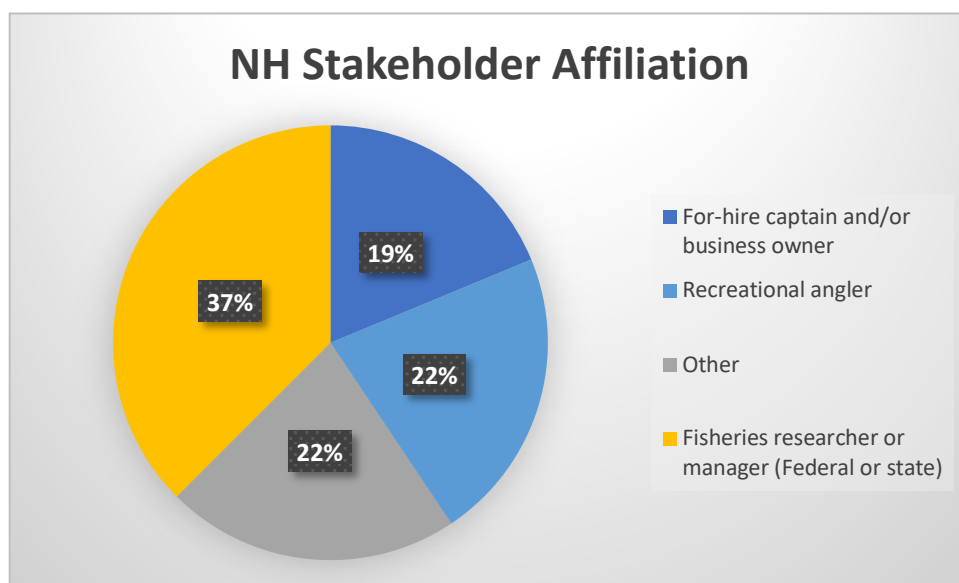
## **Next Steps**

Going forward, the ideas generated from these workshops will inform future recreational fisheries management strategies. Participants learned that the findings of these workshops will be summarized and shared with the New England Fishery Management Council, including its Groundfish Committee and Recreational Advisory Panel. The proposed recommendations produced during the workshops will be considered within the current Council process for developing recreational management measures with continued public input. Further, any recommendations applicable to state programs and/or the Atlantic States Marine Fisheries Commission will be communicated to the appropriate individuals.

**Preliminary Summary – New England Recreational Fishing Workshop  
Hilton Garden Inn, Portsmouth, NH  
October 22, 2019**

**Attendance**

The Portsmouth New Hampshire workshop had 26 attendees of the 31 registered. The pie chart depicts stakeholder affiliation for the attendees only. There was diverse representation, including participants from charter/party boat captains/owners, private anglers, NOAA Fisheries' Greater Atlantic Regional Office, Northeast Fisheries Science Center, New England Fishery Management Council, Massachusetts (MA) Division of Marine Fisheries, MA Marine Fisheries Advisory Commission, New Hampshire Fish and Game, Maine Department of Marine Resources, New England Aquarium, the Northeast Regional Ocean Council, and The Nature Conservancy.



**Opening Remarks**

Moira Kelly of the Greater Atlantic Regional Fisheries Office (GARFO) within the National Oceanographic and Atmospheric Administration (NOAA) began the workshop by highlighting the importance of recreational fisheries. The recreational fishing industry has a \$24 billion economic impact across the U.S., contributing 2.2 percent to the national GDP. There are 10 million saltwater anglers in the U.S. and the recreational fishery supports 500,000 jobs and 63 million fishing trips annually.

Due to the size of recreational fisheries, they are diverse and difficult to manage. NOAA works collaboratively with fishermen and recreational fishery stakeholders to figure out best management practices for the industry. The workshops are a critical component of the open conversation between NOAA and stakeholders, and a means of generating creative solutions for sustainable and equitable regulations going forward.

Jessica Joyce of Tidal Bay Consulting shared the goals and objectives of the workshop, balancing the biological and regulatory requirements with the economic needs and interests of



the recreational fishing community. Participants are gathered to generate both short- and long-term ideas and to consider possibilities for new regulations and pilot studies, even if they are considered “out of the box.”

