The Commonwealth of Massachusetts
Division of Marine Fisheries
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SEAFOOD MARKETING PROGRAM

STEERING COMMITTEE MEETING SUMMARY

2:30-4:00 PM

Thursday, November 9, 2023

Held Virtually Via Zoom

Agenda:

1. Attendance and introductory remarks (2:30-2:40): Director Dan McKiernan
2. Seafood Marketing Program update (2:40-2:55): Seafood Marketing Coordinator Wendy Mainardi
    a. In-person events, new media content, educational RFR, plans for leave coverage
3. Flatfish Strategic Plan for Summer 2024 (2:55-3:00): Facilitated by Director Dan McKiernan
    a. Regional conversation, research, video and PR plan
4. Guest Speakers: New England Feeding New England Report
    a. Research Overview (3:00-3:15): Ellen Kahler, Executive Director, Vermont Sustainable Jobs Fund
    b. Fisheries Findings (3:15-3:45): Joshua Stoll, Associate Professor of Marine Policy, School of Marine Sciences, University of Maine
    c. Q&A (3:45-4:00): Director Dan McKiernan

Present members of the Steering Committee:
Representative Gifford, Commissioner O'Shea, MDAR Commissioner Ashley Randle, Deputy Commissioner Sefatia Romeo-Theken, Director Dan McKiernan, Bonita Oehlke, Frank Mirarchi, Beth Casoni, Laura Foley Ramsden, Alex Hay, Denice Lapierre, Bob Colbert, Angela Sanfilippo, Ed Barrett

Director McKiernan: Welcome to the November 9th meeting of the Seafood Marketing Steering Committee. The Seafood Marketing Program has run a summer internship program for the fourth time. We've been fortunate to have Audrey MacLellan this year. Audrey has an undergraduate degree in Marine Biology from UMASS Dartmouth and her family runs St. Ours & Company, a producer of surf clam and lobster broth and is currently testing green crab both. Audrey has literally has done the heavy lifting at all of the events as Wendy is expecting. She

has been content creating and has been excellent at interacting with the public at all in-person DMF events.

Wendy spearheaded a video that featured me talking about the state of the lobster fishery especially regarding North Atlantic right whale conservation. The Monterey Bay Aquarium red-listed all US and Canada pot trap fisheries because of the risk of entanglement with endangered right whales. DMF has an aggressive and successful conservation program. Thank you to Wendy for all of her efforts on the video, it's been received really well.

We had a great Seafood Day at the State House a couple weeks ago put on by the Fishermen's Partnership. It was really a great event and gave us a chance to get together with so many folks, including the legislators. We really appreciate the Partnership's efforts.

Wendy is going on maternity leave soon and during that time, Story Reed with the help of Julia Kaplan are going to keep everything going, anticipating Wendy's return.

I had an opportunity to be in Gloucester this morning and got a tour of the Fishermen's Warf facility. It was sobering seeing all that great fish coming in and talking about the marketing challenges relative to imported fish and how important it is for constant supply. We also had a chance to see one of the gutting machines that Al Catone had purchased through the Food Security Infrastructure Grant Program.

Flatfish is clearly undervalued and maybe we have lost a generation of consumers or chefs but when flounder is routinely coming in at half the price of a swordfish or a salmon or scallops you know that is a great fish and it needs help in the marketing area. I am really interested in seeing if we can do this on a regional level and combine forces with other states and NOAA.

I'm really pleased to have the chance to hold this meeting with you all, thank you for your attention.

Beth Casoni: Thank you Dan, Wendy, and all, for the video. You just affirmed, confirmed, and validated everything that we have to say and you have helped us sell those Massachusetts lobsters as the most conservation minded. Thank you.

Wendy Mainardi: Thank you for being here today. The Seafood Marketing Program partnered with Mass. Ag in the Classroom for a teaching-the-teachers event in July. Fifteen people met at Red's Best Red's Best on the Fish Pier for an MA Seafood/Aquaculture 101 presentation, a tour and conversation with Jared Auerbach, lunch of local seafood, and education activity instruction. "I now have more knowledge that I can take back to school and apply in the classroom because I saw the production of seafood shipments firsthand. It really gave me a visual to all the processes that I have read about so I have more in person knowledge that I can help demonstrate to other people." -Anonymous post-workshop survey response.