### **Status of the Recreational Fishery**

Emily Keiley of GARFO presented background information on how recreational groundfish species are managed in New England. Gulf of Maine (GOM) cod and haddock are the only two groundfish species with a recreational allocation. GOM cod and haddock have sub-annual catch limits (ACL) and accountability measures (AM). Management measures are designed to achieve, but not exceed the sub-ACLs. Other stocks may be allocated to the fishery if they meet two criteria: (1) Recreational catch that is 5 percent or more of the total catch; and, (2) the stock is fully utilized. Ms. Keiley reviewed the recreational management measures for the last 10 years, as well as an overview of the management process, including recent changes to how Georges Bank Cod is managed with a recreational catch target.

Moira Kelly gave a presentation on the status of three-year transition to the Marine Recreational Information Program (MRIP), including information on the collaboration between the states and federal government to develop, improve, and implement surveys to better understand how many trips anglers take and estimate catch based on a sample survey method. The Fishing Effort Survey (FES) measures shore and private boat effort utilizing a mail-based survey and has resulted in more accurate information and a response rate three times higher than the previous Coastal Household Telephone Survey (CHTS). Effort is also measured with a for-hire survey of charter/party and head boats, as well as Vessel Trip Reports (VTRs), and a large pelagics telephone survey. Catch is estimated through the Access Point Anger Intercept Survey (APAIS), with dockside intercepts and at-sea sampling on for-hire boats. Starting in 2016, sampling is conducted by state partners. While FES estimates are several times higher than those from the CHTS, it does not necessarily mean overfishing has been or is occurring. At this time, one goal for MRIP is to develop and certify a census-based trip reporting design for determining catch from for-hire fisheries, considering electronic logbook reporting, compliance monitoring, and dockside validation.

Scott Steinback of NOAA’s Northeast Fisheries Science Center (NEFSC) presented on the trends in recreational catch. He discussed how there is variability in the MRIP catch estimates. In the cod fishery, since 2014 cod have primarily been released, and cod are being caught less than haddock. Early in the time series (1982-1999) GOM haddock was not caught, but then catches increased significantly starting in 2000. It is not clear why GOM haddock had a big decline in 2018. In the GOM, cod and haddock are mostly caught by private boats. Catch estimates of Georges Bank cod have also experienced a general decline, with 2018 catches representing the third lowest in whole time series (1982-2018).

GOM pollock catch has also been decreasing, but not as significantly as cod catches. Pollock has some shore and for-hire catch, but it is mostly caught by private boats. GOM angler trips have been declining since 2012 and 2013. In the GOM, about half of the trips report catching nothing during their trip. The top five recreational species caught in the GOM are mackerel, striped bass,

haddock, pollock, and cod. The top landed species in the GOM are mackerel, menhaden, haddock, pollock, and striped bass.

Charles Perretti of NEFSC presented the stock assessments that were part of the 2019 groundfish management track assessments, using data through 2018. GOM cod, GOM haddock, and pollock were assessed using the Age Structured Assessment Program (ASAP). Georges Bank cod is analyzed using an index-based method, based on survey indices and recent fishery catch. The GOM cod assessment uses data from 1982 to 2018, and looks at the commercial fishery and the recreational fishery as a combined, single fleet. The new recreational catch estimates for GOM cod are scaled up compared to the old estimates. GOM cod recreational discards have become a concern, as some cod die after being released. The recommended status for GOM cod is overfished and overfishing is occurring. Georges Bank cod stock status cannot be determined using the index-based method, but the status is declared to be overfished due to poor stock conditions and the overfishing status is unknown. GOM cod and Georges Bank cod are considered distinct from each other, so these fish populations are managed separately. A reassessment of cod stock structure is underway, which will determine how these populations are managed going forward. The status of the GOM haddock stock is not overfished, and overfishing is not occurring. The status of GOM pollock stock is not overfished and overfishing is not occurring.

### **Recent Fisheries Research**

Connor Capizzano of University of Massachusetts Boston and the New England Aquarium's Anderson Cabot Center presented recent research on release survival estimates and best practices for promoting survival in the GOM recreational groundfish fishery. In recent years there has been an increasing number of releases due to shifting management measures and conservation ethic. In order to inform stock assessments and fishery management decisions, it is essential to have robust estimates of release survival rates. Yet, direct research on this is limited. In order to assess the GOM recreational groundfish fishery, acoustic telemetry was used to track the survival of fish in their natural environment for extended durations. By tracking the movements of tagged fish and collecting data, it is possible to estimate the release survival of the tagged fish and then scale up to generate a fishery-scale release survival estimate. These estimates may then inform best practices in the fishery.

Telemetry and analyses identified injury as a primary release survival predictor in cod. The research determined derived tackle-specific and fishery-scale release survival rate estimates. A jig was found to have lower survival, with 78.8 percent survival compared to an 84.6 percent survival rate using a baited hook. The mean survival rate across fishermen was 83.5 percent, with fish injury increasing due to longer fight time, handling time, and the shorter the length of the fish; and depending on gear type and experience of the angler. Mortality is higher when a jig is used and with novice anglers.

It was also revealed that release survival is highly dependent on the season. In the spring, large haddock that are released have an 89 percent survival rate and small haddock have a 69 percent survival rate, whereas in the autumn, large haddock only survive 53 percent of releases and small

haddock survive 28 percent of releases. The release survival average is 37 percent which is lower than the previously assumed 50 percent survival rate.

Additionally, Mr. Capizzano presented recent research regarding cusk barotrauma. Research findings indicate that barotrauma is present in over 96 percent of observed cusk. By using a descending device to release cusk at the bottom instead of the surface, fishermen can increase survival rates of cusk from 26 percent to 74 percent.

In order to reduce the chance of catching cod and promote sustainable fishing practices in the GOM, it is recommended that fishermen use baited hooks. This gear change results in fishermen catching 2.5 times more haddock than cod. Future research will focus on understanding angler motivations and behaviors in order to improve outreach.

Matt Ayers of the Massachusetts Division of Marine Fisheries (DMF) gave a presentation on cod bycatch avoidance. Research indicates that recreational discards are now the largest source of GOM cod mortality. In order to improve cod conservation measures and help fishermen avoid cod in the water, a map is being developed that classifies target areas and avoidance areas. The map will color code target areas in green where there are more haddock and fewer cod. If fishermen stay in these green areas, it is possible to reduce cod catch by 60 to 70 percent. The map combines seafloor topography, NOAA charts, and class areas. The map will be available in print and as an app, and changes by season as cod populations migrate. The maps will be released for the next fishing season, and the project aims to include citizen science based on anglers' feedback to further groundtruth the target and avoidance areas.

## **Research Discussion**

After the recent research presentations, the group asked several follow up questions and launched into a research discussion.

- A couple of participants asked about the data being analyzed in the cod bycatch avoidance modeling for the maps, especially focused on the possibility of incorporating historical fishing data on GOM haddock and cod, and additionally including bottom type in the model, as there are correlations to aggregations of fish over certain bottom types.
- There was discussion regarding climate impacts on fisheries. Stakeholders discussed the importance of studying how changing climatic and environmental conditions will impact cod, haddock and pollock. Russ Brown of the NEFSC detailed how climate change can affect the reproductive success of fish as well as their range, so there are a number of factors to investigate in order to determine why some fish populations have declined in recent years. In studying these variables, it is possible to improve understanding of whether there is a possible resurgence ahead for certain species or not. There was interest from the group to protect species so their populations can rebuild when environmental conditions are favorable, therefore benefiting the long-term health of recreational fishing.
- Some participants mentioned that they have had high catch ratios of cod to haddock inshore in Maine (up to ten cod for one haddock), especially near Cape Elizabeth and Boothbay, with a lot of small fish closer inshore. Scott Steinback said that while those local reports may be true, total catch and encounters of GOM cod are down across all modes in the whole GOM stock compared to previous years.

- Stakeholders discussed possible research projects that explore different management systems, such as comparing ecosystems management to single species management. Stakeholders were concerned that if there was a quota for a group of species; how could a specific species within the group be protected if the population is not in good shape? There could be management challenges if the group of fish in a quota had species of different value.

## **Management Approaches**

Based on the stakeholder discussions during the break out and group sessions, the following recommendations were proposed:

Long-term management approaches (*Attendees were provided with four different questions for break-out groups, and were allowed to self-select and contribute to up to three different groups.*)