The Seafood Marketing Program visited six farmers markets during September and October. We used MDAR's list to target non-coastal towns with robust weekday markets. All of these markets put us at a community table and did not charge us money to attend. We provided education and games and free swag. We also provided gyotaku: a traditional form of Japanese art that began over 100 years ago as a way for fishermen to keep a record of the fish they caught. We set up using block ink, silicone fish and rice paper for children and adults to make a fish print. This proved very popular. The markets visited were: Framingham, Franklin, Hudson, Norwood, Dedham, and Lowell.

We went to one DMF fishing clinic on the Cape Cod Canal but it was great and we will do more in the future.

Director McKiernan: We do six to ten of those a year in different locations and it's a captive audience, including the adults, so I think it's a real winner if your program can combine forces with the recreational fishing program because it's not just learn to fish, but it's appreciate your fish and eat your fish. The most interesting one was in Fall River. In Fall River we teamed up with the police department, and called it Cops and Bobbers.

Wendy: The Seafood Marketing Program was busy with additional events. For the first time, we tabled at the Gloucester Fishing Heritage Festival and the Marshfield Lobsterfest. We returned to the Boston Seafood Festival and Seafood Day at the State House.

To create the video: four days of filming, plus planning, coordinating, with people and docks and boats and weather. We have two video lengths, one short, one for social media that would draw people to the YouTube page, and then the longer one. There's at least four social media platforms. We spent a little over $5,000. On the Water Media created this for us because they won an Environmental Economic Innovation grant fund through DMF. Metrics wise, this video is doing quite well.

Seth Rolbein had a question about moving more scup in ethnic markets. The Seafood Marketing worked with stakeholders to create language inclusive marketing material for the first time. We created printable, color, 8.5"x11" posters for anyone to use. The species featured for our pilot included scup, whiting and flatfish in these languages: Spanish, Portuguese (Brazilian), Chinese: Mandarin, Chinese: Cantonese, Vietnamese.

Director McKiernan: We have an abundance of scup quota in Massachusetts and in general, I think the quota is probably 60% larger than what we take each year. We know that there is interest among certain ethnic groups to get access to the fish so I think this is something that, within a year or two, you'll be able to look back as real measurable accomplishments once we connect some of these consumers with the fish for sure.

Angela: This is the right type of fish to market to ethnic markets because they are used to cooking whole fish. We saw it when we were in Boston with the Seafood Festival, we did the

whiting as a whole with the bone. Also, there are Russian and other populations really interested in local herring.

Wendy: You bring up a good question about marketing different languages for different species. In the next couple weeks are going to set up some radio for the holidays and then also we a billboard for some good coverage while I am gone. And then there's the New England Food Show which has just changed length and dates. This would be our third year doing a MA Seafood Pavilion that is sponsored by the BCEC, we do not yet know if this will happen this year. And then the Mass. Ave. at the Seafood Expo North America, which is our cluster of businesses which will be organized with Bonita at MDAR, thank you Julia for your help with that.

Next summer we will start a flatfish campaign. Laura has been very helpful so far and we look forward to working with her more.

Director McKiernan: I think that part of this is going to be consumer education: cooking techniques. The supply is uneven, and it's probably caused by regulations. When I go into my local market everyday flatfish is at about 60% or 50% of what the other choices are in the case, there's real opportunities there for promotion and marketing. I look forward to Laura's contribution, given her experience in servicing not only consumers but also chefs, restaurant chains, and retailers. NOAA has its own seafood marketing promotion program, and they are interested in teaming up with us. These aren't Massachusetts problems, these are New England problems.

Laura: Dan, which species of flatfish are the ones that are not generating? Are these sand dabs that we're talking about or are they gray sole or yellowtail, black backs?