### *Importance of stability and long-term planning*

- Stakeholders were in favor of changing from annual to multi-year measures in order to help with business planning. Triggers and associated adjustments to management measures could be specified to ensure that catch was not too far above, or below, the sub ACL. Several fishermen preferred more conservative measures in order to protect species' health in the long-term and for stability in planning.
- Stakeholders agreed that they would like to know the regulations as soon as possible, even if that meant having more conservative fishing regulations since they would be based on a multi-year average and not necessarily the most recent fishing year of data. There was consensus around January being the best time to know regulations. This is important for planning purposes and ensuring that anglers and charter boat captains can market trips for the upcoming season.
- In order to improve management, stakeholders discussed the possibility of changing the fishing season. A fisherman proposed changing the fishing year so that it begins on January 1.
- Stakeholders ranked having consistent open seasons from year to year as the most important for stability, followed by bag limit, then minimum size.
- Another stakeholder proposed modifying the fishing season so that it isn't a block of time but rotates. For example, the season could be every other Saturday.
- As part of long-term planning, there was discussion of the different methods that charter boats are using to adapt to changes in fish populations. Some companies are diversifying their activities to offer services as ferry service, at-sea burials, view wildlife, or to haul lobster-traps.

### *New management measures and reporting approaches*

- Convert the discard mortality to harvest so that the fish caught are used instead of wasted. In order to achieve this, perhaps fishermen could have a cumulative size limit (i.e. multiple fish could be caught as long as the overall length is not exceeded, e.g. 150 inches of haddock and 25 inches of cod).

- Stakeholders suggested that the management system could be changed to an ecosystem-based management approach. As part of this effort, stakeholders stated that the Magnuson-Stevens Act should be revised so that the biology of fish and the health of the ecosystem guides management decisions.
- Participants stated that there needs to be better oversight of anglers, through licensing, tags, or reporting (e.g. multi-tiered licensing and/or reporting using apps).

#### *Education and outreach*

- Stakeholders emphasized the importance of getting educational materials on management measures to charter companies, customers, states, and non-profit organizations. The educational information should be consistent from state and non-profit organizations.
- Education should occur at the point of sale, such as charter boat certification or licensing, or at winter trade shows. These are moments where people are looking for information about recreational fishing and are therefore open to learning best practices or regulations. Participants said that the materials should be produced for a range of audiences, including social media for younger fishermen and in print for older fishermen. These educational activities could be part of a larger campaign that is industry wide.
- New England Aquarium is starting a study in late 2019 to survey anglers about where they get their information, primarily through an online survey.
- From the for-hire business perspective, there is a growing desire to understand customer's needs, for example; do they want the experience of fishing without bringing home fish, or do they want to fill a cooler with fish?

Short-term management approaches (*Attendees were all provided with the same question for the short-term break out groups: considering long-term approaches as well as existing measures and new approaches, how can we take steps in the short-term to achieve, but not exceed quotas?*)

In order to queue up the groups, Ms. Keiley briefly presented on the recreational management measures 'tool box', and provided innovative management examples from the commercial fishery.<sup>1</sup>

#### *Improve monitoring*

- Stakeholders emphasized the importance of increasing MRIP's reach and improving people's understanding of the program so that they agree to participate on the docks and on the phone. This would increase oversight of the private angling community.

#### *Education and outreach*

- Education was a major theme for the participants. Stakeholders stated that materials should be provided to anglers, so they know when and how to use the gear, and are up to date on best practices. Education toolkits could be provided to charter/party boat companies to share with their customers, as in most states, customers are not required to

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<sup>1</sup> Refer to the Recreational Management Measures Toolbox handout on the workshop website for more information.

hold their own licenses. The information could be conveyed in handouts, or in a video that they watch when steaming out so that they learn about what they are catching and how to treat and respect the shared resource.

- Participants also had the idea to include a requirement to watch an educational video as part of the license application process. Completion of the video would then enable to angler to obtain a groundfish endorsement on their license, or to certify that they are allowed to operate in the fishery. It could also be voluntary at first, and then become mandatory over time.
- Education materials would help anglers foster a shared responsibility for the fishery resources. Comparisons were made to programs like Whale Sense and Shark ID (HMS endorsement), which could serve as examples for the recreational fishing industry. Companies that participate in these programs could then advertise that they took the course and are certified, responsible charter boat companies because they follow NOAA rules and use barometric descending devices, or gear modifications, for example.
- Several participants compared recreational fishing to hunting and emphasized that there should be something akin to a “hunter safety” training course for the private angling community. Participants emphasized that the course would be at the state level, and would be required for private anglers to get their initial saltwater fishing licenses. Funding for the course could be raised through a conservation fee, through the license itself, or be supported by volunteers that are eager to educate new anglers.
- Stakeholders said that perhaps there could be an education subcommittee that develops a multi-year plan. The subcommittee could offer new recommendations for gradual change. The participants believed a blueprint is necessary to carry out successful educational campaigns that have long-lasting impacts.