Frank: The problem is compounded limited consumer desire and limited processing capacity. I think maybe the processing capacity actually has overcome the limited consumer market right now. As soon as a finite amount of fish has hit the market, we're talking very small amounts like two thousand pounds, we can't process it. And it goes into terrible uses: lobster bait, and maybe even dumping fish into the harbor because they can't even use it for lobster bait anymore, it's that big of a problem. The worst is yellowtail flounder. Gray sole seems to have a little niche on its own. Winter flounder is a little bit better. One of the problems with yellowtail particularly is it's slow to process. It takes me two to two and a half times as long to cut a pound of yellowtail fillets as it does cod or haddock. Primarily because the fish is small and more pieces and more handwork. So, one of the things that we're really looking into is the possibility of getting some cutting machinery in place to be able to produce fish with a lower labor input cost and the ability to process where there isn't capacity to do so now. We'll have a conversation about this in the next few years, but I think this is going to incremental and complimentary to the ability to bring flatfish back into the marketplace again. You know, we just don't have the capacity, the days of being able to process a million pounds of flatfish in New Bedford are long gone.

Laura: Thank you for answering me that it was the yellowtail because everything you're saying is correct. We'd always have issues when we had flounders on ad because they would take twice as long to cut and you've got overtimes, you've got to be getting better margin, and all that, from a processor standpoint. I was worried that it was sand dabs, which are harder to market because it's, just, the yield is so low. But if it's yellowtail, that's a great eating fish and that there are different applications like a tail-on flounder, that are not as hard to cut and not as time consuming. Thank you for the clarification on the species.

Ed: Yellowtails once thirty years ago were a dollar seventy-five, now sometimes they're fifty, sixty cents, and as Frank said, sometimes they're just being tossed overboard. A box of lobster bait, of skins, is eighty dollars for a box. But the other point I'd like to make too is what happens if you have one species of flatfish that's cheap, it affects everything else. It'll affect the fluke price. You can't have cheap yellowtails and have expensive fluke. At some point, the buyers make choices like that. If you don't have an ex-vessel price, no one's going to land it, no one's going to go fishing for it. Why bother? It's a dilemma, how do you get the ex-vessel price high enough? What comes first, the marketing or the ex-vessel price.

Wendy: In 2019, the New England State Food System Planners Partnership launched the New England Feeding New England: Cultivating A Reliable Food Supply Project, a 10-year initiative to prepare the region for system shocks and to increase regional food production for regional consumption. Myself and Chrissy Petitpas contributed to the research and I'm greatly looking forward to hearing the presentation. An introduction will be given by Ellen Kahler, Executive Director, Vermont Sustainable Jobs Fund and Josh will dive into the Fisheries Findings: Josh Stoll, Associate Professor of Marine Policy, School of Marine Sciences, University of Maine. Thank you so much for being here with us today.

Ellen: New England Feeding New England, it's a project of the New England Food System Planners Partnership, which is a group of organizations across New England, the six states, organizations that are doing active food system development work, which includes The Connecticut Food System Alliance, Rhode Island Food Policy Counsil, New Hampshire Food Alliance, my organization which manages the Vermont farm to plate program, Massachusetts Food System Collaborative, and the Maine Food Strategy and Maine Food Convergence. In April we invited to our partnership, which has been around since 2013, a representative from each of the agencies of agriculture and so Bonita represents MDAR with our group. We are the ones that decided to launch this project to, in essence, explore by 2030, 30% of the food consumed in New England is produced, harvested, caught in New England. And it is our belief that we could, if we really galvanized and came together, our collective efforts will focus on expanding and fortifying the region's food supply and distribution system in an equitable and inclusive way that ensures the availability of adequate, affordable, socially, and culturally appropriate products under a variety of rapidly changing climate, environmental, and public health conditions. We came together around this project because of a concern that with climate change really upon us, that we needed to do more as a region to secure our food supply not only for those who are food insecure from a food access perspective, but importantly just the supply of food. Because as we saw during the pandemic, as we have seen over this past

summer with the flooding that took place, and with the war in Ukraine and other places around the globe, when there are fires and floods and hurricanes and major disruption—and pandemics—to our supply chains, they are way more brittle and vulnerable than we perhaps fully understood before the pandemic. So, we felt it was important to come together and basically plant the flag, like, let's work together to achieve 30% regional food self-reliance by 2030. We started off by putting together an amazing research team in the fall of 2022, and we finished up and released the report, well, that's not true. Fall 2021. Released the report in June of this year, and now we are fully immersed in doing a whole series of convenings, presentations, and getting going on hopefully some implementation. There were sixteen researchers that were part of this [video becomes skippy] folks that were part of what we call the production team. Josh Stoll from the University of Maine and Sarah Shuman from Shining Seas Fisheries Consulting were our two main folks representing seafood and fisheries from a research perspective.

During the course of the production, a team that Josh was on, we held four, attend, group focus sessions, one on Aquaculture, one on Wild Capture Fisheries: Production, and one on Wild Capture Fishery: Harvest and Marketing. Some of you on this call may have been part of those focus group conversations. They were really helpful in grounding us and giving us some really good insight into things, opportunities, barriers, and such that we should make sure to include. So, in June, at the NIASDA conference, we released this report, it's foundational research, it's not a regional plan, and there are seven components to it. You can see the covers here, all of this is available on our website for download. And what we will be focusing on today is volume two, which is the estimating production for 30% regional self-reliance and we also published a supplement, specific to increasing regional self-reliance through seafood that Sarah Shuman wrote. Josh contributed too, but it was really authored by Sarah.

We are very concerned about the impacts of the climate on the security of our food supply, and from a land-based perspective, we articulate what counties across the six states are really most at-risk. And obviously, sea level rise is a major stressor at impacting our land bases, but of course sea level rise, ocean acidification, sea level temperature rise, are all things that threaten our fisheries as well as a region. One of the things that we really wanted to point to was that, when you take a look at the region, where is the population? The vast majority of the population in our six state region of fifteen point three million people are along the coast, along the southern New England area. But, from a land-based perspective, most of the agricultural production is happening in Northern Maine, and in Vermont, and then a bit also in the pioneer valley of Massachusetts. Obviously, fisheries touch five out of the six states along the coast, and represent also a major source of food production in the region.

The big takeaways that we had from in the executive summary, from each of the volumes, is in volume one where we were looking at eating patterns if we ate in a healthier, more resilient way, could more of our food be supplied by regional production? That was an essential question that was really guiding the research from the volume one which was around estimating resilient eating. We definitely called out the importance of increasing seafood consumption in the region as part of a healthier diet. In volume two, we talk about, could the

six New England states meet a goal of supplying 30% of the region's food by 2030. This particular data point here is about the land-based agriculture, where we estimate that close to a million acres of additional production needs to happen in order for us to achieve that 30% target. We did a deep dive looking at the jobs and overall economic impact of the food system across the six states. The food system represents about a hundred and ninety billion dollars in gross state product accumulated in aggregate for the six states. And then in volume four, we looked at all the different market channels and really dove in deep into where food products are actually sold, where they consumed, and what are some of the challenges of getting into these various markets.

Resilient eating goes beyond just increased regional self-reliance in production of healthy food and sustainable methods, because ultimately it must ensure that there's food security for everyone, it's not just for those that can afford it. So, resilient eating is healthier eating, plus it includes improved access, greater food and nutrition security, support for local and regional food system businesses, support for what local farms and fisheries can produce. And resilient eating reduces ultimately our vulnerability for individuals, and in doing so increases community food security and empowerment. So we're taking this notion of food security, which often gets applied to folks that are maybe of low income in terms of having access to enough food to eat, and applying that to a larger frame of actually securing a greater portion of the food supply, not only of what we're producing already in the region from the land and through the seas, and keeping it within the region for our own needs, but then also expanding that production for our own needs to make us less vulnerable to shocks in the system due to climate change and other factors out of our control.