#### *New measures and management pilot studies*

- Stakeholders considered using split measures by mode, but stated that the for-hire component of the fishery would need an allocation. Determining this allocation could be challenging.
- Introduce a ‘punch pass’ program with tags for private anglers, although there would be concerns about high-grading, enforcement and education. One potential solution to high-grading would be to incorporate a slot limit along with the tag program.
- A pilot study for new management measures could include having a charter boat use a full retention policy, where anglers keep the first ten fish that they catch in a mixed bag. After they caught those ten fish, they would be finished fishing and take a survey on their experience compared to a charter boat experience where they targeted a specific species.
- A different pilot study could assess a combination bag or size limit where a fisherman can catch 50 inches of cod, for example, which could be comprised of five 10-inch fish or two 25-inch fish, for example. This would help reduce the number of dead discards by retaining fish of varied sizes. Funding for both of pilot studies could come through federal or corporate sources, such as Bass Pro Shop or a conservation fee.

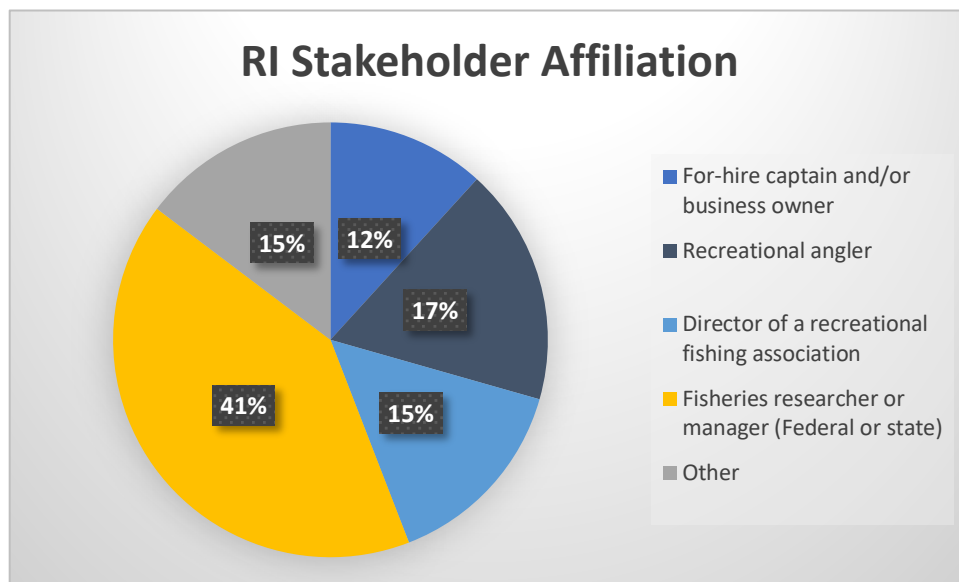
## **Next Steps**

Going forward, the ideas generated from these workshops will inform future recreational fisheries management strategies. Participants learned that the findings of these workshops will be summarized and shared with the New England Fishery Management Council, including its Groundfish Committee and Recreational Advisory Panel. The proposed recommendations produced during the workshops will be considered within the current Council process for developing recreational management measures with continued public input. Further, any recommendations applicable to state programs and/or the Atlantic States Marine Fisheries Commission will be communicated to the appropriate individuals.

**Preliminary Summary – New England Recreational Fishing Workshops  
University of Rhode Island, Narragansett Bay, RI  
October 24, 2019**

**Attendance**

The Narragansett Bay, Rhode Island workshop had had 28 attendees of the 40 registered. The pie chart depicts stakeholder affiliation for the attendees only. There was diverse representation, including participants from charter/party boat captains; private anglers; NOAA Fisheries’ Greater Atlantic Regional Office; Northeast Fisheries Science Center; Massachusetts Division of Marine Fisheries; Rhode Island Department of Environmental Management, Division of Marine Fisheries; Rhode Island Saltwater Anglers Association; Rhode Island Party and Charter Boat Association; American Sportfishing Association; University of Massachusetts School for Marine Science and Technology; and University of Rhode Island.



**Opening Remarks**

Moira Kelly of the Greater Atlantic Regional Fisheries Office (GARFO) within the National Oceanographic and Atmospheric Administration (NOAA) began the workshop by highlighting the importance of recreational fisheries. The recreational fishing industry has a \$24 billion economic impact across the U.S., contributing 2.2 percent to the national GDP. There are 10 million saltwater anglers in the U.S. and the recreational fishery supports 500,000 jobs and 63 million fishing trips annually.

Due to the size of recreational fisheries, they are diverse and difficult to manage. NOAA works collaboratively with fishermen and recreational fishery stakeholders to figure out best management practices for the industry. The workshops are a critical component of the open conversation between NOAA and stakeholders, and a means of generating creative solutions for sustainable and equitable regulations going forward.



Jessica Joyce of Tidal Bay Consulting discussed the goals and objectives of the workshop, balancing the biological and regulatory requirements with the economic needs and interests of the recreational fishing community. Participants are gathered to generate both short- and long-term ideas and to consider possibilities for new regulations and pilot studies, even if they are considered “out of the box.”

### **Status of the Recreational Fishery**

Emily Keiley of GARFO presented background information on how recreational groundfish species are managed in New England. Gulf of Maine (GOM) cod and haddock are the only two groundfish species with a recreational allocation. GOM cod and haddock have sub-annual catch limits (ACL) and accountability measures (AM). Management measures are designed to achieve, but not exceed the sub-ACLs. Other stocks may be allocated to the fishery if they meet two criteria: (1) Recreational catch that is 5 percent or more of the total catch; and, (2) the stock is fully utilized. Ms. Keiley reviewed the recreational management measures for the last 10 years, as well as an overview of the management process, including recent changes to how Georges Bank Cod is managed with a recreational catch target.

Moira Kelly gave a presentation on the status of three-year transition to the Marine Recreational Information Program (MRIP), including information on the collaboration between the states and federal government to develop, improve, and implement surveys to better understand how many trips anglers take and estimate catch based on a sample survey method. The Fishing Effort Survey (FES) measures shore and private boat effort utilizing a mail-based survey and has resulted in more accurate information and a response rate three times higher than the previous Coastal Household Telephone Survey (CHTS). Effort is also measured with a for-hire survey of charter/party and head boats, as well as Vessel Trip Reports (VTRs), and a large pelagics telephone survey. Catch is estimated through the Access Point Anger Intercept Survey (APAIS), with dockside intercepts and at-sea sampling on for-hire boats. Starting in 2016, sampling is conducted by state partners. While FES estimates are several times higher than those from the CHTS, it does not necessarily mean overfishing has been or is occurring. At this time, one goal for MRIP is to develop and certify a census-based trip reporting design for determining catch from for-hire fisheries, considering electronic logbook reporting, compliance monitoring, and dockside validation.

Scott Steinback of NOAA’s Northeast Fisheries Science Center (NEFSC) presented on the trends in recreational catch. He discussed how there is variability in the MRIP catch estimates. In the cod fishery, since 2014 cod have been primarily released and cod are being caught less than haddock. Early in the time series (1982-1999) GOM haddock was not caught, but then catches increased significantly starting in 2000. It is not clear why GOM haddock had a big decline in 2018. In the GOM, cod and haddock are mostly caught by private boats. Catch estimates of Georges Bank cod have also experienced a general decline, with 2018 catches representing the third lowest in whole time series (1982-2018).

GOM pollock catch has also been decreasing, but not as significantly as cod catches. Pollock has some shore and for-hire catch, but it is mostly caught by private boats. GOM angler trips have been declining since 2012 and 2013. In the GOM, about half of the trips report catching nothing

during their trip. The top five recreational species caught in the GOM are mackerel, striped bass, haddock, pollock, and cod. The top landed species in Georges Bank (in numbers of fish) are: scup, striped bass, black sea bass, summer flounder, and bluefish.

Dr. Russel Brown of NEFSC presented the stock assessments that were part of the 2019 groundfish management track assessments, using data through 2018. GOM cod, GOM haddock, and pollock were assessed using the Age Structured Assessment Program (ASAP). Georges Bank cod is analyzed using an index-based method, based on survey indices and recent fishery catch. The GOM cod assessment uses data from 1982 to 2018, and looks at the commercial fishery and the recreational fishery as a combined, single fleet. The new recreational catch estimates for GOM cod are scaled up compared to the old estimates. GOM cod recreational discards have become a concern, as some cod die after being released. The recommended status for GOM cod is overfished and overfishing is occurring. Georges Bank cod stock status cannot be determined using the index-based method, but the status is declared to be overfished due to poor stock conditions and the overfishing status is unknown. GOM cod and Georges Bank cod are considered distinct from each other, so these fish populations are managed separately. A reassessment of cod stock structure is underway, which will determine how these populations are managed going forward. The status of the GOM haddock stock is not overfished, and overfishing is not occurring. The status of GOM pollock stock is not overfished and overfishing is not occurring.