When resilient eating team did their work in looking at how are we eating today, this unchanged eating pattern is basically also a reference guide to looking at the federal data of how we actually eat today. What are calories being spent on, so to speak. You can see that 725 calories are in grains, 612 calories a day are in meat, eggs, seafood, and nuts, etc. What we did was we projected, we basically said, ok, if we don't eat any differently in 2030 as we do today, in essence, this is what the unchanged eating pattern is. There's a change that we are all going to be eating this exact same way in 2030. But then we wanted to have a marker to say, well what would resilient eating look like, what would be the caloric intake and the mix of foods that we would eat if we were eating in a more resilient way based on the definition that I just shared. And remember, calories is a metric of energy. So it's essential for all of us to have the right amount of calories for our ability to survive and thrive. And so in this case it shifts a little bit some of the components of a healthy diet. This work is also based on the USDA's dietary guidelines for America, so we look at what USDA DGA's are indicating what people should be eating for a healthy diet.

Another way to look at this in terms of the difference between unchanged eating and reliant eating is we would be eating more fruits, we'd be eating more vegetables, we would keep dairy consumption about the same as today, but in proteins we would reduce the total proteins to point eight cups rather than a full cup. But, what's important here is that this is where we talk about the need for shifting what the profile of proteins looks like to include more seafood,

more nuts, beans, and such. Grains stay about the same, sweeteners would drastically reduce, and fats and oils would also reduce.

Another way that we visualize this was looking historically at eating patterns and if you take a look at the sort of brick red along the bottom there is the historical protein intake for fish and shellfish in the region, and the bands represent the sort of high and lows that one could expect over time. And so, if we didn't change our eating, things would sort of bump along along the bottom there, but if we shifted our eating, we would be dropping some of our protein consumption, but ideally we would be increasing our fish and shellfish consumption.

Another important thing that we looked at was actual food expenditures across all consumers, and in April we were so lucky, just as we were wrapping up and trying to finish and publish, the USDA came out with a food expenditures across consumer units in the North East. We were for the first time able to dial in and get a sense of what are people actually spending on different food groups. And I put this on here just to be able to say that you'll notice in the second bar there to the far left, is protein and seafood represents about two hundred and nineteen dollars a year on seafood that is prepared in the home, that people are spending on seafood. So to your earlier conversation about how do you get consumers to purchase more seafood products and know how to prepare them in the home, I think this low dollar amount really does, this is annual, this is not monthly, this is annual, there's a lot of room here for improvement in sales.

Josh: Now we get to turn our attention from full food system to starting thinking about the seafood system, which I know this group is particularly interested in. This work on regional self-reliance was led by Chris Peters at USDA's agricultural research service, and he's based at the University of Vermont. Regional self-reliance is ability to satisfy the food needs of its population when accounting for things like production, yield, and consumption, so you're sort of marrying all three of those things to understand to what extent does a region satisfy its consumption needs.

Overall, when you look at all food types, our regional self-reliance, currently, is just over 20%, and we view this as sort of an upper estimate in that we recognize that there is sort of an alignment of when food is produced versus when people eat food, but we can think about this as sort of the higher-level threshold. And I want to specifically draw your attention to the different food groups and point out that it's pretty highly variable in terms of what we produce versus what we eat. On the sort of upper side, we have dairy where we have over 40%, sort of meeting our consumption needs, and then on the low end for things like fats and sweeteners, they're around 1%, so pretty highly variable. And the piece that this group may be specifically interested in is this protein category where seafood is part of that and you can see overall, the protein category is quite low at 4%.

But this is where I would argue that it gets interesting. In addition to doing this regional self-reliance work across all food types, we also looked specifically at seafood, and this was published in a supplemental to the volume two of this report. Conceptually, this is how we went about thinking about regional self-reliance in the seafood sector. We have an ecological

production that happens in the Gulf of Maine in the New England region, there is some level of catch that is above the level of landings, and we started this analysis at the landings level, thinking about what is the total level of landings over the last ten years at the state level and at the federal level. Then, we factored in things like non-human consumption, and in this case really we have quite a bit of product that is landed for non-human use like bait. And then we also looked at yield, and so for every species that's landed in New England, we went into literature to determine some sort of average yield, recognizing there's some variability there. One thing that I'll point out is the type of analysis that this is, we don't consider the reality that some product leaves the region, and others is imported. We sort of treat all seafood landed in New England as potential seafood to be consumed in the region. To summarize, we looked at landings for each New England state at both the state and the federal level. We factored in non-consumption, and then we estimated the total yield and sort of removed waste product. And then we used USDA's ERS data to estimate consumption and, we actually did this in two different ways, which we'll get to in a moment. But that then gave us an opportunity to estimate the regional self-reliance for New England for seafood. And, as I previously noted, overall for protein, we're only around 4% of meeting our needs, but when you look at seafoods, this is quite interesting, seafood performs really quite well at over 30% of meeting the needs of our region, and performs much higher than the other proteins that are produced here, especially some of the products like pork, turkey, and chicken which are less than 1% of our needs.

When we look at this from a state-by-state level, this should come as no surprise to this group, Massachusetts plays a key role in driving production in the region. And this is data that likely you are all quite familiar with but looking at sort of the overall production over the last ten years. And so, of course, each state contributes in different ways but collectively, and as we think about this, Massachusetts in particular plays a key role.

Primarily we did this work at the level of finfish versus shellfish, and then aggregated that, because that's how the data is presented from USDA. We also took an alternative approach as well, where we used data from the Neilson Scanner Database, this is a nationally represented scanner database that, when you go to the grocery store and you go through the checkout it collects data on what people are buying. And so we looked at the top twenty most commonly purchased seafoods that exist, and so you can, this is not presented in order of most widely consumed, but rather the level of regional self-reliance. And what we see in looking at it at a, I wouldn't call it a species level, but sort of species group level, is that there is huge variability in the regional self-reliance. So we think about the region being around 31% or 32%. When you actually get down to sort of the product level, we're seeing that there is high variability in terms of the regional self-reliance we have and that of course shouldn't be surprising since New England produces certain species and not others. This is the average regional production over the last ten years. We estimated the regional consumption from retail, which is only a portion of the consumption of seafood, people eat a lot of seafood out at restaurants, and use that to calculate regional self-reliance just from a retail standpoint. And you can see, some of these percentages are over a thousand percent of a regional self-reliance. And then we went into the literature and looked at making estimates of how much seafood is eaten at restaurants to

weight these values and so then you can see the regional self-reliance at the sort of species level. This provides some really interesting insights about opportunities for marketing or where to sort of invest, and I noted some of the earlier conversation about whiting and some of the flatfish.

You can see here we're producing a lot of those species relative to the amount that is being consumed, at least presently. The other thing that I'll point out, since Angela you made the point about herring, in this analysis we opted to choose herring as not a food fish, and the reason for that is that our understanding of the current market is the majority of herring landed in New England is being used in the lobster fisheries as bait. Of course, historically that hasn't always been the case. But in this case in particular, people are eating some herring, we know that from the data that we have, but we treated herring sort of as a bait fish in this analysis. But again, this gives you sort of an understanding of regional self-reliance broken down at this sort of species level.

As we did this work, and through many of the conversations we've had, including some of the focus groups, this point about climate change kept on coming up, Ellen flagged that earlier in her presentation, and it feels important that we acknowledge that as we talk about the role that seafood can play in our regional food systems. Some of the perspective that seafood can and should play a really important role in our food systems, and our coastal economies. But also the perspective that climate change does throw in a wild card, creates a lot of uncertainty. Certainly, this data on ocean sea surface temperatures and sea surface temperature anomalies over the last several decades highlights that in sort of very clear ways, as you can see sort of what the mean has been, and in orange you can see sort of what the 2023 data looks like up until June. So, there's some major climate related things that will impact this looking forward.