### **Recent Fishery Research**

In Narragansett, Joseph Langan of the University of Rhode Island presented research on Atlantic cod in Southern New England (SNE). Mr. Langan described how cod larvae density throughout Narragansett Bay had a higher density between 2016 and 2017 than from 2001 to 2008. There is high interannual variability in cod catches. Their research has found that cod abundance has increased in SNE since 2000. As temperature changes, they are seeing no evidence of cod deviating from their historical thermal preferences, and there is an exponential relationship between a warm winter and a low young cod catch. This indicates that young cod are less abundant following warm winters. Their research also reveals that black sea bass appear to be a major competitor of cod in this region, as the species have similar diet preferences. Going forward, there is a need for more research on the spatial and thermal habitat use patterns of cod.

Brian Gervelis of Inspire Environmental gave a presentation entitled “A hook and line reconnaissance survey assessing the relative prevalence of Atlantic cod spawning aggregations at and near the South Fork Wind Farm.” Mr. Gervelis described their research on Cox Ledge over two years and 28 trips, where they took 82 total cod samples, some of which were in spawning condition. The sampling methods using hook and line were necessary on Cox Ledge because little trawl survey data exists due to the area’s bathymetry and rocky bottom. Their research yielded low catch of cod, which was consistent with other research findings from the area, but they identified one large spawning aggregation in year one of the study.

In response to a question about the availability of a discard mortality study for Georges Bank Atlantic Cod, caught in the winter recreational fishery off southern New England, we learned

that New England Aquarium is starting this project in this November 2019 and it will continue into January-February of 2020. This work hinges on results from previous Gulf of Maine discard mortality studies on Atlantic cod and results will (hopefully) be available by late March or early April 2020.

### **Management Approaches:**

Based on the stakeholder discussions during the break out and group sessions, the following recommendations were proposed:

Long-term management approaches (*Attendees were provided with four different questions for break-out groups, and were allowed to self-select and contribute to up to three different groups.*)

#### *New management measures*

- Rethink separate measures in the for-hire fleet, as there is a perception that recreational anglers may put the for-hire fleet out of business. GARFO and NEFMC could provide guidance on the framework of such a program, and then start a scoping process.
- Instead of new management measures to control effort, quota should be allocated by mode, allowing more flexibility with an output control, and perhaps relaxing input controls.
- Consider multi-year regulations with triggers and associated adjustments to management measures that could be specified to ensure that catch was not too far above, or below, the sub ACL. Participants like the stability of multi-year measures, but noted that they are challenged by implementation, bycatch, and year-to-year variation.
- Gear modifications should be voluntary during the initial education phase, and then mandatory.
- Consider different management approaches for species that are targeted for catch and release verses those targeted for a meat fishery. For example, there isn't a catch and release industry around GOM or Georges Bank cod, whereas striped bass has a catch and release focus. Management measures shouldn't have a one-size-fits-all approach.

#### *Proposed pilot projects*

- Determine whether management pilot studies are feasible through an exempted fishing permit (EFP) that would apply to multiple FMPs (state and federal). If feasible, the study would assess how trips would be affected if they could change target species and location from day to day, based on customer preferences. For example, headboat trips could fish for fluke for half of the day in the summer, in the fall fish for tautog, and in the winter fish for cod. The study could include striped bass, tuna, tautog, summer flounder, black sea bass, and scup. The study and EFP would be conducted through an omnibus action with states, GARFO, the mid-Atlantic Council, NEFMC, and ASMFC.
- A study could determine how to allocate Georges Bank cod to private anglers and to party charter boats. The study would assess how you set an initial allocation and compare allocation numbers based on historical catch data and VTRs.
- Developing and app for private angler VTR.

### *Planning and coordination*

- Coordinate federal and state regulations, and maintain consistent regulations across fisheries to keep them simple and memorable.
- The earlier that fishermen know regulations, the better they can plan. Ideally fishermen would know regulations by January or February, allowing them to incorporate the information into their meetings in the spring, and improve advertising and marketing of trips. Uncertainty around regulations results in a lack of commitment for charter patrons.
- The Magnuson Stevens Act needs to be revised, and the definition of “maximum yield” needs to be revised so that it does not solely focus on the commercial fishery but prioritizes ecosystems.