And we also took the step of looking at current seafood production in New England, and pinning that to NOAA fisheries North East vulnerability assessment of species. And what you see here on the left is total production of seafood by value over the last ten years from 2010 to 2020, and then categorizing the landings by that climate assessment. You can see in purple are the landings based on very high vulnerability, and then you work your way down to high, moderate, low and there's a small amount of product that is either undefined or the data is confidential. And, then on the right hand side, you can look at this translated into the state's contributions. And so, for a place like Massachusetts, you can see there's quite a bit of product that is being landed from a value perspective that's in this sort of high to moderate range of climate vulnerability.
I wanted to flag that as part of this conversation, recognizing while seafood is in this really interesting place relative to other proteins, and that we produce a lot of seafood, there is a lot of uncertainty related to climate change.

Angela: We need to think about how to eat flounder just like the scup. We need to cook it and eat it as a whole fish. That is because we in our family, we're Sicilian, we do that all the time. Cut, flour, fried, or bake it, and just comes off the bone when nothing else. The other idea that I really want to make sure people understand, unfortunately there is this precedent out there

that if people buy a different species, instead of cod and haddock, that the price should be cheaper, but it doesn't cost any cheaper for the fishing boat catching cod, or they are catching whiting, or flounder. The expense from the fishing boat is the same.

Frank: Yes, thank you. I just thought, to reference Josh's presentation, thought that it was fascinating, and I learned a lot, but I also have one small criticism. One of the tables that he presented basically the strengths for optimizing our yield from the ocean, our inefficient harvesting methods and constraints imposed by the regulatory system, and I think he undervalues the economic constraints of low-priced fish. I have before me a table that I printed out, anticipating this meeting. It's published by the National Marine Fisheries Service and it shows percentages of each stock of New England ground fish that have been landed so far this year. The fishing here, which begins May 1st, as of October 31st was 50% over [couldn't make out], and during that period of time, we only caught 18% of the yellowtail flounders, 15% of the Gulf of Maine haddock, and 18% of the Gulf of Maine Cod. Now, these stocks are the traditional stocks that we fished for for generations, and they're not being harvested even to the capacity that the National Marine Fisheries Services told us is sufficient to conserve and rebuild the stocks and maybe considered to be overfished. So, we have actually developed the technologies to separate these fish. You know, during the years that this was called a catch-share system that was in its evolution, I actually partnered with biologists among others that the Massachusetts Division of Marine Fisheries, our hosts on this meeting today, and we've developed lots of nets, nets that catch haddock and don't catch flatfish, nets that catch flatfish and don't catch haddock, nets that catch only whiting, and all these technologies were great until the fact that the cost of production equaled or exceeded the revenue from that production. That's what Angela's point was, I completely agree with it. Our problem is now more economic than it is technology, and more than it is regulatory.

Commissioner O'Shea: Wendy, I just wanted to say this was a really informative presentation, I appreciate everyone who presented. I think it brought up a lot that I think we'll want to think about and consider in two areas, one was food security and climate, and they seem to be sort of in opposing directions.

Deputy Commissioner Romeo-Theken: I wanted to thank Representative Grifford for coming on, it's very important that we do have all our state legislators come with us and listen and understand the fisheries, I really thank you. Bruce sent me a text, you have his support. Commissioner O'Shea is correct: climate change has to be in here, the fishermen are telling us what's happening out there with the water being too hot in certain areas. Especially for aquaculture, it all adds up, flooding, etc. and I think this is the beginning for one of our future meetings. Thank you, Wendy: rest, relax, enjoy because when you come back you are going to be bombarded. And I know Story and everyone else is going to be doing great. It's no more Massachusetts, it's New England, thank you everyone. And any veteran, thank you for your service, thank you so much.

Representative Gifford: Dan, fabulous job on the video. Wendy, you look positively radiant, I wish you all the best for your expanding family, look forward to hearing the news when you

have news to report and it was an excellent meeting today, I thoroughly enjoyed it, and I know a lot of hard work went into it, so I want to thank everybody who participated. Always appreciated, thank you.