### *Education and conservation*

- Increase education and outreach on the conservation benefits of hook and bait fishing instead of jigs for cod fishing.
- Emphasis on creating education materials that help fishermen understand best practices for catch and release, increase knowledge of regulations, and improve understanding of MRIP intercept surveys so more fishermen participate. Education materials should focus on videos to share on YouTube and social media.
- Incorporate ecosystem level assessments and rules to promote conservation.

### *Reporting*

- VTR catch and effort data should be used in management and science.

### *Future research needs*

- Participants emphasized the need to research climate change impacts on species distribution, species competition, habitat preferences, and potential changes in biological targets (reference points).
- Future allocation and regulations of sea bass and fluke by researching future habitat projections and life cycle connectivity.
- Methods to reduce MRIP uncertainty should be evaluated.
  - Increase collection of effort data through aerial surveys, remote sensing or shore-based cameras to count anglers on shore and at boat ramps.
  - Validation of VTR/eVTR data for catch (vs. effort only) on party and charter boats.
    - Pilot study - test EM validation of VTR data. Can be used to ground-truth MRIP data, or replace MRIP sampling of for-hire vessels (shifting this effort to private anglers).

Short-term management approaches (*Attendees were all provided with the same question for the short-term break out groups: considering long-term approaches as well as existing measures and new approaches, how can we take steps in the short-term to achieve, but not exceed quotas?*)

In order to queue up the groups, Ms. Keiley briefly presented on the recreational management measures ‘tool box’, and provided innovative management examples from the commercial fishery.<sup>1</sup>

### *Education*

- Participants emphasized the need for education of recreational anglers through social media, fishing associations, and during licensing. Comparisons were made to the Shark ID video (HMS endorsement) and the Rhode Island shellfish license application process, which requires Vibrio training.
- Educational materials should be translated into all languages that are relevant to the target areas and audiences. The materials should be released in all New England states.
- Fishermen identified several videos that would be of interest: 1) management measures; 2) best practices for handling, target areas, basic technique, and gear modification for tackle; and 3) the importance of MRIP.
- The outreach effort could leverage industry partnerships (with the for-hire fleet distributing materials).
- Events could be held at schools and libraries for fly tying, catch and release training, or cooking classes to encourage people to eat different species.

### *New measures*

- Some participants were interested in using a 3- or 5- year running average of MRIP catch to evaluate management performance relative to the sub-ACL, and determine if AMs should be triggered. Averaged catch data could also be used as the basis for determining new measures. Participants felt this would help alleviate the challenges associated with MRIP variability.
- For Georges Bank cod, it was suggested that catch targets are recalculated based on the most recent 5 years of data. A trigger could be established in case catch is outside the confidence interval.
- Some fishermen thought that gear modifications should be voluntary at first and then be made mandatory, or that enforcement penalties are put in place to reduce mortality. For example, banning treble hooks gradually before making the change permanent. Gradual changes help tackle shops and anglers prepare.
- A mixed bag approach is a possibility due to fewer discards; however, targeting specific species may be a concern for some anglers.
- There was mixed support for separate measures by mode.
- Consider implementing a tag program during shorter seasons for low allocation species (e.g., cod) as an output control.
- The success of any new measures will depend on effective outreach and enforcement.

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<sup>1</sup> Refer to the Recreational Management Measures Toolbox handout on the workshop website for more information.

### *Marine Recreational Information Program*

- Increase MRIP sampling and intercept surveys. Surveys should be reallocated from for-hire trips which use VTR/eVTR to private anglers.
- Some fishermen were interested in seeing MRIP interviews made mandatory or incentivized so that more accurate information on the fishery is collected from the recreational fishing population.
- There should be increased advertising of the importance of MRIP at trade shows, online, and in magazines to encourage fishermen to participate in the program.

### **Next Steps**

Going forward, the ideas generated from these workshops will inform future recreational fisheries management strategies. Participants learned that the findings of these workshops will be summarized and shared with the New England Fishery Management Council, including its Groundfish Committee and Recreational Advisory Panel. The proposed recommendations produced during the workshops will be considered within the current Council process for developing recreational management measures with continued public input. Further, any recommendations applicable to state programs and/or the Atlantic States Marine Fisheries Commission will be communicated to the appropriate individuals.